Title

Nuclear Data Sheets for A=193

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Nuclear Data Sheets for A=193*

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Abstract: Evaluated spectroscopic data and level schemes from radioactive decay and nuclear reaction studies are presented for ^{193}Ta, ^{193}W, ^{193}Re, ^{193}Os, ^{193}Ir, ^{193}Pt, ^{193}Au, ^{193}Hg, ^{193}Tl, ^{193}Pb, ^{193}Bi, ^{193}Po, ^{193}At, and ^{193}Rn. This evaluation for A=193 supersedes the earlier one by E. Achterberg, *et. al*. (2006Ac01).

Highlights of this evaluation are the following:

Based on $\gamma\gamma$-coincidence measurements by 2005Za15, excited levels 848.93 and 849.083 in ^{193}Ir have been merged.

Proposed new spin-parity assignments for 2213.8+x (J^π=23/2$^+$), 2426.7+x (J^π=25/2$^+$), and 2584.8+x (J^π=27/2$^+$) by 2011Ba02 (^{28}Si,5nγ) indicate 1$\hbar$ lower spin assignments for many of the excited levels in the ^{193}Pb Adopted Levels including the Magnetic dipole band 1 based on 2584.8+x level.

2015He27 identified many new structures in ^{193}Bi close to the yrast line. Many new states have been added, significantly extending the previously known level scheme of ^{193}Bi, including several new rotational bands.

Cutoff Date: All data received by March 31, 2017 have been evaluated. The NSR database (2014Pr09) (www.nndc.bnl.gov/nsr/) is the primary source for the bibliography.

General Policies and Organization of Material: See the January issue of the *Nuclear Data Sheets* or http://www.nndc.bnl.gov/nds/NDSPolicies.pdf.

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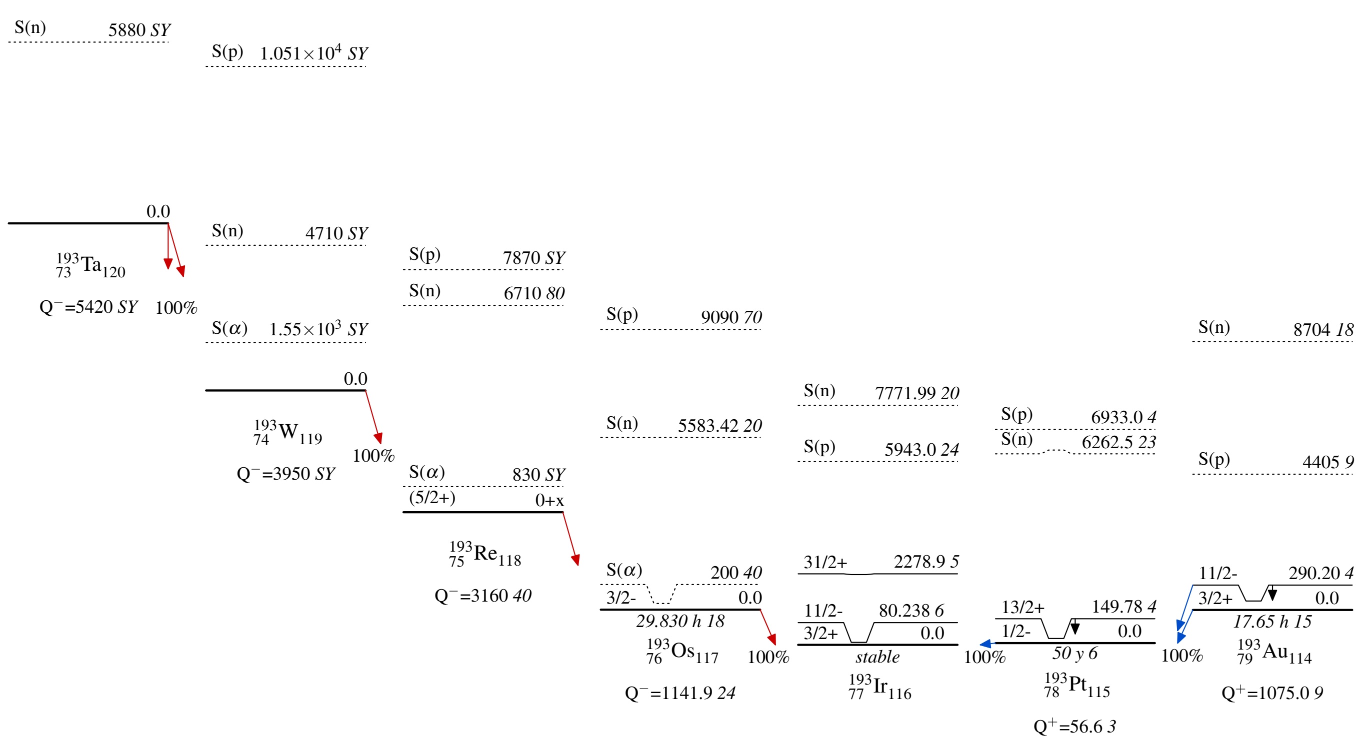
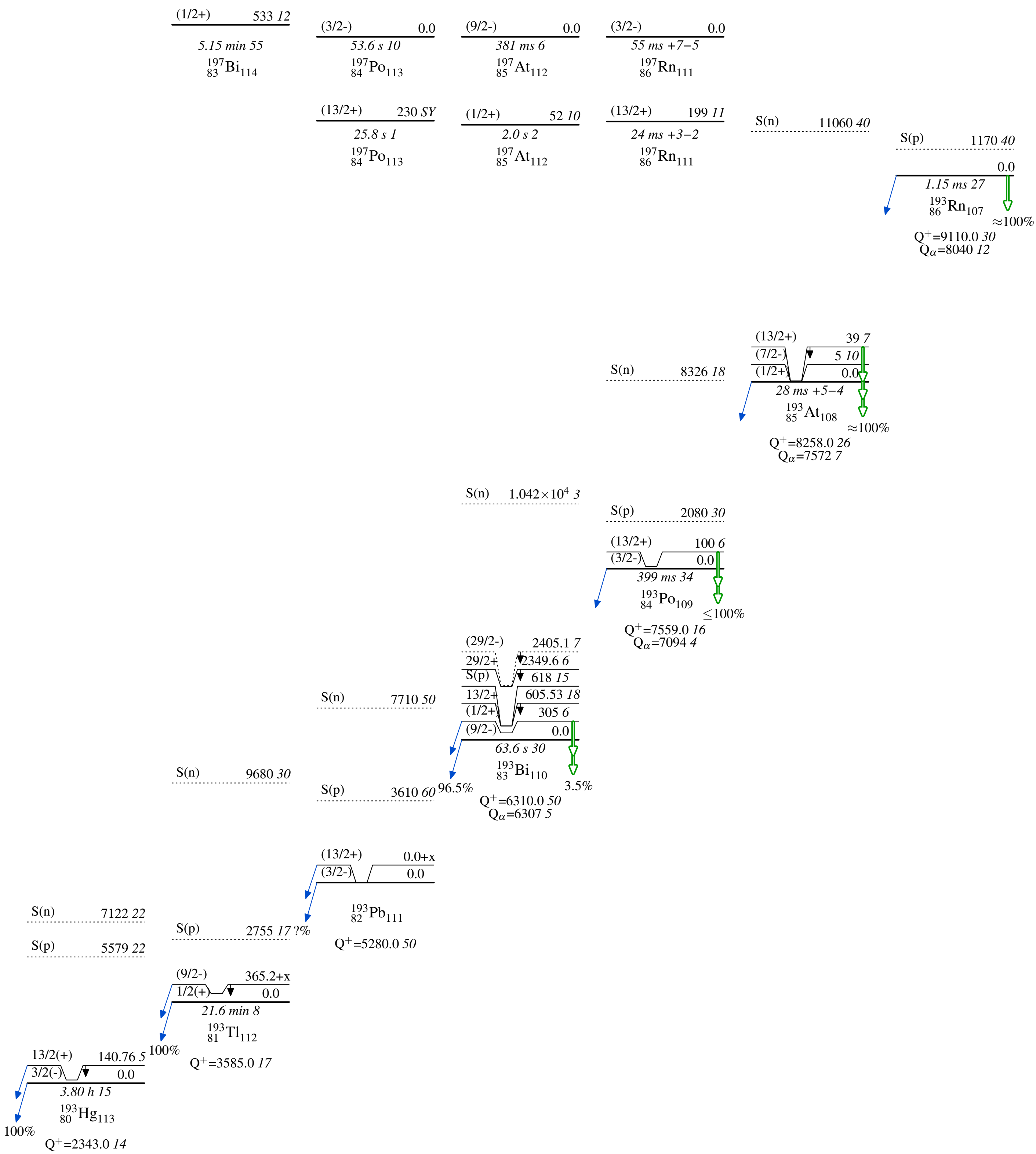
Index for A=193

Skeleton Scheme for A=193



Skeleton Scheme for A=193 (continued)



Ground-State and Isomeric-Level Properties

Nuclide	Level	Jπ	$T_{1/2}$	Decay Mode
^{193}Ta	0.0			%β^-=100 ; %β^-n=?
^{193}W	0.0			%β^-=100
^{193}Re	0+x	(5/2+)		
^{193}Os	0.0	3/2-	29.830 h *18*	%β^-=100
^{193}Ir	0.0	3/2+	stable	
^{193}Pt	0.0	1/2-	50 y *6*	%ε=100
^{193}Au	0.0	3/2+	17.65 h *15*	%ε+%β^+=100
^{193}Hg	0.0	3/2(-)	3.80 h *15*	%ε+%β^+=100
^{193}Tl	0.0	1/2(+)	21.6 min *8*	%ε+%β^+=100
^{193}Pb	0.0	(3/2-)		%ε+%β^+=?
^{193}Bi	0.0	(9/2-)	63.6 s *30*	%α=3.5 *15*; %ε+%β^+=96.5 *15*
^{193}Po	0.0	(3/2-)	399 ms *34*	%$\alpha\leq$100
^{193}At	0.0	(1/2+)	28 ms *+5−4*	%$\alpha\approx$100
^{193}Rn	0.0		1.15 ms *27*	%$\alpha\approx$100
^{197}Bi	533	(1/2+)	5.15 min *55*	%α=6.$\times10^1$ *4*
^{197}Po	0.0	(3/2-)	53.6 s *10*	%α=44 *7*
^{197}Po	230	(13/2+)	25.8 s *1*	%α=84 *9*
^{197}At	0.0	(9/2-)	381 ms *6*	%α=96.1 *12*
^{197}At	52	(1/2+)	2.0 s *2*	%$\alpha\leq$100
^{197}Rn	0.0	(3/2-)	55 ms *+7−5*	%$\alpha\leq$100
^{197}Rn	199	(13/2+)	24 ms *+3−2*	%$\alpha\leq$100

Adopted Levels

Q(β^-)=5420 *SY*; S(n)=5880 *SY*; 2017Wa10
ΔQ(β^-)=450 (syst), ΔS(n)=570 (syst) (2017Wa10).

2012Ku26: ^{193}Ta produced and identified in ^{9}Be(^{238}U,F), E=1 GeV/nucleon, reaction using SIS-18 synchrotron facility at GSI. Target=1.6 g/cm^2 ^{9}Be placed at the entrance of projectile Fragment Separator (FRS). Particle identification was achieved by event-by-event in-flight analysis of time-of-flight, energy loss measurement, and magnetic rigidity (TOF-ΔE-Bρ). Time-of-flight measured using two plastic scintillation detectors, energy loss or deposit by ionization chambers (MUSIC), and magnetic rigidity by four time-projection chambers (TPC), which also provided energy deposit information. Isomer tagging method for known μs isomers was used to verify event-by-event identification and in-flight separation of new isotopes. Gamma rays from the known isomers were recorded in coincidence with the incoming ions using either the RISING array of Ge detectors at GSI or only two Ge detectors, a stopper foil and a scintillator for veto signal. Measured production cross section. Comparison of measured σ with predictions from ABRABLA model and EPAX-3 model.

^{193}Ta Levels

E(level)	Comments
0.0	%β^-=100; %β^-n=? Only β^- decay mode is expected. Predicted %β^-n=0.71 (1997Mo25). E(level): the observed ^{193}Ta fragments assumed to correspond to the g.s. J$^\pi$: 3/2$^-$ predicted in 1997Mo25. $T_{1/2}$: >160 ns from time-of-flight in 2012Ku26. Theoretical value 1.45 s (1997Mo25). Production σ=0.017 nb *5* (2012Ku26) and σ>0.43 nb (^{208}Pb fragmentation, E=1 GeV/nucleon, on Be target − 2014Ku02).

Adopted Levels

Q(β^-)=3950 *SY*; S(n)=4710 *SY*; S(p)=1.051×10^4 *SY*; Q(α)=−1.55×10^3 *SY* 2017Wa10

ΔQ(β^-)=200 (syst), ΔS(n)=280 (syst), ΔS(p)=450 (syst), ΔQ(α)=360 (syst) (2017Wa10).

2009St16, 2008StZY thesis: ^{193}W nuclide identified in the reaction ^{9}Be(^{208}Pb,X) with a beam energy of 1 GeV/nucleon produced by the SIS-18 accelerator at GSI facility. Target thickness=2.5 g/cm^2. Fragments identified in flight by the Fragment Separator (FRS) operated in achromatic mode based on time-of-flight, Bρ and energy loss. Data collected on six FRS magnetic rigidity settings centered on: ^{206}Hg, ^{203}Ir, ^{202}Os, ^{199}Os, ^{192}W, and ^{185}Lu. Nuclides halted in a passive stopper surrounded by the RISING array in "Stopped Beam" configuration.

Experimental identification using a similar setup is reported in 2009Al30.

^{193}W Levels

E(level)	Comments
0.0	%β^-=100 The β^- decay is the only decay mode expected. Approximate number of nuclei implanted in the plastic stopper reported to be 9400 *100* (2009St16,2008StZY). E(level): the observed fragments are assumed to be in the ground state of ^{193}W nuclei. $T_{1/2}$: >300 ns from approximate time-of-flight as given in 2008StZY. Calculated value 18.7 s for β decay (1997Mo25) and the systematic value of 3 s (2017Au03). J$^\pi$: 1/2$^+$ predicted in 1997Mo25. Production σ=42 nb *9* (^{208}Pb fragmentation, E=1 GeV/nucleon, on Be target − 2014Ku02).

Adopted Levels, Gammas

Q(β^-)=3160 *40*; S(n)=6710 *80*; S(p)=7870 *SY*; Q(α)=−830 *SY* 2017Wa10
ΔS(p)=200 (syst), ΔQ(α)=200 (2017Wa10).
^{193}Re was produced by fragmentation of a ^{197}Au beam (E=187 GeV) (1999Be63), and a ^{208}Pb beam (E=208 GeV) (2005Ca02) on beryllium targets. ^{193}Re was identified with the GSI Fragment Separator.

^{193}Re Levels

Cross Reference (XREF) Flags

A ^{9}Be(^{208}Pb,Xγ)

E(level)	J$^{\pi}$†	T$_{1/2}$	XREF	Comments
0+x	(5/2$^+$)		A	
146.1+x *3*	(9/2$^-$)	69 μs *8*	A	T$_{1/2}$: From (^{208}Pb,Xγ).

† Proposed in 2011St21, based on systematics of ^{187,189}Re g.s., low lying 9/2$^-$ state, and BCS calculations.

γ(^{193}Re)

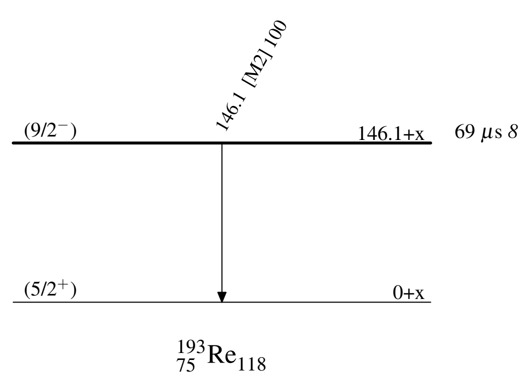
E$_i$(level)	J$^{\pi}_i$	E$_\gamma$	I$_\gamma$	E$_f$	J$^{\pi}_f$	Mult.	α†	Comments
146.1+x	(9/2$^-$)	146.1 *3*	100	0+x	(5/2$^+$)	[M2]	11.42 *19*	B(M2)(W.u.)=0.0163 *20*

† Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



^{9}Be(^{208}Pb,Xγ) 2011St21,2009Al30,2005Ca02

2011St21: ^{193}Re nuclide formed by in-flight fragmentation of ^{208}Pb beam at 1 GeV/nucleon from the GSI UNILAC and SIS-18 accelerator complex. Target thickness=2.526 g/cm^2, backed by ^{93}Nb foil of thickness=0.223 g/cm^2. Fragments identified in flight by the Fragment Separator (FRS) operated in achromatic mode based on time-of-flight, Bρ and energy loss. Transmitted ions slowed in Al degraders and stopped in a plastic catcher. The stopper was surrounded by the RISING γ-ray spectrometer. Measured Eγ, Iγ, delayed γ rays, isomer lifetime, x-ray.

2009Al30,2009Al16: RISING array of 15 seven-element Ge cluster detectors used for γ ray detection. Measured isomer half-life.

2005Ca02: Nuclide was produced by fragmentation of ^{208}Pb beam (E=208GeV) (2005Ca02) on beryllium target. ^{193}Re was identified with the GSI Fragment Separator; delayed γ events were recorded by 4 clover composite Ge detectors. 2005Ca02 also observed delayed Re Kα x ray and Kβ x ray, with intensities 1.05 *8* and 0.29 *6* relative to γ 146.1 keV assigned to the decay of the isomeric level.

```
--------------------------------------------------------------------
x-ray energy       Intensity (relative and arbitrary) (2005Ca02)

60.6 2                   989 58
69.5 3                   247 35
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^{193}Re Levels

E(level)	J$^{\pi}$ †	T$_{1/2}$	Comments
0+x	(5/2$^+$)		
146.1+x *3*	(9/2$^-$)	69 μs *8*	T$_{1/2}$: Weighted average of 65 μs *9* (2011St21) and 72 μs *8* (2009Al30, 2009Al16). Uncertainty lower input value. Other: 75 μs *+450−40*, upper-limit corresponds to 100% isomeric formation ratio (2005Ca02). Experimental isomeric state population ratio=16% *+4−5* (2011St21).

† Proposed in 2011St21, based on systematics of ^{187,189}Re g.s., low lying 9/2$^-$ state, and BCS calculations.

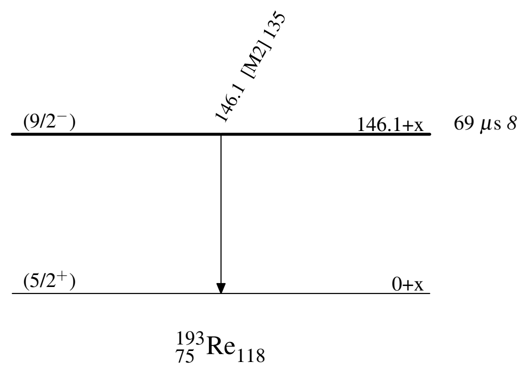
γ(^{193}Re)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.	Comments
146.1 *3*	135 *26*	146.1+x	(9/2$^-$)	0+x	(5/2$^+$)	[M2]	E$_\gamma$,I$_\gamma$: From 2005Ca02. Other: 145.2 keV and Iγ=100 *11* (2011St21). 2011St21 propose that 145-keV transition connects the (9/2$^-$) and (5/2$^+$) states. The intensity (not listed) of the observed x rays is in agreement for this connection, noted in 2011St21. Mult.: Proposed in 2011St21. 2005Ca02 deduced hindrance factors for isomeric transition: HF=70 for M2 and 1000 for E2 (2005Ca02).

$^{9}Be(^{208}Pb,X\gamma)$ 2011St21,2009Al30,2005Ca02

Level Scheme

Intensities: Relative I_γ



Adopted Levels, Gammas

Q(β^-)=1141.9 *24*; S(n)=5583.42 *20*; S(p)=9090 *70*; Q(α)=−200 *40* 2017Wa10

Other studies:

1969Bi01 observed a 17-min activity in products from ^{192}Os(n,γ), which they assigned to an isomer of ^{193}Os, but 1972Lo06 later attributed that to ^{80}Br. Another unsuccessful attempt was made to confirm the original assignment by 1971MaYD.

^{193}Os Levels

Cross Reference (XREF) Flags

A	^{9}Be(^{208}Pb,Xγ)	D	^{192}Os(d,p)
B	^{192}Os(n,γ) E=thermal	E	^{192}Os(^{7}Li,^{6}Liγ)
C	^{192}Os(n,γ) E=res		

E(level)[†]	J$^\pi$[#]	T$_{1/2}$	XREF	Comments
0.0[a]	3/2$^-$	29.830 h *18*	BCDE	%β^-=100 μ=+0.730 *2* (2014StZZ,1989Ed01,1991Sc28); Q=+0.48 *6* (2014StZZ) J$^\pi$: primary γ from 1/2$^+$ in average neutron resonance capture; log *ft*=7.52 and 7.70 for β decay to 139-keV (J$^\pi$=5/2$^+$) and 740-keV (J$^\pi$=5/2$^-$) levels in ^{193}Ir, respectively. T$_{1/2}$: From 2012Kr05. Other values: 30.11 h *1* (1992An13), 30.0 h *3* (1969Co08), 31.5 h *5* (1958Na15), 30.6 h *4* (1950Ch11), 31.9 h *10* (1947Go01), and 2010ZaZX report 30.05 h *14*, 29.952 h *17*, 29.953 h *8* averaging 75 data points (25 *5*-mg enriched ^{192}Os target for 3 γ rays) using averaging methods of Limitation of Relative Statistical Weight, the Rajeval Technique, and the Normalized Residuals, respectively. Evaluator recommends 2012Kr05 value over the other precise measurement of 1992An13 due to possible influence of higher ^{193}Os irradiation-end activity, as noted in 2012Kr05 and comparing values in 2010ZaZX. Evaluator's note: Irradiation end ^{193}Os activity was six times higher in 1992An13 compared to 150 kBq of 2012Kr05. Note 1969Co08 value is statistically in agreement with the recomended value, which was measured using enriched (98.7%) target and 280- and 460-keV K lines. μ: NMR-ON (1989Ed01), sign from γ-ray circular polarization from oriented nuclei decay (1991Sc28). Other: +0.75 *3* (2014StZZ) recalculated value, from low temperature I(θ) and Mossbauer effect (1985Be03); 0.78 *7* (2014StZZ) recalculated value, from static low-temperature nuclear orientation (1984Gh01). Q: 2014StZZ evaluation of 1979Er09 low temperature dependence of γ-anisotropy data reanalyzed by 1985Be03.
41.4844[b] *22*	(1/2$^-$)		BC	J$^\pi$: primary γ from 1/2$^+$ in (n,γ); absence of (d,p) strength and position of level, relative to that for 3/2[512] orbital, consistent with 1/2[510] Nilsson assignment.
72.903[a] *4*	(5/2)$^-$		B DE	J$^\pi$: L=3 in ^{192}Os(d,p); 5/2$^-$ consistent with band assignment.
102.7326[b] *10*	(3/2)$^-$		BCD	J$^\pi$: L=1 in ^{192}Os(d,p); 3/2$^-$ consistent with band assignment.
233.8558 *20*	1/2$^-$,3/2$^-$		BCD	J$^\pi$: L=1 in ^{192}Os(d,p).
295.6812 *19*	(5/2$^-$)[&]		B	
307.0838 *16*	1/2$^-$,3/2$^-$		BCD	J$^\pi$: L=1 in ^{192}Os(d,p).
315.6 *3*	(9/2$^-$)	121 ns *28*	E	Configuration=9/2$^-$[505]. J$^\pi$: from configuration assignment in 2014Ga14. T$_{1/2}$: Weighted average of 110 ns *28* (2014Ga14 – (^{7}Li,^{6}Liγ)) and 132 ns *29* (2011St21 – (^{208}Pb,Xγ)). Uncertainty – lower input value.
399.018 *4*	(5/2)$^-$		B D	J$^\pi$: L=3 in ^{192}Os(d,p); γ to (1/2)$^-$.
434.9606 *25*	1/2$^-$,3/2$^-$		BCD	J$^\pi$: L=1 in ^{192}Os(d,p).

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Adopted Levels, Gammas (continued)

^{193}Os Levels (continued)

E(level)[†]	Jπ[#]	XREF	Comments
455.773 *5*	(5/2)⁻	B D	Jπ: L=3 in ^{192}Os(d,p); γ to (1/2)⁻.
544.552 *4*	(5/2⁻,7/2⁻)[&]	B D	
550.9[‡] *10*		B	
558.3 *5*		E	
573.2[‡] *10*		B	
587.6[‡] *10*		B	
675.2[‡] *7*		B	
709.200 *10*	(5/2⁻,7/2⁻)[&]	B	
762	5/2⁻,7/2⁻	D	Jπ: L=3 in ^{192}Os(d,p).
788.5[‡] *10*		B	
867.7 *6*		E	
888.624 *21*		Bc	Jπ: 1/2⁻,3/2⁻ can be assigned to at least one member of the 888.6-889.5 doublet on the basis of population in average resonance capture.
889.462 *7*		Bc	Jπ: see comment with 888.62 level.
904.8 *6*		E	
952	5/2⁻,7/2⁻	D	Jπ: L=3 in ^{192}Os(d,p).
966.9[‡] *7*		B	
970.5 *6*		E	
1053.856 *7*	1/2⁻,3/2⁻ [@]	BC	
1085.385 *11*	(1/2⁻,3/2⁻)	B D	Jπ: L=1 in ^{192}Os(d,p); assignment uncertain (level should be, but is not, populated in average resonance capture).
1170.860 *8*	(1/2⁺,3/2⁺)	B	Jπ: probable primary M1 γ from 1/2⁺ (level seen in thermal, but not in average resonance capture).
1178.655 *14*	1/2⁻,3/2⁻	BCD	Jπ: L=1 in ^{192}Os(d,p).
1185.4[‡] *10*		B	
1195.9 *6*		E	
1205.2[‡] *7*		B	
1216.927 *8*	$1/2^{(-)},3/2^{(-)}$ [@]	BC	
1225.7[‡] *6*		B	
1244.6[‡] *7*		B	
1267.3[‡] *10*		B	
1281.469 *19*	1/2⁻,3/2⁻ [@]	BC	
1288.468 *8*	1/2⁻,3/2⁻ [@]	BC	
1333.5 *4*		B	
1359.6 *4*		B	
1383.6[‡] *10*		B	
1386.0 *4*	$1/2^{(-)},3/2^{(-)}$ [@]	BC	
1398.2[‡] *7*		B	
1400.0[‡] *5*		B	
1418.0[‡] *5*		B	
1434.0[‡] *10*		B	
1437.4 *9*	$1/2^{(-)},3/2^{(-)}$ [@]	C	
1446.5[‡] *10*		B	
1459.513 *10*	5/2⁻,7/2⁻	B D	Jπ: L=3 in ^{192}Os(d,p).
1496	5/2⁻,7/2⁻	D	Jπ: L=3 in ^{192}Os(d,p).
1497.4[‡] *10*		B	
1501.5		B	
1504.1[‡] *5*		B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Os Levels (continued)

E(level)†	Jπ#	XREF	Comments
1515.6 *4*	1/2⁻,3/2⁻ @	BC	
1517	5/2⁻,7/2⁻	D	Jπ: L=3 in ^{192}Os(d,p).
1523.5 *5*		B	
1530.3 *5*		B	
1555.8‡ *7*		B	
1566		D	Jπ: L<5 in ^{192}Os(d,p).
1590.9 *4*	1/2⁻,3/2⁻ @	BC	
1603.2 *4*		B	
1644		D	
1660.3‡ *10*		B	
1668		D	Jπ: L<5 in ^{192}Os(d,p).
1680.3‡ *10*		B	
1683.3 *4*		B	
1697		D	
1722.5‡ *6*		B	
1731.6‡ *10*		B	
1737.6‡ *10*		B	
1744.9‡ *7*		B	
1754.2‡ *7*		B	
1760.4‡ *7*		B	
1765.1 *4*		B	
1783.8‡ *4*		B	
1785.2 *5*		B	
1795.8‡ *7*		B	
1798.9‡ *10*		B	
1802.0‡ *10*		B	
1805.1‡ *10*		B	
1826.7‡ *7*		B	
1830.6 *5*		B	
1831.1‡ *4*		B	
1838.3 *5*		B	
1847.1‡ *4*		B	
1848.6 *5*		B	
1853.6‡ *10*		B	
1862.7‡ *10*		B	
1874.6‡ *10*		B	
1888.9‡ *5*		B	
1892.6‡ *5*		B	
1908.6‡ *6*		B	
1915.3 *4*		B	
1921.2‡ *7*		B	
1932.1‡ *7*		B	
1935.1‡ *6*		B	
1938.6‡ *7*		B	
1949.0‡ *10*		B	
1954.8‡ *5*		B	
1977.4‡ *5*		B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Os Levels (continued)

E(level)†	XREF	E(level)†	XREF	E(level)†	XREF	E(level)†	XREF
1983.4‡ *5*	B	2222.0‡ *7*	B	2467.7‡ *4*	B	2708.9‡ *7*	B
1989.8‡ *10*	B	2225.1‡ *7*	B	2470.4‡ *7*	B	2714.8‡ *7*	B
2002.1‡ *4*	B	2230.6‡ *7*	B	2484.3‡ *6*	B	2716.9‡ *10*	B
2013.6‡ *4*	B	2234.6‡ *10*	B	2486.7‡ *10*	B	2720.2‡ *4*	B
2020.8‡ *7*	B	2239.9‡ *10*	B	2489.6‡ *5*	B	2723.6‡ *7*	B
2024.3‡ *10*	B	2243.0 *5*	B	2495.0‡ *5*	B	2728.2‡ *7*	B
2037.4‡ *5*	B	2246.3‡ *10*	B	2499.7‡ *4*	B	2732.1‡ *10*	B
2039.9‡ *7*	B	2249.1‡ *5*	B	2503.5‡ *10*	B	2734.3‡ *7*	B
2048.1 *5*	B	2250.9‡ *7*	B	2506.3‡ *10*	B	2738.4‡ *6*	B
2050.8‡ *6*	B	2255.9‡ *7*	B	2508.3‡ *4*	B	2741.9‡ *5*	B
2053.5‡ *10*	B	2258.4‡ *7*	B	2511.8‡ *4*	B	2746.7‡ *10*	B
2059.7‡ *10*	B	2278.7‡ *6*	B	2514.1‡ *5*	B	2749.8‡ *6*	B
2064.1 *4*	B	2285.4‡ *10*	B	2519.2‡ *5*	B	2752.9‡ *7*	B
2067.6‡ *5*	B	2290.5‡ *7*	B	2528.4‡ *5*	B	2758.2‡ *10*	B
2077.0	B	2294.3‡ *10*	B	2530.9‡ *10*	B	2761.7‡ *10*	B
2078.3‡ *4*	B	2297.3‡ *6*	B	2533.7‡ *7*	B	2764.9‡ *10*	B
2081.1‡ *4*	B	2310.0‡ *6*	B	2541.8‡ *4*	B	2773.9‡ *5*	B
2090.0	B	2315.9‡ *5*	B	2548.2‡ *6*	B	2779.4‡ *10*	B
2092.9‡ *4*	B	2320.5‡ *5*	B	2551.3‡ *10*	B	2782.1‡ *4*	B
2098.0 *4*	B	2326.1‡ *5*	B	2554.6‡ *7*	B	2784.1‡ *7*	B
2103.4‡ *7*	B	2332.6‡ *7*	B	2558.1‡ *7*	B	2792.0‡ *6*	B
2108.1‡ *10*	B	2340.1‡ *10*	B	2560.4‡ *5*	B	2797.9‡ *5*	B
2111.7‡ *7*	B	2342.9‡ *7*	B	2567.1‡ *4*	B	2805.5‡ *5*	B
2115.9‡ *10*	B	2348.0‡ *5*	B	2578.0‡ *10*	B	2811.6‡ *7*	B
2124.1‡ *7*	B	2350.4‡ *10*	B	2580.1‡ *4*	B	2822.8‡ *10*	B
2126.4‡ *7*	B	2360.9‡ *10*	B	2585.0‡ *7*	B	2830.3‡ *7*	B
2131.3	B	2364.2‡ *7*	B	2597.4‡ *7*	B	2834.3‡ *10*	B
2133.0‡ *4*	B	2368.0‡ *5*	B	2602.8‡ *5*	B	2856.3‡ *6*	B
2134.2‡ *6*	B	2373.1‡ *10*	B	2606.9‡ *10*	B	2863.8‡ *5*	B
2143.5‡ *10*	B	2381.0‡ *5*	B	2611.3‡ *5*	B	2870.0‡ *6*	B
2150.6‡ *7*	B	2389.1‡ *4*	B	2614.7‡ *10*	B	2875.8‡ *6*	B
2153.8‡ *7*	B	2396.3‡ *10*	B	2629.3‡ *7*	B	2880.0‡ *7*	B
2157.1‡ *7*	B	2407.0‡ *5*	B	2632.3‡ *6*	B	2887.0‡ *6*	B
2163.7‡ *6*	B	2414.0‡ *10*	B	2637.8‡ *6*	B	2904.1‡ *10*	B
2168.7‡ *4*	B	2421.0‡ *6*	B	2656.6‡ *6*	B	2909.0‡ *4*	B
2178.1‡ *10*	B	2426.8‡ *6*	B	2661.8‡ *10*	B	2913.3‡ *7*	B
2181.3‡ *7*	B	2431.3‡ *7*	B	2671.4‡ *4*	B	2918.0‡ *7*	B
2185.4‡ *5*	B	2432.8‡ *5*	B	2679.6‡ *5*	B	2972.4‡ *7*	B
2190.0	B	2437.7‡ *10*	B	2687.1‡ *7*	B	2979.9‡ *7*	B
2192.4‡ *6*	B	2442.5‡ *10*	B	2690.2‡ *7*	B	2986.9‡ *10*	B
2195.0‡ *5*	B	2447.0‡ *7*	B	2693.9‡ *7*	B	3001.7‡ *7*	B
2205.1‡ *7*	B	2450.1‡ *7*	B	2697.0‡ *5*	B	3006.6‡ *5*	B
2218.6‡ *5*	B	2458.5‡ *7*	B	2699.5‡ *4*	B	3010.4‡ *7*	B
2220.1	B	2461.7‡ *6*	B	2703.7‡ *5*	B		

† From least-squares fit to γ-ray energies, assuming ΔEγ=0.5 keV for missing γ-ray uncertainty. Intermediate levels from

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Os Levels (continued)

summed $\gamma\gamma$ cascade (primary+secondary) reported in 2002Ba66 identified by footnotes.

‡ From summed $\gamma\gamma$ cascade (primary+secondary) (n,γ) E=thermal in 2002Ba66. Should be taken with caution because of random coincidence possibilities.

\# J^π's for levels populated by primary gammas are limited to 1/2, 3/2, 5/2$^+$ considering that transitions are dipole or E2 from 1/2$^+$ capture state.

@ From intense population, suggesting E1 (or probable E1) multipolarity, by primary transition in average resonance capture (1/2$^+$ states).

& From γ-ray decay pattern, coupled with lack of population in average resonance capture and expectation of no positive-parity states below≈1 MeV.

a Band(A): 3/2(512) band.

b Band(B): 1/2(510) band.

γ(^{193}Os)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	α[&]	Comments
41.4844	$(1/2^-)$	41.49 *6*	100	0.0	$3/2^-$			
72.903	$(5/2)^-$	(72.901)		0.0	$3/2^-$			
102.7326	$(3/2)^-$	102.733 *1*	100	0.0	$3/2^-$			
233.8558	$1/2^-,3/2^-$	131.124 *2*	100.0 *15*	102.7326	$(3/2)^-$			
		192.365 *14*	1.1 *2*	41.4844	$(1/2^-)$			
		233.857 *15*	1.7 *2*	0.0	$3/2^-$			
295.6812	$(5/2^-)$	192.952 *3*	11 *1*	102.7326	$(3/2)^-$			
		222.778 *5*	51.0 *14*	72.903	$(5/2)^-$			
		254.193 *4*	100.0 *19*	41.4844	$(1/2^-)$			
		295.676 *3*	64 *1*	0.0	$3/2^-$			
307.0838	$1/2^-,3/2^-$	204.349 *2*	84.0 *16*	102.7326	$(3/2)^-$			
		234.170 *12*	1.8 *1*	72.903	$(5/2)^-$			
		265.601 *2*	100.0 *7*	41.4844	$(1/2^-)$			
		307.083 *3*	18.9 *4*	0.0	$3/2^-$			
315.6	$(9/2^-)$	242.7[‡] *3*	100	72.903	$(5/2)^-$	[E2]	0.176	B(E2)(W.u.)=0.071 *17*
399.018	$(5/2)^-$	91.920 *7*	100 *22*	307.0838	$1/2^-,3/2^-$			
		165.23[@] *3*	<45[@]	233.8558	$1/2^-,3/2^-$			
		326.117 *5*	89 *4*	72.903	$(5/2)^-$			
		357.518 *19*	27 *4*	41.4844	$(1/2^-)$			
		399.022[@] *5*	<447[@]	0.0	$3/2^-$			
434.9606	$1/2^-,3/2^-$	127.879 *7*	20 *2*	307.0838	$1/2^-,3/2^-$			
		201.105 *2*	100 *2*	233.8558	$1/2^-,3/2^-$			
		393.471 *6*	99.0 *19*	41.4844	$(1/2^-)$			
		434.954 *8*	43.4 *14*	0.0	$3/2^-$			
455.773	$(5/2)^-$	148.689 *7*	40.3 *25*	307.0838	$1/2^-,3/2^-$			
		160.102 *20*	14.3 *25*	295.6812	$(5/2^-)$			
		221.906 *16*	6.7 *8*	233.8558	$1/2^-,3/2^-$			
		353.042 *11*	16.8 *17*	102.7326	$(3/2)^-$			
		382.862 *8*	78.2 *25*	72.903	$(5/2)^-$			
		414.276 *20*	38.7 *17*	41.4844	$(1/2^-)$			
		455.754 *12*	100.0 *25*	0.0	$3/2^-$			
544.552	$(5/2^-,7/2^-)$	145.533 *6*	23 *5*	399.018	$(5/2)^-$			
		237.473 *5*	83.7 *23*	307.0838	$1/2^-,3/2^-$			
		248.859 *6*	26.7 *12*	295.6812	$(5/2^-)$			
		441.835 *17*	28 *5*	102.7326	$(3/2)^-$			
		471.662 *10*	26 *3*	72.903	$(5/2)^-$			
		544.53 *3*	100 *3*	0.0	$3/2^-$			

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Adopted Levels, Gammas (continued)

γ(^{193}Os) (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
550.9		448.17§	100	102.7326	(3/2)⁻
558.3		242.7‡ *3*	100	315.6	(9/2⁻)
573.2		266.12§	100	307.0838	1/2⁻,3/2⁻
587.6		353.74§	100	233.8558	1/2⁻,3/2⁻
675.2		572.47§	76 *24*	102.7326	(3/2)⁻
		633.72§	100 *24*	41.4844	(1/2⁻)
709.200	(5/2⁻,7/2⁻)	413.479 *20*	10.6 *16*	295.6812	(5/2⁻)
		606.459 *24*	22 *2*	102.7326	(3/2)⁻
		636.290 *22*	33.3 *24*	72.903	(5/2)⁻
		709.231 *16*	100 *4*	0.0	3/2⁻
788.5		788.5§	100	0.0	3/2⁻
867.7		309.4‡ *3*	100	558.3	
888.624		785.96 *4*	100 *5*	102.7326	(3/2)⁻
		815.66 *6*	23 *3*	72.903	(5/2)⁻
		888.55 *5*	42 *5*	0.0	3/2⁻
889.462		582.400 *24*	21.7 *13*	307.0838	1/2⁻,3/2⁻
		655.614 *15*	19.8 *13*	233.8558	1/2⁻,3/2⁻
		786.764 *11*	85 *3*	102.7326	(3/2)⁻
		816.63 *5*	15.3 *13*	72.903	(5/2)⁻
		847.92§		41.4844	(1/2⁻)
		889.484 *13*	100 *4*	0.0	3/2⁻
904.8		346.5‡ *3*	100	558.3	
966.9		567.88§	79 *21*	399.018	(5/2)⁻
		671.22§	100 *29*	295.6812	(5/2⁻)
970.5		412.2‡ *3*	100	558.3	
1053.856	1/2⁻,3/2⁻	165.23@ *3*	2.8@ *11*	888.624	
		618.895 *14*	8.9 *4*	434.9606	1/2⁻,3/2⁻
		746.753 *9*	8.7 *4*	307.0838	1/2⁻,3/2⁻
		951.172 *15*	100 *6*	102.7326	(3/2)⁻
		980.8§		72.903	(5/2)⁻
		1012.22§		41.4844	(1/2⁻)
		1053.7§		0.0	3/2⁻
1085.385	(1/2⁻,3/2⁻)	788.82§		295.6812	(5/2⁻)
		982.26 *4*	100	102.7326	(3/2)⁻
		1043.02§		41.4844	(1/2⁻)
1170.860	(1/2⁺,3/2⁺)	281.397 *4*	100 *3*	889.462	
		461.5§		709.200	(5/2⁻,7/2⁻)
		714.93§		455.773	(5/2)⁻
		863.62§		307.0838	1/2⁻,3/2⁻
		875.02§		295.6812	(5/2⁻)
		936.84§		233.8558	1/2⁻,3/2⁻
		1067.97§		102.7326	(3/2)⁻
		1097.8§		72.903	(5/2)⁻
		1129.49 *6*	42 *5*	41.4844	(1/2⁻)
		1170.7§		0.0	3/2⁻
1178.655	1/2⁻,3/2⁻	722.65 *4*	100 *10*	455.773	(5/2)⁻
		743.52 *4*	100 *25*	434.9606	1/2⁻,3/2⁻
		779.28§		399.018	(5/2)⁻

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{193}Os)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
1178.655	1/2⁻,3/2⁻	871.22[§]		307.0838	1/2⁻,3/2⁻
		1075.57[§]		102.7326	(3/2)⁻
		1105.4[§]		72.903	(5/2)⁻
		1136.82[§]		41.4844	(1/2⁻)
		1178.3[§]		0.0	3/2⁻
1185.4		1082.67[§]	100	102.7326	(3/2)⁻
1195.9		328.2[‡] *3*	100	867.7	
1205.2		1102.47[§]	100 *6*	102.7326	(3/2)⁻
		1163.72[§]	78 *9*	41.4844	(1/2⁻)
1216.927	1/2⁽⁻⁾,3/2⁽⁻⁾	327.464 *4*	37.5 *12*	889.462	
		761.73[§]		455.773	(5/2)⁻
		818.48[§]		399.018	(5/2)⁻
		910.42[§]		307.0838	1/2⁻,3/2⁻
		921.82[§]		295.6812	(5/2⁻)
		983.14 *6*	100 *10*	233.8558	1/2⁻,3/2⁻
		1114.77[§]		102.7326	(3/2)⁻
		1144.6[§]		72.903	(5/2)⁻
		1176.02[§]		41.4844	(1/2⁻)
		1217.5[§]		0.0	3/2⁻
1225.7		769.93[§]	100 *10*	455.773	(5/2)⁻
		1152.8[§]	4.5 *13*	72.903	(5/2)⁻
		1184.22[§]	5.8 *13*	41.4844	(1/2⁻)
1244.6		788.83[§]	100 *10*	455.773	(5/2)⁻
		1203.12[§]	24 *10*	41.4844	(1/2⁻)
1267.3		1164.57[§]	100	102.7326	(3/2)⁻
1281.469	1/2⁻,3/2⁻	391.96 *4*	34 *10*	889.462	
		573.7[§]		709.200	(5/2⁻,7/2⁻)
		825.702 *20*	100 *6*	455.773	(5/2)⁻
		883.88[§]		399.018	(5/2)⁻
		987.22[§]		295.6812	(5/2⁻)
		1180.17[§]		102.7326	(3/2)⁻
		1210.0[§]		72.903	(5/2)⁻
		1241.42[§]		41.4844	(1/2⁻)
		1282.9[§]		0.0	3/2⁻
1288.468	1/2⁻,3/2⁻	109.763 *14*	28 *8*	1178.655	1/2⁻,3/2⁻
		203.067 *8*	26 *2*	1085.385	(1/2⁻,3/2⁻)
		399.022[@] *5*	<402[@]	889.462	
		579.4[§]		709.200	(5/2⁻,7/2⁻)
		832.46 *4*	100 *8*	455.773	(5/2)⁻
		889.58[§]		399.018	(5/2)⁻
		992.92[§]		295.6812	(5/2⁻)
		1185.87[§]		102.7326	(3/2)⁻
		1215.7[§]		72.903	(5/2)⁻
		1247.12[§]		41.4844	(1/2⁻)
		1288.6[§]		0.0	3/2⁻
1333.5		877.73[§]	6.5 *27*	455.773	(5/2)⁻

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{193}Os) (continued)

E$_i$(level)	J$_i^\pi$	E$_\gamma$†	I$_\gamma$†	E$_f$	J$_f^\pi$
1333.5		934.48§	5.8 *20*	399.018	(5/2)⁻
		1037.82§	4.7 *16*	295.6812	(5/2⁻)
		1099.64§	25 *3*	233.8558	1/2⁻,3/2⁻
		1230.77§	100 *4*	102.7326	(3/2)⁻
		1260.6§	3.8 *9*	72.903	(5/2)⁻
		1292.02§	18.5 *13*	41.4844	(1/2⁻)
		1333.5§	13.4 *11*	0.0	3/2⁻
1359.6		903.83§	11.2 *17*	455.773	(5/2)⁻
		960.58§	16.9 *18*	399.018	(5/2)⁻
		1052.52§	7.7 *7*	307.0838	1/2⁻,3/2⁻
		1063.92§	5.5 *6*	295.6812	(5/2⁻)
		1125.74§	100 *5*	233.8558	1/2⁻,3/2⁻
		1256.87§	12.7 *12*	102.7326	(3/2)⁻
		1286.7§	4.1 *5*	72.903	(5/2)⁻
		1318.12§	6.9 *6*	41.4844	(1/2⁻)
		1359.6§	5.3 *6*	0.0	3/2⁻
1383.6		1076.52§	100	307.0838	1/2⁻,3/2⁻
1386.0	1/2$^{(-)}$,3/2$^{(-)}$	1078.92§	12.7 *9*	307.0838	1/2⁻,3/2⁻
		1090.32§	3.6 *7*	295.6812	(5/2⁻)
		1283.27§	2.5 *5*	102.7326	(3/2)⁻
		1313.1§	3.9 *7*	72.903	(5/2)⁻
		1344.52§	18.6 *12*	41.4844	(1/2⁻)
		1386.0§	100.0 *24*	0.0	3/2⁻
1398.2		1325.3§	46 *7*	72.903	(5/2)⁻
		1398.2§	100 *12*	0.0	3/2⁻
1400.0		1092.92§	22 *3*	307.0838	1/2⁻,3/2⁻
		1297.27§	100 *4*	102.7326	(3/2)⁻
		1358.52§	8 *3*	41.4844	(1/2⁻)
		1400.0§	17 *3*	0.0	3/2⁻
1418.0		1122.32§	33 *8*	295.6812	(5/2⁻)
		1345.1§	68 *8*	72.903	(5/2)⁻
		1376.52§	24 *8*	41.4844	(1/2⁻)
		1418.0§	100 *9*	0.0	3/2⁻
1434.0		1434.0§	100	0.0	3/2⁻
1446.5		1373.6§	100	72.903	(5/2)⁻
1459.513	5/2⁻,7/2⁻	242.586 *7*	100 *15*	1216.927	1/2$^{(-)}$,3/2$^{(-)}$
		405.67 *4*	4.6 *12*	1053.856	1/2⁻,3/2⁻
1497.4		1497.4§	100	0.0	3/2⁻
1504.1		1048.33§	54 *13*	455.773	(5/2)⁻
		1270.24§	100 *9*	233.8558	1/2⁻,3/2⁻
		1401.37§	36 *9*	102.7326	(3/2)⁻
		1504.1§	34 *7*	0.0	3/2⁻
1515.6	1/2⁻,3/2⁻	1059.83§	30 *5*	455.773	(5/2)⁻
		1116.58§	42 *6*	399.018	(5/2)⁻
		1208.52§	100 *6*	307.0838	1/2⁻,3/2⁻

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Adopted Levels, Gammas (continued)

$\gamma(^{193}Os)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
1515.6	1/2⁻,3/2⁻	1219.92[§]	27 *4*	295.6812	(5/2⁻)
		1412.87[§]	43 *4*	102.7326	(3/2)⁻
		1474.12[§]	26 *3*	41.4844	(1/2⁻)
		1515.6[§]	11 *3*	0.0	3/2⁻
1523.5		1216.42[§]	100 *5*	307.0838	1/2⁻,3/2⁻
		1420.77[§]	100 *5*	102.7326	(3/2)⁻
		1482.02[§]	32 *3*	41.4844	(1/2⁻)
		1523.5[§]	33 *3*	0.0	3/2⁻
1530.3		1131.28[§]	11 *3*	399.018	(5/2)⁻
		1223.22[§]	18.9 *18*	307.0838	1/2⁻,3/2⁻
		1234.62[§]	11.3 *24*	295.6812	(5/2⁻)
		1427.57[§]	100 *4*	102.7326	(3/2)⁻
		1488.82[§]	76 *3*	41.4844	(1/2⁻)
1555.8		1248.72[§]	58 *10*	307.0838	1/2⁻,3/2⁻
		1514.32[§]	100 *10*	41.4844	(1/2⁻)
1590.9	1/2⁻,3/2⁻	1283.82[§]	63 *5*	307.0838	1/2⁻,3/2⁻
		1295.22[§]	21 *3*	295.6812	(5/2⁻)
		1488.17[§]	39 *4*	102.7326	(3/2)⁻
		1518.0[§]	22 *2*	72.903	(5/2)⁻
		1549.42[§]	18 *2*	41.4844	(1/2⁻)
		1590.9[§]	100 *5*	0.0	3/2⁻
1603.2		1147.43[§]	23.1 *21*	455.773	(5/2)⁻
		1204.18[§]	31.6 *24*	399.018	(5/2)⁻
		1296.12[§]	40.5 *24*	307.0838	1/2⁻,3/2⁻
		1307.52[§]	26.5 *15*	295.6812	(5/2⁻)
		1369.34[§]	4.3 *9*	233.8558	1/2⁻,3/2⁻
		1500.47[§]	90.9 *25*	102.7326	(3/2)⁻
		1530.3[§]	3.4 *8*	72.903	(5/2)⁻
		1561.72[§]	100.0 *25*	41.4844	(1/2⁻)
		1603.2[§]	6.9 *9*	0.0	3/2⁻
1660.3		1618.82[§]	100	41.4844	(1/2⁻)
1680.3		1373.22[§]	100	307.0838	1/2⁻,3/2⁻
1683.3		974.1[§]	9.44 *14*	709.200	(5/2⁻,7/2⁻)
		1376.22[§]	16.18 *20*	307.0838	1/2⁻,3/2⁻
		1387.62[§]	31.0 *20*	295.6812	(5/2⁻)
		1449.44[§]	57 *3*	233.8558	1/2⁻,3/2⁻
		1580.57[§]	100 *3*	102.7326	(3/2)⁻
		1610.4[§]	4.7 *11*	72.903	(5/2)⁻
		1641.82[§]	79 *3*	41.4844	(1/2⁻)
		1683.3[§]	20 *2*	0.0	3/2⁻
1722.5		1426.82[§]	95 *32*	295.6812	(5/2⁻)
		1619.77[§]	89 *32*	102.7326	(3/2)⁻
		1722.5[§]	100 *26*	0.0	3/2⁻
1731.6		842.12[§]	100	889.462	
1737.6		1634.87[§]	100	102.7326	(3/2)⁻

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Adopted Levels, Gammas (continued)

$\gamma(^{193}Os)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
1744.9		1289.13[§]	100 *31*	455.773	$(5/2)^-$
		1672.0[§]	100 *31*	72.903	$(5/2)^-$
1754.2		1520.34[§]	100 *25*	233.8558	$1/2^-,3/2^-$
		1754.2[§]	100 *31*	0.0	$3/2^-$
1760.4		1526.54[§]	30 *9*	233.8558	$1/2^-,3/2^-$
		1657.67[§]	100 *17*	102.7326	$(3/2)^-$
1765.1		1055.9[§]	21 *5*	709.200	$(5/2^-,7/2^-)$
		1309.33[§]	41 *4*	455.773	$(5/2)^-$
		1366.08[§]	48 *4*	399.018	$(5/2)^-$
		1458.02[§]	100 *7*	307.0838	$1/2^-,3/2^-$
		1531.24[§]	87 *5*	233.8558	$1/2^-,3/2^-$
		1662.37[§]	92 *7*	102.7326	$(3/2)^-$
		1692.2[§]	23 *4*	72.903	$(5/2)^-$
		1723.62[§]	63 *5*	41.4844	$(1/2^-)$
1783.8		1328.03[§]	23 *4*	455.773	$(5/2)^-$
		1384.78[§]	27 *4*	399.018	$(5/2)^-$
		1476.72[§]	27 *5*	307.0838	$1/2^-,3/2^-$
		1488.12[§]	19 *4*	295.6812	$(5/2^-)$
		1549.94[§]	100 *5*	233.8558	$1/2^-,3/2^-$
		1710.9[§]	26 *4*	72.903	$(5/2)^-$
		1742.32[§]	87 *5*	41.4844	$(1/2^-)$
		1783.8[§]	50 *5*	0.0	$3/2^-$
1795.8		1561.94[§]	90 *19*	233.8558	$1/2^-,3/2^-$
		1693.07[§]	100 *29*	102.7326	$(3/2)^-$
1798.9		1565.04[§]	100	233.8558	$1/2^-,3/2^-$
1802.0		1760.52[§]	100	41.4844	$(1/2^-)$
1805.1		1805.1[§]	100	0.0	$3/2^-$
1826.7		1753.8[§]	78 *28*	72.903	$(5/2)^-$
		1826.7[§]	100 *28*	0.0	$3/2^-$
1831.1		1375.33[§]	59 *14*	455.773	$(5/2)^-$
		1432.08[§]	54 *11*	399.018	$(5/2)^-$
		1524.02[§]	48 *16*	307.0838	$1/2^-,3/2^-$
		1535.42[§]	73 *14*	295.6812	$(5/2^-)$
		1597.24[§]	100 *11*	233.8558	$1/2^-,3/2^-$
		1758.2[§]	86 *14*	72.903	$(5/2)^-$
		1789.62[§]	100 *14*	41.4844	$(1/2^-)$
		1831.1[§]	78 *14*	0.0	$3/2^-$
1838.3		1129.1[§]	12.8 *23*	709.200	$(5/2^-,7/2^-)$
		1531.22[§]	100 *4*	307.0838	$1/2^-,3/2^-$
		1604.44[§]	18.3 *13*	233.8558	$1/2^-,3/2^-$
		1735.57[§]	6.3 *15*	102.7326	$(3/2)^-$
		1765.4[§]	5.3 *13*	72.903	$(5/2)^-$
1847.1		1137.9[§]	59 *11*	709.200	$(5/2^-,7/2^-)$
		1448.08[§]	91 *6*	399.018	$(5/2)^-$
		1540.02[§]	35 *8*	307.0838	$1/2^-,3/2^-$
1847.1		1551.42[§]	24 *6*	295.6812	$(5/2^-)$
		1744.37[§]	100 *10*	102.7326	$(3/2)^-$
		1774.2[§]	30 *6*	72.903	$(5/2)^-$
		1805.62[§]	81 *8*	41.4844	$(1/2^-)$
		1847.1[§]	33 *8*	0.0	$3/2^-$
1853.6		1619.74[§]	100	233.8558	$1/2^-,3/2^-$
1862.7		1759.97[§]	100	102.7326	$(3/2)^-$
1874.6		1874.6[§]	100	0.0	$3/2^-$
1888.9		1179.7[§]	100 *24*	709.200	$(5/2^-,7/2^-)$
		1489.88[§]	65 *14*	399.018	$(5/2)^-$
		1786.17[§]	86 *22*	102.7326	$(3/2)^-$
		1816.0[§]	78 *14*	72.903	$(5/2)^-$
1892.6		1436.83[§]	53 *15*	455.773	$(5/2)^-$
		1819.7[§]	100 *13*	72.903	$(5/2)^-$
		1851.12[§]	100 *13*	41.4844	$(1/2^-)$
		1892.6[§]	63 *25*	0.0	$3/2^-$
1908.6		1452.83[§]	78 *19*	455.773	$(5/2)^-$
		1509.58[§]	100 *19*	399.018	$(5/2)^-$
		1867.12[§]	47 *16*	41.4844	$(1/2^-)$
1915.3		1459.53[§]	5.3 *14*	455.773	$(5/2)^-$
		1516.28[§]	4.6 *14*	399.018	$(5/2)^-$
		1608.22[§]	100 *4*	307.0838	$1/2^-,3/2^-$
		1681.44[§]	70.7 *24*	233.8558	$1/2^-,3/2^-$
		1812.57[§]	7.2 *14*	102.7326	$(3/2)^-$
		1873.82[§]	99 *3*	41.4844	$(1/2^-)$
		1915.3[§]	7.0 *24*	0.0	$3/2^-$
1921.2		1818.47[§]	100 *20*	102.7326	$(3/2)^-$
		1848.3[§]	43 *17*	72.903	$(5/2)^-$
1932.1		1859.2[§]	100 *6*	72.903	$(5/2)^-$
		1890.62[§]	31 *6*	41.4844	$(1/2^-)$
1935.1		1536.08[§]	28 *6*	399.018	$(5/2)^-$
		1832.37[§]	100 *7*	102.7326	$(3/2)^-$
		1935.1[§]	28 *12*	0.0	$3/2^-$
1938.6		1897.12[§]	15.0 *16*	41.4844	$(1/2^-)$
		1938.6[§]	100 *7*	0.0	$3/2^-$
1949.0		1641.92[§]	100	307.0838	$1/2^-,3/2^-$
1954.8		1499.03[§]	4.8 *14*	455.773	$(5/2)^-$
		1647.72[§]	4.5 *17*	307.0838	$1/2^-,3/2^-$
		1720.94[§]	6.2 *11*	233.8558	$1/2^-,3/2^-$
		1852.07[§]	100 *3*	102.7326	$(3/2)^-$
1977.4		1087.92[§]	50 *9*	889.462	
		1578.38[§]	20 *5*	399.018	$(5/2)^-$
		1670.32[§]	100 *7*	307.0838	$1/2^-,3/2^-$
		1743.54[§]	28 *4*	233.8558	$1/2^-,3/2^-$
		1935.92[§]	35 *5*	41.4844	$(1/2^-)$

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Adopted Levels, Gammas (continued)

$\gamma(^{193}Os)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
1983.4		1687.72§	13 *4*	295.6812	(5/2⁻)
		1749.54§	9 *3*	233.8558	1/2⁻,3/2⁻
		1880.67§	44 *4*	102.7326	(3/2)⁻
		1910.5§	42 *3*	72.903	(5/2)⁻
		1983.4§	100 *10*	0.0	3/2⁻
1989.8		1755.94§	100	233.8558	1/2⁻,3/2⁻
2002.1		1603.08§	12 *3*	399.018	(5/2)⁻
		1695.02§	19 *3*	307.0838	1/2⁻,3/2⁻
		1706.42§	19 *3*	295.6812	(5/2⁻)
		1768.24§	23 *3*	233.8558	1/2⁻,3/2⁻
		1929.2§	41 *3*	72.903	(5/2)⁻
		1960.62§	100 *5*	41.4844	(1/2⁻)
2013.6		1124.12§	76 *8*	889.462	
		1557.83§	14 *5*	455.773	(5/2)⁻
		1706.52§	41 *5*	307.0838	1/2⁻,3/2⁻
		1779.74§	12 *3*	233.8558	1/2⁻,3/2⁻
		1910.87§	26 *5*	102.7326	(3/2)⁻
		1972.12§	100 *7*	41.4844	(1/2⁻)
2020.8		1713.72§	95 *27*	307.0838	1/2⁻,3/2⁻
		1786.94§	100 *18*	233.8558	1/2⁻,3/2⁻
2024.3		1982.82§	100	41.4844	(1/2⁻)
2037.4		1581.63§	100 *20*	455.773	(5/2)⁻
		1730.32§	60 *17*	307.0838	1/2⁻,3/2⁻
		1741.72§	73 *20*	295.6812	(5/2⁻)
		1803.54§	100 *17*	233.8558	1/2⁻,3/2⁻
2039.9		1732.82§	49 *12*	307.0838	1/2⁻,3/2⁻
		2039.9§	100 *12*	0.0	3/2⁻
2048.1		1741.02§	28 *4*	307.0838	1/2⁻,3/2⁻
		1814.24§	35 *4*	233.8558	1/2⁻,3/2⁻
		1945.37§	35 *6*	102.7326	(3/2)⁻
		2048.1§	100 *6*	0.0	3/2⁻
2050.8		1651.78§	100 *11*	399.018	(5/2)⁻
		1755.12§	100 *13*	295.6812	(5/2⁻)
		1816.94§	50 *11*	233.8558	1/2⁻,3/2⁻
2053.5		1950.77§	100	102.7326	(3/2)⁻
2059.7		2018.22§	100	41.4844	(1/2⁻)
2064.1		1354.9§	20 *7*	709.200	(5/2⁻,7/2⁻)
		1608.33§	51 *6*	455.773	(5/2)⁻
		1665.08§	61 *6*	399.018	(5/2)⁻
		1757.02§	55 *5*	307.0838	1/2⁻,3/2⁻
		1961.37§	100 *10*	102.7326	(3/2)⁻
		1991.2§	78 *6*	72.903	(5/2)⁻
		2022.62§	53 *7*	41.4844	(1/2⁻)
		2064.1§	40 *5*	0.0	3/2⁻
2067.6		1178.12§	63 *10*	889.462	
2067.6		1760.52§	52 *6*	307.0838	1/2⁻,3/2⁻
		1833.74§	100 *7*	233.8558	1/2⁻,3/2⁻
		2067.6§	37 *6*	0.0	3/2⁻
2078.3		1188.82§	11 *3*	889.462	
		1369.1§	9 *2*	709.200	(5/2⁻,7/2⁻)
		1622.53§	15 *2*	455.773	(5/2)⁻
		1679.28§	9.2 *17*	399.018	(5/2)⁻
		1771.22§	39 *2*	307.0838	1/2⁻,3/2⁻
		1782.62§	7 *2*	295.6812	(5/2⁻)
		1844.44§	18 *2*	233.8558	1/2⁻,3/2⁻
		2005.4§	11 *2*	72.903	(5/2)⁻
		2036.82§	100 *4*	41.4844	(1/2⁻)
		2078.3§	13 *2*	0.0	3/2⁻
2081.1		1625.33§	46 *11*	455.773	(5/2)⁻
		1682.08§	96 *11*	399.018	(5/2)⁻
		1774.02§	65 *9*	307.0838	1/2⁻,3/2⁻
		1785.42§	50 *11*	295.6812	(5/2⁻)
		1978.37§	78 *15*	102.7326	(3/2)⁻
		2008.2§	100 *9*	72.903	(5/2)⁻
2092.9		1203.42§	25 *7*	889.462	
		1693.88§	100 *6*	399.018	(5/2)⁻
		1797.22§	34 *5*	295.6812	(5/2⁻)
		1859.04§	29 *5*	233.8558	1/2⁻,3/2⁻
		1990.17§	34 *7*	102.7326	(3/2)⁻
		2020.0§	20 *5*	72.903	(5/2)⁻
		2092.9§	18 *5*	0.0	3/2⁻
2098.0		1208.52§	96 *17*	889.462	
		1388.8§	100 *15*	709.200	(5/2⁻,7/2⁻)
		1790.92§	42 *10*	307.0838	1/2⁻,3/2⁻
		1802.32§	49 *13*	295.6812	(5/2⁻)
		1864.14§	96 *11*	233.8558	1/2⁻,3/2⁻
		1995.27§	45 *17*	102.7326	(3/2)⁻
		2056.52§	45 *13*	41.4844	(1/2⁻)
		2098.0§	51 *11*	0.0	3/2⁻
2103.4		1807.72§	100 *33*	295.6812	(5/2⁻)
		2061.92§	100 *33*	41.4844	(1/2⁻)
2108.1		1874.24§	100	233.8558	1/2⁻,3/2⁻
2111.7		1222.22§	100 *23*	889.462	
		2111.7§	71 *15*	0.0	3/2⁻
2115.9		2074.42§	100	41.4844	(1/2⁻)
2124.1		1890.24§	48 *9*	233.8558	1/2⁻,3/2⁻
		2021.37§	100 *17*	102.7326	(3/2)⁻
2126.4		1819.32§	100 *16*	307.0838	1/2⁻,3/2⁻
		2084.92§	100 *19*	41.4844	(1/2⁻)
2133.0		1243.52§	100 *5*	889.462	

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Adopted Levels, Gammas (continued)

$\gamma(^{193}Os)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
2133.0		1677.23[§]	32 *4*	455.773	(5/2)⁻	2222.0		1988.14[§]	100 *21*	233.8558	1/2⁻,3/2⁻
		1733.98[§]	22 *3*	399.018	(5/2)⁻			2222.0[§]	58 *21*	0.0	3/2⁻
		1837.32[§]	22 *3*	295.6812	(5/2⁻)	2225.1		1929.42[§]	10 *2*	295.6812	(5/2⁻)
		1899.14[§]	32 *4*	233.8558	1/2⁻,3/2⁻			2183.62[§]	100 *5*	41.4844	(1/2⁻)
		2030.27[§]	10 *4*	102.7326	(3/2)⁻	2230.6		2127.87[§]	100 *14*	102.7326	(3/2)⁻
		2133.0[§]	18 *3*	0.0	3/2⁻			2230.6[§]	55 *12*	0.0	3/2⁻
2134.2		1827.12[§]	100 *7*	307.0838	1/2⁻,3/2⁻	2234.6		2234.6[§]	100	0.0	3/2⁻
		1900.34[§]	56 *7*	233.8558	1/2⁻,3/2⁻	2239.9		2198.42[§]	100	41.4844	(1/2⁻)
		2134.2[§]	24 *6*	0.0	3/2⁻	2246.3		2204.82[§]	100	41.4844	(1/2⁻)
2143.5		2040.77[§]	100	102.7326	(3/2)⁻	2249.1		1359.62[§]	15 *3*	889.462	
2150.6		1854.92[§]	100 *22*	295.6812	(5/2⁻)			1850.08[§]	23 *2*	399.018	(5/2)⁻
		2109.12[§]	78 *30*	41.4844	(1/2⁻)			1942.02[§]	100 *66*	307.0838	1/2⁻,3/2⁻
2153.8		1858.12[§]	64 *8*	295.6812	(5/2⁻)			2146.37[§]	18 *2*	102.7326	(3/2)⁻
		2051.07[§]	100 *13*	102.7326	(3/2)⁻			2176.2[§]	40 *2*	72.903	(5/2)⁻
2157.1		1850.02[§]	93 *17*	307.0838	1/2⁻,3/2⁻	2250.9		2209.42[§]	4.7 *10*	41.4844	(1/2⁻)
		2157.1[§]	100 *17*	0.0	3/2⁻			2250.9[§]	100 *5*	0.0	3/2⁻
2163.7		1707.93[§]	50 *14*	455.773	(5/2)⁻	2255.9		1948.82[§]	100 *35*	307.0838	1/2⁻,3/2⁻
		1929.84[§]	62 *10*	233.8558	1/2⁻,3/2⁻			2153.17[§]	68 *19*	102.7326	(3/2)⁻
		2090.8[§]	100 *12*	72.903	(5/2)⁻	2258.4		1859.38[§]	92 *21*	399.018	(5/2)⁻
2168.7		1769.68[§]	26 *3*	399.018	(5/2)⁻			2258.4[§]	100 *38*	0.0	3/2⁻
		1861.62[§]	14 *3*	307.0838	1/2⁻,3/2⁻	2278.7		1983.02[§]	71 *21*	295.6812	(5/2⁻)
		1873.02[§]	12 *3*	295.6812	(5/2⁻)			2175.97[§]	75 *21*	102.7326	(3/2)⁻
		2065.97[§]	9 *3*	102.7326	(3/2)⁻			2205.8[§]	100 *18*	72.903	(5/2)⁻
		2127.22[§]	100 *6*	41.4844	(1/2⁻)	2285.4		2182.67[§]	100	102.7326	(3/2)⁻
		2168.7[§]	59 *4*	0.0	3/2⁻	2290.5		2249.02[§]	100 *15*	41.4844	(1/2⁻)
2178.1		1288.62[§]	100	889.462				2290.5[§]	61 *24*	0.0	3/2⁻
2181.3		2108.4[§]	34 *9*	72.903	(5/2)⁻	2294.3		2294.3[§]	100	0.0	3/2⁻
		2139.82[§]	100 *13*	41.4844	(1/2⁻)	2297.3		2194.57[§]	52 *18*	102.7326	(3/2)⁻
2185.4		1295.92[§]	33 *8*	889.462				2224.4[§]	100 *15*	72.903	(5/2)⁻
		1878.32[§]	16 *8*	307.0838	1/2⁻,3/2⁻			2255.82[§]	97 *15*	41.4844	(1/2⁻)
		2082.67[§]	100 *7*	102.7326	(3/2)⁻	2310.0		2076.14[§]	67 *31*	233.8558	1/2⁻,3/2⁻
		2143.92[§]	12 *4*	41.4844	(1/2⁻)			2268.52[§]	87 *10*	41.4844	(1/2⁻)
2192.4		1483.2[§]	37 *10*	709.200	(5/2⁻,7/2⁻)			2310.0[§]	100 *27*	0.0	3/2⁻
		2089.67[§]	100 *10*	102.7326	(3/2)⁻	2315.9		1860.13[§]	100 *13*	455.773	(5/2)⁻
		2150.92[§]	81 *9*	41.4844	(1/2⁻)			2008.82[§]	31 *13*	307.0838	1/2⁻,3/2⁻
2195.0		1305.52[§]	38 *5*	889.462				2020.22[§]	34 *9*	295.6812	(5/2⁻)
		1795.98[§]	7 *2*	399.018	(5/2)⁻			2274.42[§]	88 *8*	41.4844	(1/2⁻)
		1887.92[§]	100 *9*	307.0838	1/2⁻,3/2⁻			2315.9[§]	41 *14*	0.0	3/2⁻
		2092.27[§]	21 *4*	102.7326	(3/2)⁻	2320.5		2024.82[§]	19 *6*	295.6812	(5/2⁻)
2205.1		1806.08[§]	45 *13*	399.018	(5/2)⁻			2086.64[§]	73 *7*	233.8558	1/2⁻,3/2⁻
		2102.37[§]	100 *15*	102.7326	(3/2)⁻			2217.77[§]	71 *6*	102.7326	(3/2)⁻
2218.6		1819.58[§]	19 *7*	399.018	(5/2)⁻			2320.5[§]	100 *12*	0.0	3/2⁻
		1922.92[§]	45 *7*	295.6812	(5/2⁻)	2326.1		2030.42[§]	9 *2*	295.6812	(5/2⁻)
		1984.74[§]	100 *8*	233.8558	1/2⁻,3/2⁻			2223.37[§]	100 *4*	102.7326	(3/2)⁻
		2218.6[§]	41 *7*	0.0	3/2⁻			2284.62[§]	16 *2*	41.4844	(1/2⁻)

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Adopted Levels, Gammas (continued)

$\gamma(^{193}Os)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f
2326.1		2326.1	23 *3*	0.0	3/2⁻
2332.6		2229.87[§]	100 *35*	102.7326	(3/2)⁻
		2291.12[§]	94 *29*	41.4844	(1/2⁻)
2340.1		2298.62[§]	100	41.4844	(1/2⁻)
2342.9		2240.17[§]	100 *11*	102.7326	(3/2)⁻
		2301.42[§]	53 *9*	41.4844	(1/2⁻)
2348.0		2114.14[§]	26 *5*	233.8558	1/2⁻,3/2⁻
		2245.27[§]	50 *5*	102.7326	(3/2)⁻
		2306.52[§]	100 *5*	41.4844	(1/2⁻)
		2348.0[§]	29 *5*	0.0	3/2⁻
2350.4		2043.32[§]	100	307.0838	1/2⁻,3/2⁻
2360.9		2127.04[§]	100	233.8558	1/2⁻,3/2⁻
2364.2		2261.47[§]	100 *24*	102.7326	(3/2)⁻
		2364.2[§]	96 *20*	0.0	3/2⁻
2368.0		1478.52[§]	37 *5*	889.462	
		2060.92[§]	11 *5*	307.0838	1/2⁻,3/2⁻
		2134.14[§]	100 *6*	233.8558	1/2⁻,3/2⁻
		2265.27[§]	54 *5*	102.7326	(3/2)⁻
		2326.52[§]	30 *3*	41.4844	(1/2⁻)
2373.1		2373.1[§]	100	0.0	3/2⁻
2381.0		1491.52[§]	77 *19*	889.462	
		2073.92[§]	47 *19*	307.0838	1/2⁻,3/2⁻
		2308.1[§]	44 *12*	72.903	(5/2)⁻
		2381.0[§]	100 *12*	0.0	3/2⁻
2389.1		1499.62[§]	42 *5*	889.462	
		1933.33[§]	18 *7*	455.773	(5/2)⁻
		1990.08[§]	14 *6*	399.018	(5/2)⁻
		2093.42[§]	15 *4*	295.6812	(5/2⁻)
		2155.24[§]	13 *3*	233.8558	1/2⁻,3/2⁻
		2286.37[§]	36 *4*	102.7326	(3/2)⁻
		2347.62[§]	17 *4*	41.4844	(1/2⁻)
		2389.1[§]	100 *7*	0.0	3/2⁻
2396.3		2396.3[§]	100	0.0	3/2⁻
2407.0		2007.98[§]	39 *11*	399.018	(5/2)⁻
		2111.32[§]	51 *9*	295.6812	(5/2⁻)
		2304.27[§]	100 *10*	102.7326	(3/2)⁻
		2365.52[§]	90 *8*	41.4844	(1/2⁻)
		2407.0[§]	30 *6*	0.0	3/2⁻
2414.0		2372.52[§]	100	41.4844	(1/2⁻)
2421.0		1531.52[§]	60 *13*	889.462	
		2021.98[§]	24 *7*	399.018	(5/2)⁻
		2379.52[§]	100 *10*	41.4844	(1/2⁻)
2426.8		2192.94[§]	31 *9*	233.8558	1/2⁻,3/2⁻
		2324.07[§]	65 *11*	102.7326	(3/2)⁻
		2426.8[§]	100 *11*	0.0	3/2⁻
2431.3		2328.57[§]	100 *11*	102.7326	(3/2)⁻
		2431.3[§]	51 *6*	0.0	3/2⁻
2432.8		2033.78[§]	12 *3*	399.018	(5/2)⁻
		2125.72[§]	24 *6*	307.0838	1/2⁻,3/2⁻
		2330.07[§]	12 *5*	102.7326	(3/2)⁻
		2391.32[§]	100 *6*	41.4844	(1/2⁻)
		2432.8[§]	12 *3*	0.0	3/2⁻
2437.7		2396.22[§]	100	41.4844	(1/2⁻)
2442.5		2442.5[§]	100	0.0	3/2⁻
2447.0		2151.32[§]	37 *12*	295.6812	(5/2⁻)
		2405.52[§]	100 *12*	41.4844	(1/2⁻)
2450.1		2347.37[§]	100 *32*	102.7326	(3/2)⁻
		2377.2[§]	79 *26*	72.903	(5/2)⁻
2458.5		2151.42[§]	63 *22*	307.0838	1/2⁻,3/2⁻
		2355.77[§]	100 *22*	102.7326	(3/2)⁻
2461.7		2154.62[§]	28 *5*	307.0838	1/2⁻,3/2⁻
		2227.84[§]	100 *6*	233.8558	1/2⁻,3/2⁻
		2461.7[§]	25 *5*	0.0	3/2⁻
2467.7		2011.93[§]	48 *19*	455.773	(5/2)⁻
		2068.68[§]	38 *10*	399.018	(5/2)⁻
		2160.62[§]	37 *12*	307.0838	1/2⁻,3/2⁻
		2233.84[§]	42 *10*	233.8558	1/2⁻,3/2⁻
		2364.97[§]	40 *12*	102.7326	(3/2)⁻
		2426.22[§]	100 *12*	41.4844	(1/2⁻)
2470.4		2163.32[§]	100 *24*	307.0838	1/2⁻,3/2⁻
		2470.4[§]	100 *32*	0.0	3/2⁻
2484.3		2250.44[§]	61 *9*	233.8558	1/2⁻,3/2⁻
		2381.57[§]	40 *11*	102.7326	(3/2)⁻
		2442.82[§]	100 *11*	41.4844	(1/2⁻)
2486.7		2179.62[§]	100	307.0838	1/2⁻,3/2⁻
2489.6		2090.58[§]	75 *11*	399.018	(5/2)⁻
		2182.52[§]	55 *14*	307.0838	1/2⁻,3/2⁻
		2386.87[§]	48 *18*	102.7326	(3/2)⁻
		2489.6[§]	100 *14*	0.0	3/2⁻
2495.0		2039.23[§]	90 *10*	455.773	(5/2)⁻
		2187.92[§]	34 *7*	307.0838	1/2⁻,3/2⁻
		2261.14[§]	21 *7*	233.8558	1/2⁻,3/2⁻
		2422.1[§]	100 *7*	72.903	(5/2)⁻
2499.7		2204.02[§]	66 *8*	295.6812	(5/2⁻)
		2265.84[§]	32 *6*	233.8558	1/2⁻,3/2⁻
		2396.97[§]	27 *10*	102.7326	(3/2)⁻
		2426.8[§]	35 *6*	72.903	(5/2)⁻
		2458.22[§]	100 *19*	41.4844	(1/2⁻)
		2499.7[§]	35 *8*	0.0	3/2⁻
2503.5		2503.5[§]	100	0.0	3/2⁻

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Adopted Levels, Gammas (continued)

γ(^{193}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
2506.3		2433.4[§]	100	72.903	(5/2)⁻
2508.3		2052.53[§]	53 *7*	455.773	(5/2)⁻
		2109.28[§]	24 *6*	399.018	(5/2)⁻
		2201.22[§]	27 *6*	307.0838	1/2⁻,3/2⁻
		2274.44[§]	88 *7*	233.8558	1/2⁻,3/2⁻
		2405.57[§]	33 *10*	102.7326	(3/2)⁻
		2466.82[§]	41 *8*	41.4844	(1/2⁻)
		2508.3[§]	100 *10*	0.0	3/2⁻
2511.8		2056.03[§]	33 *7*	455.773	(5/2)⁻
		2112.78[§]	100 *7*	399.018	(5/2)⁻
		2204.72[§]	27 *7*	307.0838	1/2⁻,3/2⁻
		2409.07[§]	81 *12*	102.7326	(3/2)⁻
		2438.9[§]	47 *6*	72.903	(5/2)⁻
		2511.8[§]	36 *7*	0.0	3/2⁻
2514.1		2207.02[§]	69 *15*	307.0838	1/2⁻,3/2⁻
		2218.42[§]	51 *15*	295.6812	(5/2⁻)
		2280.24[§]	100 *13*	233.8558	1/2⁻,3/2⁻
		2472.62[§]	59 *18*	41.4844	(1/2⁻)
		2514.1[§]	67 *15*	0.0	3/2⁻
2519.2		2063.43[§]	100 *17*	455.773	(5/2)⁻
		2416.47[§]	97 *23*	102.7326	(3/2)⁻
		2446.3[§]	51 *14*	72.903	(5/2)⁻
		2477.72[§]	91 *20*	41.4844	(1/2⁻)
		2519.2[§]	91 *17*	0.0	3/2⁻
2528.4		2072.63[§]	87 *20*	455.773	(5/2)⁻
		2425.67[§]	63 *27*	102.7326	(3/2)⁻
		2455.5[§]	100 *17*	72.903	(5/2)⁻
		2528.4[§]	50 *20*	0.0	3/2⁻
2530.9		2223.82[§]	100	307.0838	1/2⁻,3/2⁻
2533.7		2299.84[§]	55 *5*	233.8558	1/2⁻,3/2⁻
		2533.7[§]	100 *9*	0.0	3/2⁻
2541.8		2086.03[§]	67 *8*	455.773	(5/2)⁻
		2234.72[§]	67 *8*	307.0838	1/2⁻,3/2⁻
		2307.94[§]	68 *7*	233.8558	1/2⁻,3/2⁻
		2439.07[§]	100 *13*	102.7326	(3/2)⁻
		2468.9[§]	29 *8*	72.903	(5/2)⁻
		2541.8[§]	20 *8*	0.0	3/2⁻
2548.2		2252.52[§]	31 *8*	295.6812	(5/2⁻)
		2314.34[§]	100 *6*	233.8558	1/2⁻,3/2⁻
		2445.47[§]	47 *9*	102.7326	(3/2)⁻
2551.3		2551.3[§]	100	0.0	3/2⁻
2554.6		2247.52[§]	100 *32*	307.0838	1/2⁻,3/2⁻
		2554.6[§]	84 *32*	0.0	3/2⁻
2558.1		2251.02[§]	27 *7*	307.0838	1/2⁻,3/2⁻
		2516.62[§]	100 *9*	41.4844	(1/2⁻)
2560.4		2253.32[§]	100 *15*	307.0838	1/2⁻,3/2⁻
		2326.54[§]	88 *13*	233.8558	1/2⁻,3/2⁻
		2457.67[§]	75 *20*	102.7326	(3/2)⁻
		2487.5[§]	75 *13*	72.903	(5/2)⁻
2567.1		2111.33[§]	67 *9*	455.773	(5/2)⁻
		2168.08[§]	49 *9*	399.018	(5/2)⁻
		2260.02[§]	60 *9*	307.0838	1/2⁻,3/2⁻
		2494.2[§]	81 *9*	72.903	(5/2)⁻
		2525.62[§]	57 *9*	41.4844	(1/2⁻)
		2567.1[§]	100 *13*	0.0	3/2⁻
2578.0		2344.14[§]	100	233.8558	1/2⁻,3/2⁻
2580.1		2124.33[§]	23 *4*	455.773	(5/2)⁻
		2284.42[§]	15 *4*	295.6812	(5/2⁻)
		2346.24[§]	33 *6*	233.8558	1/2⁻,3/2⁻
		2477.37[§]	100 *6*	102.7326	(3/2)⁻
		2507.2[§]	28 *3*	72.903	(5/2)⁻
		2538.62[§]	20 *4*	41.4844	(1/2⁻)
2585.0		2543.52[§]	100 *2*	41.4844	(1/2⁻)
		2585.0[§]	60 *2*	0.0	3/2⁻
2597.4		2363.54[§]	28 *7*	233.8558	1/2⁻,3/2⁻
		2597.4[§]	100 *13*	0.0	3/2⁻
2602.8		2147.03[§]	51 *14*	455.773	(5/2)⁻
		2203.78[§]	65 *14*	399.018	(5/2)⁻
		2529.9[§]	100 *12*	72.903	(5/2)⁻
		2561.32[§]	67 *16*	41.4844	(1/2⁻)
		2602.8[§]	49 *14*	0.0	3/2⁻
2606.9		2504.17[§]	100	102.7326	(3/2)⁻
2611.3		1902.1[§]	13 *3*	709.200	(5/2⁻,7/2⁻)
		2315.62[§]	21 *3*	295.6812	(5/2⁻)
		2508.57[§]	21 *3*	102.7326	(3/2)⁻
		2569.82[§]	100 *6*	41.4844	(1/2⁻)
		2611.3[§]	9 *3*	0.0	3/2⁻
2614.7		2380.84[§]	100	233.8558	1/2⁻,3/2⁻
2629.3		2322.22[§]	34 *14*	307.0838	1/2⁻,3/2⁻
		2526.57[§]	100 *14*	102.7326	(3/2)⁻
2632.3		2529.57[§]	61 *12*	102.7326	(3/2)⁻
		2590.82[§]	84 *14*	41.4844	(1/2⁻)
		2632.3[§]	100 *16*	0.0	3/2⁻
2637.8		2535.07[§]	38 *15*	102.7326	(3/2)⁻
		2596.32[§]	100 *15*	41.4844	(1/2⁻)
		2637.8[§]	46 *15*	0.0	3/2⁻
2656.6		2553.87[§]	70 *14*	102.7326	(3/2)⁻
		2615.12[§]	100 *12*	41.4844	(1/2⁻)
		2656.6[§]	75 *11*	0.0	3/2⁻
2661.8		2354.72[§]	100	307.0838	1/2⁻,3/2⁻

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Adopted Levels, Gammas (continued)

$\gamma(^{193}Os)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
2671.4		2364.32§	48 *5*	307.0838	1/2⁻,3/2⁻	2728.2		2625.47§	51 *11*	102.7326	(3/2)⁻
		2437.54§	28 *5*	233.8558	1/2⁻,3/2⁻			2686.72§	100 *12*	41.4844	(1/2⁻)
		2568.67§	46 *9*	102.7326	(3/2)⁻	2732.1		2732.1§	100	0.0	3/2⁻
		2598.5§	32 *5*	72.903	(5/2)⁻	2734.3		2500.44§	44 *10*	233.8558	1/2⁻,3/2⁻
		2629.92§	62 *6*	41.4844	(1/2⁻)			2734.3§	100 *16*	0.0	3/2⁻
		2671.4§	100 *9*	0.0	3/2⁻	2738.4		2504.54§	100 *3*	233.8558	1/2⁻,3/2⁻
2679.6		2280.58§	100 *8*	399.018	(5/2)⁻			2635.67§	100 *4*	102.7326	(3/2)⁻
		2445.74§	31 *8*	233.8558	1/2⁻,3/2⁻			2696.92§	86 *5*	41.4844	(1/2⁻)
		2638.12§	49 *8*	41.4844	(1/2⁻)	2741.9		2434.82§	38 *11*	307.0838	1/2⁻,3/2⁻
		2679.6§	42 *11*	0.0	3/2⁻			2508.04§	36 *11*	233.8558	1/2⁻,3/2⁻
2687.1		2614.2§	81 *19*	72.903	(5/2)⁻			2639.17§	54 *14*	102.7326	(3/2)⁻
		2645.62§	100 *19*	41.4844	(1/2⁻)			2741.9§	100 *11*	0.0	3/2⁻
2690.2		2456.34§	100 *21*	233.8558	1/2⁻,3/2⁻	2746.7		2643.97§	100	102.7326	(3/2)⁻
		2648.72§	85 *18*	41.4844	(1/2⁻)	2749.8		2647.07§	68 *14*	102.7326	(3/2)⁻
2693.9		2591.17§	73 *23*	102.7326	(3/2)⁻			2676.9§	100 *11*	72.903	(5/2)⁻
		2621.0§	100 *23*	72.903	(5/2)⁻			2749.8§	45 *11*	0.0	3/2⁻
2697.0		2389.92§	37 *12*	307.0838	1/2⁻,3/2⁻	2752.9		2445.82§	100 *22*	307.0838	1/2⁻,3/2⁻
		2401.32§	100 *16*	295.6812	(5/2⁻)			2519.04§	59 *22*	233.8558	1/2⁻,3/2⁻
		2463.14§	59 *14*	233.8558	1/2⁻,3/2⁻	2758.2		2524.34§	100	233.8558	1/2⁻,3/2⁻
		2594.27§	92 *16*	102.7326	(3/2)⁻	2761.7		2761.7§	100	0.0	3/2⁻
2699.5		2300.48§	26 *5*	399.018	(5/2)⁻	2764.9		2457.82§	100	307.0838	1/2⁻,3/2⁻
		2465.64§	24 *7*	233.8558	1/2⁻,3/2⁻	2773.9		2466.82§	47 *9*	307.0838	1/2⁻,3/2⁻
		2596.77§	100 *1*	102.7326	(3/2)⁻			2540.04§	31 *9*	233.8558	1/2⁻,3/2⁻
		2626.6§	24 *6*	72.903	(5/2)⁻			2671.17§	100 *11*	102.7326	(3/2)⁻
		2658.02§	41 *7*	41.4844	(1/2⁻)			2732.42§	26 *9*	41.4844	(1/2⁻)
		2699.5§	75 *8*	0.0	3/2⁻			2773.9§	57 *9*	0.0	3/2⁻
2703.7		2304.68§	21 *7*	399.018	(5/2)⁻	2779.4		2545.54§	100	233.8558	1/2⁻,3/2⁻
		2396.62§	59 *8*	307.0838	1/2⁻,3/2⁻	2782.1		2326.33§	100 *19*	455.773	(5/2)⁻
		2469.84§	100 *12*	233.8558	1/2⁻,3/2⁻			2475.02§	72 *19*	307.0838	1/2⁻,3/2⁻
		2600.97§	42 *11*	102.7326	(3/2)⁻			2548.24§	91 *3*	233.8558	1/2⁻,3/2⁻
		2662.22§	61 *9*	41.4844	(1/2⁻)			2679.37§	94 *19*	102.7326	(3/2)⁻
2708.9		2413.22§	33 *11*	295.6812	(5/2⁻)			2709.2§	100 *19*	72.903	(5/2)⁻
		2475.04§	100 *12*	233.8558	1/2⁻,3/2⁻			2740.62§	72 *19*	41.4844	(1/2⁻)
2714.8		2407.72§	100 *19*	307.0838	1/2⁻,3/2⁻			2782.1§	78 *19*	0.0	3/2⁻
		2480.94§	69 *19*	233.8558	1/2⁻,3/2⁻	2784.1		2477.02§	100 *15*	307.0838	1/2⁻,3/2⁻
2716.9		2409.82§	100	307.0838	1/2⁻,3/2⁻			2550.24§	66 *22*	233.8558	1/2⁻,3/2⁻
2720.2		2264.43§	42 *12*	455.773	(5/2)⁻	2792.0		2484.92§	100 *12*	307.0838	1/2⁻,3/2⁻
		2321.18§	37 *9*	399.018	(5/2)⁻			2496.32§	49 *14*	295.6812	(5/2⁻)
		2413.12§	49 *11*	307.0838	1/2⁻,3/2⁻			2750.52§	31 *12*	41.4844	(1/2⁻)
		2486.34§	46 *11*	233.8558	1/2⁻,3/2⁻	2797.9		2490.82§	45 *7*	307.0838	1/2⁻,3/2⁻
		2647.3§	46 *11*	72.903	(5/2)⁻			2564.04§	25 *7*	233.8558	1/2⁻,3/2⁻
		2678.72§	100 *21*	41.4844	(1/2⁻)			2695.17§	100 *9*	102.7326	(3/2)⁻
		2720.2§	44 *11*	0.0	3/2⁻			2797.9§	43 *7*	0.0	3/2⁻
2723.6		2489.74§	100 *13*	233.8558	1/2⁻,3/2⁻	2805.5		2349.73§	39 *7*	455.773	(5/2)⁻
		2650.7§	48 *13*	72.903	(5/2)⁻			2702.77§	88 *7*	102.7326	(3/2)⁻

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{193}Os)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
2805.5		2764.02[§]	100 *9*	41.4844	(1/2⁻)
		2805.5[§]	33 *7*	0.0	3/2⁻
2811.6		2504.52[§]	100 *21*	307.0838	1/2⁻,3/2⁻
		2738.7[§]	83 *21*	72.903	(5/2)⁻
2822.8		2113.6[§]	100	709.200	(5/2⁻,7/2⁻)
2830.3		2596.44[§]	100 *7*	233.8558	1/2⁻,3/2⁻
		2727.57[§]	37 *6*	102.7326	(3/2)⁻
2834.3		2731.57[§]	100	102.7326	(3/2)⁻
2856.3		2549.22[§]	23 *4*	307.0838	1/2⁻,3/2⁻
		2753.57[§]	26 *4*	102.7326	(3/2)⁻
		2856.3[§]	100 *7*	0.0	3/2⁻
2863.8		2154.6[§]	55 *9*	709.200	(5/2⁻,7/2⁻)
		2408.03[§]	100 *9*	455.773	(5/2)⁻
		2761.07[§]	67 *7*	102.7326	(3/2)⁻
		2822.32[§]	50 *7*	41.4844	(1/2⁻)
2870.0		2767.27[§]	100 *5*	102.7326	(3/2)⁻
		2828.52[§]	52 *5*	41.4844	(1/2⁻)
		2870.0[§]	37 *4*	0.0	3/2⁻
2875.8		2641.94[§]	44 *13*	233.8558	1/2⁻,3/2⁻
		2773.07[§]	42 *13*	102.7326	(3/2)⁻
		2875.8[§]	100 *13*	0.0	3/2⁻
2880.0		2646.14[§]	93 *22*	233.8558	1/2⁻,3/2⁻
		2807.1[§]	100 *22*	72.903	(5/2)⁻
2887.0		2487.98[§]	22 *5*	399.018	(5/2)⁻
		2579.92[§]	15 *5*	307.0838	1/2⁻,3/2⁻
2887.0		2814.1[§]	100 *7*	72.903	(5/2)⁻
2904.1		2597.02[§]	100	307.0838	1/2⁻,3/2⁻
2909.0		2509.98[§]	18 *3*	399.018	(5/2)⁻
		2601.92[§]	20 *5*	307.0838	1/2⁻,3/2⁻
		2675.14[§]	45 *4*	233.8558	1/2⁻,3/2⁻
		2806.27[§]	76 *5*	102.7326	(3/2)⁻
		2867.52[§]	100 *8*	41.4844	(1/2⁻)
		2909.0[§]	17 *5*	0.0	3/2⁻
2913.3		2606.22[§]	100 *16*	307.0838	1/2⁻,3/2⁻
		2871.82[§]	86 *16*	41.4844	(1/2⁻)
2918.0		2610.92[§]	100 *3*	307.0838	1/2⁻,3/2⁻
		2918.0[§]	100 *3*	0.0	3/2⁻
2972.4		2516.63[§]	39 *5*	455.773	(5/2)⁻
		2930.92[§]	100 *8*	41.4844	(1/2⁻)
2979.9		2877.17[§]	57 *13*	102.7326	(3/2)⁻
		2938.42[§]	100 *12*	41.4844	(1/2⁻)
2986.9		2914.0[§]	100	72.903	(5/2)⁻
3001.7		2898.97[§]	100 *24*	102.7326	(3/2)⁻
		3001.7[§]	96 *24*	0.0	3/2⁻
3006.6		2772.74[§]	21 *8*	233.8558	1/2⁻,3/2⁻
		2903.87[§]	100 *11*	102.7326	(3/2)⁻
		2965.12[§]	34 *9*	41.4844	(1/2⁻)
		3006.6[§]	92 *11*	0.0	3/2⁻
3010.4		2937.5[§]	100 *12*	72.903	(5/2)⁻
		3010.4[§]	83 *19*	0.0	3/2⁻

[†] From ^{192}Os(n,γ) E=thermal, except otherwise noted. γ-rays from 2002Ba66 ($\gamma\gamma$ cascade) identified by footnote. For some levels there was no common γ-ray to scale the $\gamma\gamma$ intensities with single measurements to deduce branching ratio and so not listed.

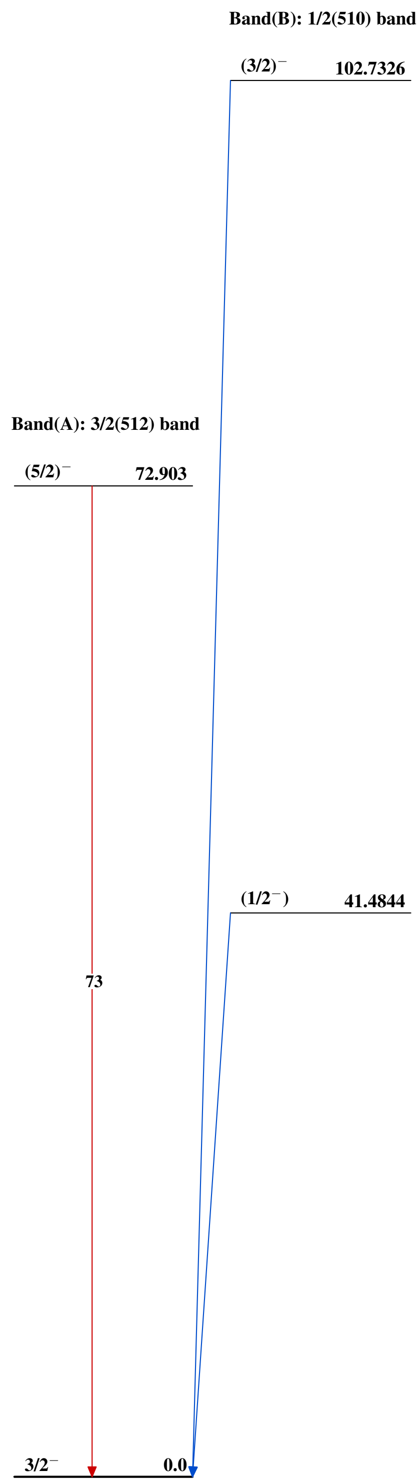
[‡] From (^{7}Li,^{6}Liγ).

[§] From 2002Ba66 ($\gamma\gamma$ cascade) in (n,γ) E=thermal.

[&] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[@] Multiply placed with undivided intensity.

Adopted Levels, Gammas



$^{193}_{76}Os_{117}$

^{9}Be(^{208}Pb,Xγ) 2011St21

Target thickness=2.526 g/cm^2, backed by ^{93}Nb foil of thickness=0.223 g/cm^2.
Fragments identified in flight by the Fragment Separator (FRS) operated in achromatic mode based on time-of-flight, Bρ and energy loss. Transmitted ions slowed in Al degraders and stopped in a plastic catcher. The stopper was surrounded by the RISING γ-ray spectrometer. Measured Eγ, Iγ, delayed γ rays, isomer lifetime.
Beam was fully-stripped or mixture of H- or He-like nuclei.

^{193}Os Levels

E(level)	$T_{1/2}$	Comments
x	132 ns *29*	E(level): 315.9 keV in Adopted Levels. Experimental isomeric state population ratio ≥7% *4*. $T_{1/2}$: from decay curve of 242-keV transition (2011St21).

γ(^{193}Os)

E_γ	I_γ	E_i(level)	Comments
^{x}242.0 *5*	100 *26*		E_γ: from Table I of 2011St21. Uncertainty of 0.5 keV assigned in consultation with Zs. Podolyak. This γ deexcites 132-ns isomer.

^{x} γ ray not placed in level scheme.

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66

1979Wa04: Osmium metal targets enriched to 99.06% in ^{192}Os; measured Eγ, Iγ (curved-crystal spectrometer system).
1978Be22: isotope separated ^{192}Os targets (≥99% pure); measured Eγ, Iγ (Ge(Li) pair spectrometer for high-energy γ's, FWHM=6-7 keV; Ge(Li) anti-Compton spectrometer for intermediate-energy γ's, FWHM=3 keV; Si(Li) for low-energy γ's, FWHM=0.5-0.9 keV).
2002Bo66: ^{192}Os enriched target, sum-coincidence γ-ray spectra with 2 HPGe detectors.

^{193}Os Levels

E(level)[†]	Jπ[‡]	Comments
0.0	3/2⁻	
41.4842 *22*	(1/2⁻)	
72.9015 *18*	(5/2)⁻	
102.7325 *10*	(3/2)⁻	
233.8558 *20*	1/2⁻,3/2⁻	
295.6810 *18*	(5/2⁻)	
307.0837 *16*	1/2⁻,3/2⁻	
399.018 *3*	(5/2)⁻	
434.9606 *24*	1/2⁻,3/2⁻	
455.773 *5*	(5/2)⁻	
544.552 *4*	(5/2⁻,7/2⁻)	
550.9[@] *4*		
573.2[@] *4*		
587.6[@] *4*		
675.2[@] *3*		
709.199 *10*	(5/2⁻,7/2⁻)	
788.5[@] *4*		
888.625[&] *21*		Jπ: see ^{193}Os Adopted Levels for comment.
889.462 *7*		Jπ: see ^{193}Os Adopted Levels for comment.
966.9[@] *3*		
1053.856[&] *7*	1/2⁻,3/2⁻	
1085.385[&] *11*	(1/2⁻,3/2⁻)	
1170.860[&] *8*	(1/2⁺,3/2⁺)	
1178.654[&] *14*	1/2⁻,3/2⁻	
1185.4[@] *4*		
1205.2[@] *3*		
1216.927[&] *8*	1/2$^{(-)}$,3/2$^{(-)}$	
1225.7[@] *3*		
1244.6[@] *3*		
1267.3[@] *4*		
1281.480[&] *19*	1/2⁻,3/2⁻	
1288.468[&] *8*	1/2⁻,3/2⁻	
1333.53[#&] *17*		
1359.52[#&] *16*		
1383.6[@] *4*		
1385.96[#&] *19*	1/2$^{(-)}$,3/2$^{(-)}$	
1398.2[@] *3*		
1400.00[@] *23*		
1418.00[@] *23*		
1434.0[@] *4*		
1446.5[@] *4*		

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

^{193}Os Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]
1459.514 *10*	5/2⁻,7/2⁻	1977.40[@] *21*
1497.4[@] *4*		1983.41[@] *21*
1501.8[#] *5*		1989.8[@] *4*
1504.10[@] *23*		2002.11[@] *19*
1515.52[#&] *18*	1/2⁻,3/2⁻	2013.60[@] *19*
1523.64[#&] *23*		2020.8[@] *3*
1530.34[#&] *21*		2024.3[@] *4*
1555.8[@] *3*		2037.41[@] *23*
1590.93[#&] *19*	1/2⁻,3/2⁻	2039.9[@] *3*
1603.21[#&] *16*		2048.21[#&] *23*
1660.3[@] *4*		2050.8[@] *3*
1680.3[@] *4*		2053.5[@] *4*
1683.28[#&] *17*		2059.7[@] *4*
1722.5[@] *3*		2064.12[#&] *17*
1731.6[@] *4*		2067.60[@] *23*
1737.6[@] *4*		2077.3[#] *5*
1744.9[@] *3*		2078.31[@] *15*
1754.2[@] *3*		2081.11[@] *19*
1760.4[@] *3*		2090.3[#] *5*
1765.13[#&] *17*		2092.90[@] *18*
1783.81[@] *17*		2098.05[#&] *17*
1785.2[#] *5*		2103.4[@] *3*
1795.8[@] *3*		2108.1[@] *4*
1798.9[@] *4*		2111.7[@] *3*
1802.0[@] *4*		2115.9[@] *4*
1805.1[@] *4*		2124.1[@] *3*
1826.7[@] *3*		2126.4[@] *3*
1830.6[#] *5*		2131.6[#] *5*
1831.11[@] *18*		2133.00[@] *18*
1838.40[#&] *21*		2134.2[@] *3*
1847.11[@] *17*		2143.5[@] *5*
1848.6[#] *5*		2150.6[@] *3*
1853.6[@] *4*		2153.8[@] *3*
1862.7[@] *4*		2157.1[@] *3*
1874.6[@] *4*		2163.7[@] *3*
1888.90[@] *23*		2168.71[@] *19*
1892.61[@] *23*		2178.1[@] *4*
1908.6[@] *3*		2181.3[@] *3*
1915.28[#&] *18*		2185.41[@] *23*
1921.2[@] *3*		2190.3[#] *5*
1932.1[@] *3*		2192.4[@] *3*
1935.1[@] *3*		2195.00[@] *23*
1938.6[@] *3*		2205.1[@] *3*
1949.0[@] *4*		2218.61[@] *23*
1954.81[@] *23*		2220.4[#] *5*

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

^{193}Os Levels (continued)

E(level)†	Comments
2222.0@ *3*	
2225.1@ *3*	
2230.6@ *3*	
2234.6@ *4*	
2239.9@ *4*	
2243.0# *5*	
2246.3@ *4*	
2249.11@ *21*	
2249.2@ *4*	E(level): Level established based on 3334.7 primary and 1540.0γ coincidence by 2002Ba66. The other closeby level established based on $\gamma\gamma$ coin of almost comparable energy of 3334.80 primary with five other secondary transitions. Considering the possibility of random coincidences − not adopted by evaluator.
2250.9@ *3*	
2255.9@ *3*	
2258.4@ *3*	
2278.7@ *3*	
2285.4@ *4*	
2290.5@ *3*	
2294.3@ *4*	
2297.3@ *3*	
2310.0@ *3*	
2315.91@ *21*	
2320.51@ *23*	
2326.11@ *23*	
2332.6@ *3*	
2340.1@ *4*	
2342.9@ *3*	
2348.01@ *23*	
2350.4@ *4*	
2360.9@ *4*	
2364.2@ *3*	
2368.01@ *21*	
2373.1@ *4*	
2381.01@ *23*	
2389.11@ *17*	
2396.3@ *4*	
2407.01@ *21*	
2414.0@ *4*	
2421.0@ *3*	
2426.8@ *3*	
2431.3@ *3*	
2432.81@ *21*	
2437.7@ *4*	
2442.5@ *4*	
2447.0@ *3*	
2450.1@ *3*	

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

^{193}Os Levels (continued)

E(level)[†]
2458.5[@] 3
2461.7[@] 3
2467.71[@] 19
2470.4[@] 3
2484.3[@] 3
2486.7[@] 4
2489.61[@] 23
2495.01[@] 23
2499.71[@] 19
2503.5[@] 4
2506.3[@] 4
2508.31[@] 18
2511.81[@] 19
2514.11[@] 21
2519.21[@] 21
2528.41[@] 23
2530.9[@] 4
2533.7[@] 3
2541.81[@] 19
2548.2[@] 3
2551.3[@] 4
2554.6[@] 3
2558.1[@] 3
2560.41[@] 23
2567.11[@] 19
2578.0[@] 4
2580.11[@] 19
2585.0[@] 3
2597.4[@] 3
2602.81[@] 21
2606.9[@] 4
2611.31[@] 21
2614.7[@] 4
2629.3[@] 3
2632.3[@] 3
2637.8[@] 3
2656.6[@] 3
2661.8[@] 4
2671.42[@] 19
2679.61[@] 23
2687.1[@] 3
2690.2[@] 3
2693.9[@] 3
2697.01[@] 23
2699.52[@] 19

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

^{193}Os Levels (continued)

E(level)[†]	J^{π}[‡]	Comments
2703.72[@] *21*		
2708.9[@] *3*		
2714.8[@] *3*		
2716.9[@] *4*		
2720.22[@] *18*		
2723.6[@] *3*		
2728.2[@] *3*		
2732.1[@] *4*		
2734.3[@] *3*		
2738.4[@] *3*		
2741.92[@] *23*		
2746.7[@] *4*		
2749.8[@] *3*		
2752.9[@] *3*		
2758.2[@] *4*		
2761.7[@] *4*		
2764.9[@] *4*		
2773.92[@] *21*		
2779.4[@] *4*		
2782.12[@] *18*		
2784.1[@] *3*		
2792.0[@] *3*		
2797.92[@] *23*		
2805.52[@] *23*		
2811.6[@] *3*		
2822.8[@] *4*		
2830.3[@] *3*		
2834.3[@] *4*		
2856.3[@] *3*		
2863.82[@] *23*		
2870.0[@] *3*		
2875.8[@] *3*		
2880.0[@] *3*		
2887.0[@] *3*		
2904.1[@] *4*		
2909.02[@] *19*		
2913.3[@] *3*		
2918.0[@] *3*		
2972.4[@] *3*		
2979.9[@] *3*		
2986.9[@] *4*		
3001.7[@] *3*		
3006.62[@] *23*		
3010.4[@] *3*		
(5583.93 *4*)	1/2$^+$	E(level): From least squares fit to primary γ's. S(n)=5583.42 *20* (AME 2017Wa10). J^{π}: s-wave capture by even-even nucleus.

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

^{193}Os Levels (continued)

† From least squares fit to Eγ, assuming ΔEγ=0.5 keV for missing γ-ray uncertainties.
‡ From Adopted Levels.
# From energy of primary transition in 1978Be22.
@ From cascade γ decay (primary and secondary) in 2002Bo66.
& Also reported in 2002Ba66.

γ(^{193}Os)

I(K x ray), relative to Iγ=100 for 265.6γ (1978Be22).
Iγ($γ^{\pm}$)=134, relative to Iγ=100 for 265.6γ (1978Be22).

K x ray	E(x-ray)	I(x-ray)
Os $K\alpha_2$ x ray	61.5 1	279
Os $K\alpha_1$ x ray + Ir $K\alpha_2$ x ray	3.0 2	310
Ir $K\alpha_1$ x ray	64.9 2	10
Os $K\beta_1$ x ray	71.3 1	92
Os $K\beta_2$ x ray + Pb $K\alpha_2$ x ray	73.2 4	64
Pb $K\alpha_1$ x ray	75.0 3	27

Eγ†	Iγ‡	E_i(level)	J^π_i	E_f	J^π_f	Comments
41.49§ 6	49§	41.4842	(1/2⁻)	0.0	3/2⁻	
(72.901 2)		72.9015	(5/2)⁻	0.0	3/2⁻	Eγ: from energy difference between 72.9 and 0.0 levels.
x84.9§ 3	7.6§					
91.920 7	4.5 10	399.018	(5/2)⁻	307.0837	1/2⁻,3/2⁻	
102.733 1	32.1 6	102.7325	(3/2)⁻	0.0	3/2⁻	
109.763 14	1.4 4	1288.468	1/2⁻,3/2⁻	1178.654	1/2⁻,3/2⁻	
x123.824 13	1.7 4					
127.879 7	4.2 4	434.9606	1/2⁻,3/2⁻	307.0837	1/2⁻,3/2⁻	
131.124 2	46.0 7	233.8558	1/2⁻,3/2⁻	102.7325	(3/2)⁻	
145.533 6	2.0 4	544.552	(5/2⁻,7/2⁻)	399.018	(5/2)⁻	
148.689 7	4.8 3	455.773	(5/2)⁻	307.0837	1/2⁻,3/2⁻	
160.102 20	1.7 3	455.773	(5/2)⁻	295.6810	(5/2⁻)	
165.23b 3	1.5b 5	399.018	(5/2)⁻	233.8558	1/2⁻,3/2⁻	
165.23b 3	1.5b 5	1053.856	1/2⁻,3/2⁻	888.625		
192.365 14	0.5 1	233.8558	1/2⁻,3/2⁻	41.4842	(1/2⁻)	
192.952 3	2.2 3	295.6810	(5/2⁻)	102.7325	(3/2)⁻	
x195.611 16	0.4 1					
x199.54 6	1.2 4					
201.105 2	20.5 5	434.9606	1/2⁻,3/2⁻	233.8558	1/2⁻,3/2⁻	
203.067 8	1.3 1	1288.468	1/2⁻,3/2⁻	1085.385	(1/2⁻,3/2⁻)	
204.349 2	84.1 16	307.0837	1/2⁻,3/2⁻	102.7325	(3/2)⁻	
x207.81 3	0.5 2					
x208.493 4	4.0 2					
221.906 16	0.8 1	455.773	(5/2)⁻	233.8558	1/2⁻,3/2⁻	
222.778 5	10.7 3	295.6810	(5/2⁻)	72.9015	(5/2)⁻	
233.857 15	0.8 1	233.8558	1/2⁻,3/2⁻	0.0	3/2⁻	
234.170 12	1.8 1	307.0837	1/2⁻,3/2⁻	72.9015	(5/2)⁻	
237.473 5	7.2 2	544.552	(5/2⁻,7/2⁻)	307.0837	1/2⁻,3/2⁻	
x241.132 17	0.7 1					
242.586 7	28.1 7	1459.514	5/2⁻,7/2⁻	1216.927	$1/2^{(-)},3/2^{(-)}$	

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	J^π_i	Ef	J^π_f	Iγ[&]
248.859 6	2.3 1	544.552	(5/2⁻,7/2⁻)	295.6810	(5/2⁻)	
254.193 4	20.8 4	295.6810	(5/2⁻)	41.4842	(1/2⁻)	
265.601 2	100.0 7	307.0837	1/2⁻,3/2⁻	41.4842	(1/2⁻)	
266.12[@]		573.2		307.0837	1/2⁻,3/2⁻	0.055 12
[x]276.575 6	2.0 1					
281.397 4	23.3 8	1170.860	(1/2⁺,3/2⁺)	889.462		
[x]287.81 5	0.4 1					
295.676 3	13.2 2	295.6810	(5/2⁻)	0.0	3/2⁻	
[x]297.632 6	2.3 1					
[x]298.057 9	1.1 1					
[x]303.589 9	1.3 1					
307.083 3	18.9 4	307.0837	1/2⁻,3/2⁻	0.0	3/2⁻	
326.117 5	4.0 2	399.018	(5/2)⁻	72.9015	(5/2)⁻	
327.464 4	6.3 2	1216.927	1/2$^{(-)}$,3/2$^{(-)}$	889.462		
353.042 11	2.0 2	455.773	(5/2)⁻	102.7325	(3/2)⁻	
353.74[@]		587.6		233.8558	1/2⁻,3/2⁻	0.041 6
357.518 19	1.2 2	399.018	(5/2)⁻	41.4842	(1/2⁻)	
[x]375.359 13	1.6 2					
[x]382.476 21	2.2 2					
382.862 8	9.3 3	455.773	(5/2)⁻	72.9015	(5/2)⁻	
391.96 4	2.4 7	1281.480	1/2⁻,3/2⁻	889.462		
393.471 6	20.3 4	434.9606	1/2⁻,3/2⁻	41.4842	(1/2⁻)	
399.022[b] 5	19.7[b] 4	399.018	(5/2)⁻	0.0	3/2⁻	
399.022[b] 5	19.7[b] 4	1288.468	1/2⁻,3/2⁻	889.462		
[x]400.917 25	2.0 4					
[x]401.404 25	2.7 3					
405.67 4	1.3 2	1459.514	5/2⁻,7/2⁻	1053.856	1/2⁻,3/2⁻	
413.479 20	1.3 2	709.199	(5/2⁻,7/2⁻)	295.6810	(5/2⁻)	
414.276 20	4.6 2	455.773	(5/2)⁻	41.4842	(1/2⁻)	
[x]432.49 4	1.1 2					
434.954 8	8.9 3	434.9606	1/2⁻,3/2⁻	0.0	3/2⁻	
[x]441.05 5	1.1 2					
441.835 17	2.4 4	544.552	(5/2⁻,7/2⁻)	102.7325	(3/2)⁻	
448.17[@]		550.9		102.7325	(3/2)⁻	0.032 4
455.754 12	11.9 3	455.773	(5/2)⁻	0.0	3/2⁻	
461.5[@]		1170.860	(1/2⁺,3/2⁺)	709.199	(5/2⁻,7/2⁻)	0.083 7
471.662 10	2.2 3	544.552	(5/2⁻,7/2⁻)	72.9015	(5/2)⁻	
[x]517.18 5	7.8 3					
544.53 3	8.6 3	544.552	(5/2⁻,7/2⁻)	0.0	3/2⁻	
[x]560.914 16	1.9 2					
567.88[@]		966.9		399.018	(5/2)⁻	0.011 3
572.47[@]		675.2		102.7325	(3/2)⁻	0.013 4
573.7[@]		1281.480	1/2⁻,3/2⁻	709.199	(5/2⁻,7/2⁻)	0.031 6
579.4[@]		1288.468	1/2⁻,3/2⁻	709.199	(5/2⁻,7/2⁻)	0.063 6
582.400 24	3.4 2	889.462		307.0837	1/2⁻,3/2⁻	0.21 5
[x]584.70 3	2.2 2					
606.459 24	2.7 2	709.199	(5/2⁻,7/2⁻)	102.7325	(3/2)⁻	
618.895 14	4.8 2	1053.856	1/2⁻,3/2⁻	434.9606	1/2⁻,3/2⁻	
633.72[@]		675.2		41.4842	(1/2⁻)	0.017 4
[x]635.789 21	6.0 3					
636.290 22	4.1 3	709.199	(5/2⁻,7/2⁻)	72.9015	(5/2)⁻	
[x]649.594 25	1.8 2					

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^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

Eγ[†]	Iγ[‡]	Ei(level)	J^π_i	Ef	J^π_f	Iγ[&]
655.614 15	3.1 2	889.462		233.8558	1/2−,3/2−	0.183 16
x667.824 21	3.0 2					
671.22[@]		966.9		295.6810	(5/2−)	0.014 4
709.231 16	12.3 5	709.199	(5/2−,7/2−)	0.0	3/2−	
x714.17 4	1.5 2					
714.93[@]		1170.860	(1/2+,3/2+)	455.773	(5/2)−	0.030 6
722.65 4	2.1 3	1178.654	1/2−,3/2−	455.773	(5/2)−	
x734.80 3	0.8 1					
x735.11 5	1.9 3					
743.52 4	2.1 2	1178.654	1/2−,3/2−	434.9606	1/2−,3/2−	
746.753 9	4.7 2	1053.856	1/2−,3/2−	307.0837	1/2−,3/2−	
x749.17 4	1.0 1					
761.73[@]		1216.927	1/2(−),3/2(−)	455.773	(5/2)−	0.072 6
769.93[@]		1225.7		455.773	(5/2)−	0.448 16
779.28[@]		1178.654	1/2−,3/2−	399.018	(5/2)−	0.020 7
785.96 4	9.5 5	888.625		102.7325	(3/2)−	
786.764 11	13.4 5	889.462		102.7325	(3/2)−	
788.5[@]		788.5		0.0	3/2−	0.025 5
x788.542 25	7.6 4					
788.82[@]		1085.385	(1/2−,3/2−)	295.6810	(5/2−)	0.070 9
788.83[@]		1244.6		455.773	(5/2)−	0.062 6
815.66 6	2.2 3	888.625		72.9015	(5/2)−	
816.63 5	2.4 2	889.462		72.9015	(5/2)−	
818.48[@]		1216.927	1/2(−),3/2(−)	399.018	(5/2)−	0.094 10
825.702 20	7.0 4	1281.480	1/2−,3/2−	455.773	(5/2)−	
x830.47 7	3.4 4					
x831.39 6	5.3 4					
832.46 4	5.0 4	1288.468	1/2−,3/2−	455.773	(5/2)−	
842.12[@]		1731.6		889.462		0.058 9
x847.31 3	8.7 4					
847.92[@]		889.462		41.4842	(1/2−)	0.087 9
x850.87 9	2.0 3					
863.62[@]		1170.860	(1/2+,3/2+)	307.0837	1/2−,3/2−	0.034 11
871.22[@]		1178.654	1/2−,3/2−	307.0837	1/2−,3/2−	0.097 15
875.02[@]		1170.860	(1/2+,3/2+)	295.6810	(5/2−)	0.161 12
877.73[@]		1333.53		455.773	(5/2)−	0.029 12
883.88[@]		1281.480	1/2−,3/2−	399.018	(5/2)−	0.119 14
x883.98 9	1.9 3					
888.55 5	4.0 5	888.625		0.0	3/2−	
889.484 13	15.7 7	889.462		0.0	3/2−	1.031 19
889.58[@]		1288.468	1/2−,3/2−	399.018	(5/2)−	0.081 11
903.83[@]		1359.52		455.773	(5/2)−	0.095 14
910.42[@]		1216.927	1/2(−),3/2(−)	307.0837	1/2−,3/2−	0.066 12
921.82[@]		1216.927	1/2(−),3/2(−)	295.6810	(5/2−)	0.024 7
x924.68 6	3.0 3					
934.48[@]		1333.53		399.018	(5/2)−	0.026 9
936.84[@]		1170.860	(1/2+,3/2+)	233.8558	1/2−,3/2−	0.176 16
951.172 15	54 3	1053.856	1/2−,3/2−	102.7325	(3/2)−	
960.58[@]		1359.52		399.018	(5/2)−	0.144 15

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	I_γ[&]
974.1[@]		1683.28		709.199	(5/2−,7/2−)	0.042 *6*
980.8[@]		1053.856	1/2−,3/2−	72.9015	(5/2)−	0.065 *5*
982.26 *4*	16.8 *14*	1085.385	(1/2−,3/2−)	233.8558	1/2−,3/2−	
983.14 *6*	16.8 *16*	1216.927	1/2(−),3/2(−)	233.8558	1/2−,3/2−	
[x]983.96 *6*	13.1 *15*					
987.22[@]		1281.480	1/2−,3/2−	295.6810	(5/2−)	0.032 *7*
992.92[@]		1288.468	1/2−,3/2−	295.6810	(5/2−)	0.064 *7*
1012.22[@]		1053.856	1/2−,3/2−	41.4842	(1/2−)	0.688 *15*
1037.82[@]		1333.53		295.6810	(5/2−)	0.021 *7*
1043.02[@]		1085.385	(1/2−,3/2−)	41.4842	(1/2−)	0.033 *4*
1048.33[@]		1504.10		455.773	(5/2)−	0.038 *9*
1052.52[@]		1359.52		307.0837	1/2−,3/2−	0.065 *6*
1053.7[@]		1053.856	1/2−,3/2−	0.0	3/2−	0.312 *8*
1055.9[@]		1765.13		709.199	(5/2−,7/2−)	0.025 *6*
1059.83[@]		1515.52	1/2−,3/2−	455.773	(5/2)−	0.06 *1*
1063.92[@]		1359.52		295.6810	(5/2−)	0.047 *5*
1067.97[@]		1170.860	(1/2+,3/2+)	102.7325	(3/2)−	0.226 *10*
1075.57[@]		1178.654	1/2−,3/2−	102.7325	(3/2)−	0.342 *11*
1076.52[@]		1383.6		307.0837	1/2−,3/2−	0.029 *6*
1078.92[@]		1385.96	1/2(−),3/2(−)	307.0837	1/2−,3/2−	0.096 *7*
1082.67[@]		1185.4		102.7325	(3/2)−	0.023 *6*
1087.92[@]		1977.40		889.462		0.054 *10*
1090.32[@]		1385.96	1/2(−),3/2(−)	295.6810	(5/2−)	0.027 *5*
1092.92[@]		1400.00		307.0837	1/2−,3/2−	0.043 *6*
1097.8[@]		1170.860	(1/2+,3/2+)	72.9015	(5/2)−	0.171 *10*
1099.64[@]		1333.53		233.8558	1/2−,3/2−	0.112 *14*
1102.47[@]		1205.2		102.7325	(3/2)−	0.097 *6*
1105.4[@]		1178.654	1/2−,3/2−	72.9015	(5/2)−	0.107 *8*
1114.77[@]		1216.927	1/2(−),3/2(−)	102.7325	(3/2)−	0.433 *13*
1116.58[@]		1515.52	1/2−,3/2−	399.018	(5/2)−	0.083 *11*
1122.32[@]		1418.00		295.6810	(5/2−)	0.022 *5*
1124.12[@]		2013.60		889.462		0.094 *10*
1125.74[@]		1359.52		233.8558	1/2−,3/2−	0.85 *4*
1129.1[@]		1838.40		709.199	(5/2−,7/2−)	0.051 *9*
1129.49 *6*	9.8 *11*	1170.860	(1/2+,3/2+)	41.4842	(1/2−)	
1131.28[@]		1530.34		399.018	(5/2)−	0.035 *11*
1136.82[@]		1178.654	1/2−,3/2−	41.4842	(1/2−)	0.029 *6*
1137.9[@]		1847.11		709.199	(5/2−,7/2−)	0.047 *9*
1144.6[@]		1216.927	1/2(−),3/2(−)	72.9015	(5/2)−	0.090 *8*
1147.43[@]		1603.21		455.773	(5/2)−	0.155 *14*
1152.8[@]		1225.7		72.9015	(5/2)−	0.020 *6*
1163.72[@]		1205.2		41.4842	(1/2−)	0.076 *9*
1164.57[@]		1267.3		102.7325	(3/2)−	0.093 *10*
1170.7[@]		1170.860	(1/2+,3/2+)	0.0	3/2−	0.097 *8*
1176.02[@]		1216.927	1/2(−),3/2(−)	41.4842	(1/2−)	0.593 *21*

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^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	I_γ[&]
1178.12[@]		2067.60		889.462		0.052 *8*
1178.3[@]		1178.654	1/2$^-$,3/2$^-$	0.0	3/2$^-$	0.717 *19*
1179.7[@]		1888.90		709.199	(5/2$^-$,7/2$^-$)	0.037 *9*
1180.17[@]		1281.480	1/2$^-$,3/2$^-$	102.7325	(3/2)$^-$	0.068 *8*
1184.22[@]		1225.7		41.4842	(1/2$^-$)	0.026 *6*
1185.87[@]		1288.468	1/2$^-$,3/2$^-$	102.7325	(3/2)$^-$	0.040 *8*
1188.82[@]		2078.31		889.462		0.032 *8*
[x]1200.7[§] *8*	34[§]					
1203.12[@]		1244.6		41.4842	(1/2$^-$)	0.015 *6*
1203.42[@]		2092.90		889.462		0.028 *8*
1204.18[@]		1603.21		399.018	(5/2)$^-$	0.212 *16*
1208.52[@]		1515.52	1/2$^-$,3/2$^-$	307.0837	1/2$^-$,3/2$^-$	0.200 *11*
1208.52[@]		2098.05		889.462		0.045 *8*
1210.0[@]		1281.480	1/2$^-$,3/2$^-$	72.9015	(5/2)$^-$	0.036 *4*
1215.7[@]		1288.468	1/2$^-$,3/2$^-$	72.9015	(5/2)$^-$	0.014 *4*
1216.42[@]		1523.64		307.0837	1/2$^-$,3/2$^-$	0.207 *11*
1217.5[@]		1216.927	1/2$^{(-)}$,3/2$^{(-)}$	0.0	3/2$^-$	0.176 *9*
1219.92[@]		1515.52	1/2$^-$,3/2$^-$	295.6810	(5/2$^-$)	0.054 *8*
1222.22[@]		2111.7		889.462		0.034 *8*
1223.22[@]		1530.34		307.0837	1/2$^-$,3/2$^-$	0.062 *6*
1230.77[@]		1333.53		102.7325	(3/2)$^-$	0.448 *17*
1234.62[@]		1530.34		295.6810	(5/2$^-$)	0.037 *8*
1241.42[@]		1281.480	1/2$^-$,3/2$^-$	41.4842	(1/2$^-$)	0.100 *6*
1243.52[@]		2133.00		889.462		0.168 *9*
1247.12[@]		1288.468	1/2$^-$,3/2$^-$	41.4842	(1/2$^-$)	0.127 *6*
1248.72[@]		1555.8		307.0837	1/2$^-$,3/2$^-$	0.035 *6*
1256.87[@]		1359.52		102.7325	(3/2)$^-$	0.108 *10*
1260.6[@]		1333.53		72.9015	(5/2)$^-$	0.017 *4*
1270.24[@]		1504.10		233.8558	1/2$^-$,3/2$^-$	0.070 *6*
1282.9[@]		1281.480	1/2$^-$,3/2$^-$	0.0	3/2$^-$	0.170 *9*
1283.27[@]		1385.96	1/2$^{(-)}$,3/2$^{(-)}$	102.7325	(3/2)$^-$	0.019 *4*
1283.82[@]		1590.93	1/2$^-$,3/2$^-$	307.0837	1/2$^-$,3/2$^-$	0.139 *12*
1286.7[@]		1359.52		72.9015	(5/2)$^-$	0.035 *4*
1288.6[@]		1288.468	1/2$^-$,3/2$^-$	0.0	3/2$^-$	0.630 *18*
1288.62[@]		2178.1		889.462		0.042 *11*
1289.13[@]		1744.9		455.773	(5/2)$^-$	0.016 *5*
1292.02[@]		1333.53		41.4842	(1/2$^-$)	0.083 *6*
1295.22[@]		1590.93	1/2$^-$,3/2$^-$	295.6810	(5/2$^-$)	0.046 *6*
1295.92[@]		2185.41		889.462		0.048 *11*
1296.12[@]		1603.21		307.0837	1/2$^-$,3/2$^-$	0.272 *16*
1297.27[@]		1400.00		102.7325	(3/2)$^-$	0.199 *8*
1305.52[@]		2195.00		889.462		0.082 *11*
1307.52[@]		1603.21		295.6810	(5/2$^-$)	0.178 *10*
1309.33[@]		1765.13		455.773	(5/2)$^-$	0.048 *5*
1313.1[@]		1385.96	1/2$^{(-)}$,3/2$^{(-)}$	72.9015	(5/2)$^-$	0.029 *5*

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^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	I_γ [&]
1318.12 [@]	1359.52		41.4842	(1/2$^-$)	0.059 *5*
1325.3 [@]	1398.2		72.9015	(5/2)$^-$	0.032 *5*
1328.03 [@]	1783.81		455.773	(5/2)$^-$	0.030 *5*
1333.5 [@]	1333.53		0.0	3/2$^-$	0.060 *5*
1344.52 [@]	1385.96	1/2$^{(-)}$,3/2$^{(-)}$	41.4842	(1/2$^-$)	0.140 *9*
1345.1 [@]	1418.00		72.9015	(5/2)$^-$	0.045 *5*
1354.9 [@]	2064.12		709.199	(5/2$^-$,7/2$^-$)	0.019 *7*
1358.52 [@]	1400.00		41.4842	(1/2$^-$)	0.017 *6*
1359.6 [@]	1359.52		0.0	3/2$^-$	0.045 *5*
1359.62 [@]	2249.11		889.462		0.058 *11*
1366.08 [@]	1765.13		399.018	(5/2)$^-$	0.056 *5*
1369.1 [@]	2078.31		709.199	(5/2$^-$,7/2$^-$)	0.026 *7*
1369.34 [@]	1603.21		233.8558	1/2$^-$,3/2$^-$	0.029 *6*
1373.22 [@]	1680.3		307.0837	1/2$^-$,3/2$^-$	0.024 *8*
1373.6 [@]	1446.5		72.9015	(5/2)$^-$	0.112 *6*
1375.33 [@]	1831.11		455.773	(5/2)$^-$	0.022 *5*
1376.22 [@]	1683.28		307.0837	1/2$^-$,3/2$^-$	0.072 *9*
1376.52 [@]	1418.00		41.4842	(1/2$^-$)	0.016 *5*
1384.78 [@]	1783.81		399.018	(5/2)$^-$	0.035 *5*
1386.0 [@]	1385.96	1/2$^{(-)}$,3/2$^{(-)}$	0.0	3/2$^-$	0.754 *18*
1387.62 [@]	1683.28		295.6810	(5/2$^-$)	0.138 *9*
1388.8 [@]	2098.05		709.199	(5/2$^-$,7/2$^-$)	0.047 *7*
1398.2 [@]	1398.2		0.0	3/2$^-$	0.069 *8*
1400.0 [@]	1400.00		0.0	3/2$^-$	0.034 *6*
1401.37 [@]	1504.10		102.7325	(3/2)$^-$	0.025 *6*
1412.87 [@]	1515.52	1/2$^-$,3/2$^-$	102.7325	(3/2)$^-$	0.085 *8*
1418.0 [@]	1418.00		0.0	3/2$^-$	0.066 *6*
1420.77 [@]	1523.64		102.7325	(3/2)$^-$	0.207 *11*
1426.82 [@]	1722.5		295.6810	(5/2$^-$)	0.018 *6*
1427.57 [@]	1530.34		102.7325	(3/2)$^-$	0.327 *13*
1432.08 [@]	1831.11		399.018	(5/2)$^-$	0.020 *4*
1434.0 [@]	1434.0		0.0	3/2$^-$	0.014 *5*
1436.83 [@]	1892.61		455.773	(5/2)$^-$	0.021 *6*
1448.08 [@]	1847.11		399.018	(5/2)$^-$	0.073 *5*
1449.44 [@]	1683.28		233.8558	1/2$^-$,3/2$^-$	0.250 *12*
1452.83 [@]	1908.6		455.773	(5/2)$^-$	0.025 *6*
1458.02 [@]	1765.13		307.0837	1/2$^-$,3/2$^-$	0.117 *8*
1459.53 [@]	1915.28		455.773	(5/2)$^-$	0.022 *6*
1474.12 [@]	1515.52	1/2$^-$,3/2$^-$	41.4842	(1/2$^-$)	0.051 *6*
1476.72 [@]	1783.81		307.0837	1/2$^-$,3/2$^-$	0.035 *6*
1478.52 [@]	2368.01		889.462		0.064 *8*
1482.02 [@]	1523.64		41.4842	(1/2$^-$)	0.067 *6*
1483.2 [@]	2192.4		709.199	(5/2$^-$,7/2$^-$)	0.029 *8*
1488.12 [@]	1783.81		295.6810	(5/2$^-$)	0.025 *5*
1488.17 [@]	1590.93	1/2$^-$,3/2$^-$	102.7325	(3/2)$^-$	0.087 *8*

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	I_γ[&]
1488.82[@]	1530.34		41.4842	(1/2$^-$)	0.248 *10*
1489.88[@]	1888.90		399.018	(5/2)$^-$	0.024 *5*
1491.52[@]	2381.01		889.462		0.033 *8*
1497.4[@]	1497.4		0.0	3/2$^-$	0.018 *5*
1499.03[@]	1954.81		455.773	(5/2)$^-$	0.017 *5*
1499.62[@]	2389.11		889.462		0.065 *8*
1500.47[@]	1603.21		102.7325	(3/2)$^-$	0.610 *17*
1504.1[@]	1504.10		0.0	3/2$^-$	0.024 *5*
1509.58[@]	1908.6		399.018	(5/2)$^-$	0.032 *6*
1514.32[@]	1555.8		41.4842	(1/2$^-$)	0.060 *6*
1515.6[@]	1515.52	1/2$^-$,3/2$^-$	0.0	3/2$^-$	0.021 *5*
1516.28[@]	1915.28		399.018	(5/2)$^-$	0.019 *6*
1518.0[@]	1590.93	1/2$^-$,3/2$^-$	72.9015	(5/2)$^-$	0.049 *5*
1520.34[@]	1754.2		233.8558	1/2$^-$,3/2$^-$	0.016 *4*
1523.5[@]	1523.64		0.0	3/2$^-$	0.069 *6*
1524.02[@]	1831.11		307.0837	1/2$^-$,3/2$^-$	0.018 *6*
1526.54[@]	1760.4		233.8558	1/2$^-$,3/2$^-$	0.014 *4*
1530.3[@]	1603.21		72.9015	(5/2)$^-$	0.023 *5*
1531.22[@]	1838.40		307.0837	1/2$^-$,3/2$^-$	0.399 *15*
1531.24[@]	1765.13		233.8558	1/2$^-$,3/2$^-$	0.102 *6*
1531.52[@]	2421.0		889.462		0.042 *9*
1535.42[@]	1831.11		295.6810	(5/2$^-$)	0.027 *5*
1536.08[@]	1935.1		399.018	(5/2)$^-$	0.023 *5*
1540.0[@]	2249.2		709.199	(5/2$^-$,7/2$^-$)	0.061 *12*
1540.02[@]	1847.11		307.0837	1/2$^-$,3/2$^-$	0.028 *6*
1549.42[@]	1590.93	1/2$^-$,3/2$^-$	41.4842	(1/2$^-$)	0.040 *5*
1549.94[@]	1783.81		233.8558	1/2$^-$,3/2$^-$	0.129 *7*
1551.42[@]	1847.11		295.6810	(5/2$^-$)	0.019 *5*
1557.83[@]	2013.60		455.773	(5/2)$^-$	0.017 *6*
1561.72[@]	1603.21		41.4842	(1/2$^-$)	0.671 *17*
1561.94[@]	1795.8		233.8558	1/2$^-$,3/2$^-$	0.019 *4*
1565.04[@]	1798.9		233.8558	1/2$^-$,3/2$^-$	0.030 *4*
1578.38[@]	1977.40		399.018	(5/2)$^-$	0.021 *5*
1580.57[@]	1683.28		102.7325	(3/2)$^-$	0.445 *15*
1581.63[@]	2037.41		455.773	(5/2)$^-$	0.030 *6*
1590.9[@]	1590.93	1/2$^-$,3/2$^-$	0.0	3/2$^-$	0.222 *11*
1597.24[@]	1831.11		233.8558	1/2$^-$,3/2$^-$	0.037 *4*
1603.08[@]	2002.11		399.018	(5/2)$^-$	0.025 *6*
1603.2[@]	1603.21		0.0	3/2$^-$	0.046 *6*
1604.44[@]	1838.40		233.8558	1/2$^-$,3/2$^-$	0.073 *5*
1608.22[@]	1915.28		307.0837	1/2$^-$,3/2$^-$	0.416 *16*
1608.33[@]	2064.12		455.773	(5/2)$^-$	0.049 *6*
1610.4[@]	1683.28		72.9015	(5/2)$^-$	0.021 *5*
1618.82[@]	1660.3		41.4842	(1/2$^-$)	0.017 *5*
1619.74[@]	1853.6		233.8558	1/2$^-$,3/2$^-$	0.016 *4*

Continued on next page (footnotes at end of table)

$^{192}Os(n,\gamma)$ E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

$\gamma(^{193}Os)$ (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	I_γ[&]
1619.77[@]	1722.5		102.7325	(3/2)$^-$	0.017 6
1622.53[@]	2078.31		455.773	(5/2)$^-$	0.043 6
1625.33[@]	2081.11		455.773	(5/2)$^-$	0.025 6
1634.87[@]	1737.6		102.7325	(3/2)$^-$	0.025 6
1641.82[@]	1683.28		41.4842	(1/2$^-$)	0.350 12
1641.92[@]	1949.0		307.0837	1/2$^-$,3/2$^-$	0.018 6
1647.72[@]	1954.81		307.0837	1/2$^-$,3/2$^-$	0.016 6
1651.78[@]	2050.8		399.018	(5/2)$^-$	0.046 5
1657.67[@]	1760.4		102.7325	(3/2)$^-$	0.047 8
1662.37[@]	1765.13		102.7325	(3/2)$^-$	0.108 8
1665.08[@]	2064.12		399.018	(5/2)$^-$	0.059 6
1670.32[@]	1977.40		307.0837	1/2$^-$,3/2$^-$	0.107 8
1672.0[@]	1744.9		72.9015	(5/2)$^-$	0.016 5
1677.23[@]	2133.00		455.773	(5/2)$^-$	0.054 6
1679.28[@]	2078.31		399.018	(5/2)$^-$	0.027 5
1681.44[@]	1915.28		233.8558	1/2$^-$,3/2$^-$	0.294 10
1682.08[@]	2081.11		399.018	(5/2)$^-$	0.052 6
1683.3[@]	1683.28		0.0	3/2$^-$	0.091 9
1687.72[@]	1983.41		295.6810	(5/2$^-$)	0.020 6
1692.2[@]	1765.13		72.9015	(5/2)$^-$	0.027 5
1693.07[@]	1795.8		102.7325	(3/2)$^-$	0.021 6
1693.88[@]	2092.90		399.018	(5/2)$^-$	0.111 7
1695.02[@]	2002.11		307.0837	1/2$^-$,3/2$^-$	0.040 6
1706.42[@]	2002.11		295.6810	(5/2$^-$)	0.039 6
1706.52[@]	2013.60		307.0837	1/2$^-$,3/2$^-$	0.051 6
1707.93[@]	2163.7		455.773	(5/2)$^-$	0.021 6
1710.9[@]	1783.81		72.9015	(5/2)$^-$	0.033 5
1713.72[@]	2020.8		307.0837	1/2$^-$,3/2$^-$	0.021 6
1720.94[@]	1954.81		233.8558	1/2$^-$,3/2$^-$	0.022 4
1722.5[@]	1722.5		0.0	3/2$^-$	0.019 5
1723.62[@]	1765.13		41.4842	(1/2$^-$)	0.074 6
1730.32[@]	2037.41		307.0837	1/2$^-$,3/2$^-$	0.018 5
1732.82[@]	2039.9		307.0837	1/2$^-$,3/2$^-$	0.021 5
1733.98[@]	2133.00		399.018	(5/2)$^-$	0.037 5
1735.57[@]	1838.40		102.7325	(3/2)$^-$	0.025 6
1741.02[@]	2048.21		307.0837	1/2$^-$,3/2$^-$	0.040 5
1741.72[@]	2037.41		295.6810	(5/2$^-$)	0.022 6
1742.32[@]	1783.81		41.4842	(1/2$^-$)	0.112 7
1743.54[@]	1977.40		233.8558	1/2$^-$,3/2$^-$	0.030 4
1744.37[@]	1847.11		102.7325	(3/2)$^-$	0.080 8
1749.54[@]	1983.41		233.8558	1/2$^-$,3/2$^-$	0.015 4
1753.8[@]	1826.7		72.9015	(5/2)$^-$	0.014 5
1754.2[@]	1754.2		0.0	3/2$^-$	0.016 5
1755.12[@]	2050.8		295.6810	(5/2$^-$)	0.046 6
1755.94[@]	1989.8		233.8558	1/2$^-$,3/2$^-$	0.020 4
1757.02[@]	2064.12		307.0837	1/2$^-$,3/2$^-$	0.053 5
1758.2[@]	1831.11		72.9015	(5/2)$^-$	0.032 5
1759.97[@]	1862.7		102.7325	(3/2)$^-$	0.029 6
1760.52[@]	1802.0		41.4842	(1/2$^-$)	0.022 5
1760.52[@]	2067.60		307.0837	1/2$^-$,3/2$^-$	0.043 5
1765.4[@]	1838.40		72.9015	(5/2)$^-$	0.021 5
1768.24[@]	2002.11		233.8558	1/2$^-$,3/2$^-$	0.048 5
1769.68[@]	2168.71		399.018	(5/2)$^-$	0.049 5
1771.22[@]	2078.31		307.0837	1/2$^-$,3/2$^-$	0.115 7
1774.02[@]	2081.11		307.0837	1/2$^-$,3/2$^-$	0.035 5
1774.2[@]	1847.11		72.9015	(5/2)$^-$	0.024 5
1779.74[@]	2013.60		233.8558	1/2$^-$,3/2$^-$	0.015 4
1782.62[@]	2078.31		295.6810	(5/2$^-$)	0.020 6
1783.8[@]	1783.81		0.0	3/2$^-$	0.065 6
1785.42[@]	2081.11		295.6810	(5/2$^-$)	0.027 6
1786.17[@]	1888.90		102.7325	(3/2)$^-$	0.032 8
1786.94[@]	2020.8		233.8558	1/2$^-$,3/2$^-$	0.022 4
1789.62[@]	1831.11		41.4842	(1/2$^-$)	0.037 5
1790.92[@]	2098.05		307.0837	1/2$^-$,3/2$^-$	0.020 5
1795.98[@]	2195.00		399.018	(5/2)$^-$	0.016 5
1797.22[@]	2092.90		295.6810	(5/2$^-$)	0.038 6
1802.32[@]	2098.05		295.6810	(5/2$^-$)	0.023 6
1803.54[@]	2037.41		233.8558	1/2$^-$,3/2$^-$	0.030 5
1805.1[@]	1805.1		0.0	3/2$^-$	0.026 5
1805.62[@]	1847.11		41.4842	(1/2$^-$)	0.065 6
1806.08[@]	2205.1		399.018	(5/2)$^-$	0.018 5
1807.72[@]	2103.4		295.6810	(5/2$^-$)	0.018 6
1812.57[@]	1915.28		102.7325	(3/2)$^-$	0.030 6
1814.24[@]	2048.21		233.8558	1/2$^-$,3/2$^-$	0.049 6
1816.0[@]	1888.90		72.9015	(5/2)$^-$	0.029 5
1816.94[@]	2050.8		233.8558	1/2$^-$,3/2$^-$	0.023 5
1818.47[@]	1921.2		102.7325	(3/2)$^-$	0.030 6
1819.32[@]	2126.4		307.0837	1/2$^-$,3/2$^-$	0.032 5
1819.58[@]	2218.61		399.018	(5/2)$^-$	0.014 5
1819.7[@]	1892.61		72.9015	(5/2)$^-$	0.040 5
1826.7[@]	1826.7		0.0	3/2$^-$	0.018 5
1827.12[@]	2134.2		307.0837	1/2$^-$,3/2$^-$	0.086 6
1831.1[@]	1831.11		0.0	3/2$^-$	0.029 5
1832.37[@]	1935.1		102.7325	(3/2)$^-$	0.082 6
1833.74[@]	2067.60		233.8558	1/2$^-$,3/2$^-$	0.082 6
1837.32[@]	2133.00		295.6810	(5/2$^-$)	0.037 5
1844.44[@]	2078.31		233.8558	1/2$^-$,3/2$^-$	0.052 5
1847.1[@]	1847.11		0.0	3/2$^-$	0.026 6
1848.3[@]	1921.2		72.9015	(5/2)$^-$	0.013 5
1850.02[@]	2157.1		307.0837	1/2$^-$,3/2$^-$	0.028 5

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^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	I_γ [&]
1850.08[@]	2249.11		399.018	(5/2)⁻	0.088 *7*
1851.12[@]	1892.61		41.4842	(1/2⁻)	0.040 *5*
1852.07[@]	1954.81		102.7325	(3/2)⁻	0.355 *11*
1854.92[@]	2150.6		295.6810	(5/2⁻)	0.023 *5*
1858.12[@]	2153.8		295.6810	(5/2⁻)	0.039 *5*
1859.04[@]	2092.90		233.8558	1/2⁻,3/2⁻	0.032 *5*
1859.2[@]	1932.1		72.9015	(5/2)⁻	0.089 *5*
1859.38[@]	2258.4		399.018	(5/2)⁻	0.022 *5*
1860.13[@]	2315.91		455.773	(5/2)⁻	0.064 *8*
1861.62[@]	2168.71		307.0837	1/2⁻,3/2⁻	0.026 *5*
1864.14[@]	2098.05		233.8558	1/2⁻,3/2⁻	0.045 *5*
1867.12[@]	1908.6		41.4842	(1/2⁻)	0.015 *5*
1873.02[@]	2168.71		295.6810	(5/2⁻)	0.023 *5*
1873.82[@]	1915.28		41.4842	(1/2⁻)	0.411 *12*
1874.24[@]	2108.1		233.8558	1/2⁻,3/2⁻	0.022 *6*
1874.6[@]	1874.6		0.0	3/2⁻	0.031 *10*
1878.32[@]	2185.41		307.0837	1/2⁻,3/2⁻	0.023 *11*
1880.67[@]	1983.41		102.7325	(3/2)⁻	0.070 *6*
1887.92[@]	2195.00		307.0837	1/2⁻,3/2⁻	0.216 *19*
1890.24[@]	2124.1		233.8558	1/2⁻,3/2⁻	0.022 *4*
1890.62[@]	1932.1		41.4842	(1/2⁻)	0.028 *5*
1892.6[@]	1892.61		0.0	3/2⁻	0.025 *10*
1897.12[@]	1938.6		41.4842	(1/2⁻)	0.048 *5*
1899.14[@]	2133.00		233.8558	1/2⁻,3/2⁻	0.054 *7*
1900.34[@]	2134.2		233.8558	1/2⁻,3/2⁻	0.048 *6*
1902.1[@]	2611.31		709.199	(5/2⁻,7/2⁻)	0.030 *8*
1910.5[@]	1983.41		72.9015	(5/2)⁻	0.067 *5*
1910.87[@]	2013.60		102.7325	(3/2)⁻	0.032 *6*
1915.3[@]	1915.28		0.0	3/2⁻	0.029 *10*
1922.92[@]	2218.61		295.6810	(5/2⁻)	0.033 *5*
1929.2[@]	2002.11		72.9015	(5/2)⁻	0.087 *6*
1929.42[@]	2225.1		295.6810	(5/2⁻)	0.026 *5*
1929.84[@]	2163.7		233.8558	1/2⁻,3/2⁻	0.026 *4*
1933.33[@]	2389.11		455.773	(5/2)⁻	0.028 *10*
1935.1[@]	1935.1		0.0	3/2⁻	0.023 *10*
1935.92[@]	1977.40		41.4842	(1/2⁻)	0.037 *5*
1938.6[@]	1938.6		0.0	3/2⁻	0.321 *24*
1942.02[@]	2249.11		307.0837	1/2⁻,3/2⁻	0.380 *25*
1945.37[@]	2048.21		102.7325	(3/2)⁻	0.049 *8*
1948.82[@]	2255.9		307.0837	1/2⁻,3/2⁻	0.031 *11*
1950.77[@]	2053.5		102.7325	(3/2)⁻	0.08 *1*
1960.62[@]	2002.11		41.4842	(1/2⁻)	0.210 *11*
1961.37[@]	2064.12		102.7325	(3/2)⁻	0.097 *10*
1972.12[@]	2013.60		41.4842	(1/2⁻)	0.123 *9*
1978.37[@]	2081.11		102.7325	(3/2)⁻	0.042 *8*
1982.82[@]	2024.3		41.4842	(1/2⁻)	0.027 *6*
1983.02[@]	2278.7		295.6810	(5/2⁻)	0.020 *6*
1983.4[@]	1983.41		0.0	3/2⁻	0.160 *16*
1984.74[@]	2218.61		233.8558	1/2⁻,3/2⁻	0.073 *6*
1988.14[@]	2222.0		233.8558	1/2⁻,3/2⁻	0.024 *5*
1990.08[@]	2389.11		399.018	(5/2)⁻	0.022 *9*
1990.17[@]	2092.90		102.7325	(3/2)⁻	0.038 *8*
1991.2[@]	2064.12		72.9015	(5/2)⁻	0.076 *6*
1995.27[@]	2098.05		102.7325	(3/2)⁻	0.021 *8*
2005.4[@]	2078.31		72.9015	(5/2)⁻	0.031 *5*
2007.98[@]	2407.01		399.018	(5/2)⁻	0.031 *9*
2008.2[@]	2081.11		72.9015	(5/2)⁻	0.054 *5*
2008.82[@]	2315.91		307.0837	1/2⁻,3/2⁻	0.020 *8*
2011.93[@]	2467.71		455.773	(5/2)⁻	0.025 *10*
2018.22[@]	2059.7		41.4842	(1/2⁻)	0.018 *6*
2020.0[@]	2092.90		72.9015	(5/2)⁻	0.022 *5*
2020.22[@]	2315.91		295.6810	(5/2⁻)	0.022 *6*
2021.37[@]	2124.1		102.7325	(3/2)⁻	0.046 *8*
2021.98[@]	2421.0		399.018	(5/2)⁻	0.017 *5*
2022.62[@]	2064.12		41.4842	(1/2⁻)	0.051 *7*
2024.82[@]	2320.51		295.6810	(5/2⁻)	0.020 *6*
2030.27[@]	2133.00		102.7325	(3/2)⁻	0.017 *6*
2030.42[@]	2326.11		295.6810	(5/2⁻)	0.027 *6*
2033.78[@]	2432.81		399.018	(5/2)⁻	0.019 *5*
2036.82[@]	2078.31		41.4842	(1/2⁻)	0.295 *12*
2039.23[@]	2495.01		455.773	(5/2)⁻	0.063 *7*
2039.9[@]	2039.9		0.0	3/2⁻	0.043 *5*
2040.77[@]	2143.5		102.7325	(3/2)⁻	0.015 *6*
2043.32[@]	2350.4		307.0837	1/2⁻,3/2⁻	0.019 *8*
2048.1[@]	2048.21		0.0	3/2⁻	0.141 *8*
2051.07[@]	2153.8		102.7325	(3/2)⁻	0.061 *8*
2052.53[@]	2508.31		455.773	(5/2)⁻	0.044 *6*
2056.03[@]	2511.81		455.773	(5/2)⁻	0.028 *6*
2056.52[@]	2098.05		41.4842	(1/2⁻)	0.021 *6*
2060.92[@]	2368.01		307.0837	1/2⁻,3/2⁻	0.019 *8*
2061.92[@]	2103.4		41.4842	(1/2⁻)	0.018 *6*
2063.43[@]	2519.21		455.773	(5/2)⁻	0.035 *6*
2064.1[@]	2064.12		0.0	3/2⁻	0.039 *5*
2065.97[@]	2168.71		102.7325	(3/2)⁻	0.017 *6*
2067.6[@]	2067.60		0.0	3/2⁻	0.030 *5*
2068.68[@]	2467.71		399.018	(5/2)⁻	0.020 *5*
2072.63[@]	2528.41		455.773	(5/2)⁻	0.026 *6*
2073.92[@]	2381.01		307.0837	1/2⁻,3/2⁻	0.020 *8*
2074.42[@]	2115.9		41.4842	(1/2⁻)	0.032 *6*
2076.14[@]	2310.0		233.8558	1/2⁻,3/2⁻	0.035 *16*

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	I_γ[&]
2078.3[@]	2078.31		0.0	3/2⁻	0.039 *5*
2082.67[@]	2185.41		102.7325	(3/2)⁻	0.146 *10*
2084.92[@]	2126.4		41.4842	(1/2⁻)	0.032 *6*
2086.03[@]	2541.81		455.773	(5/2)⁻	0.051 *6*
2086.64[@]	2320.51		233.8558	1/2⁻,3/2⁻	0.078 *7*
2089.67[@]	2192.4		102.7325	(3/2)⁻	0.078 *8*
2090.58[@]	2489.61		399.018	(5/2)⁻	0.033 *5*
2090.8[@]	2163.7		72.9015	(5/2)⁻	0.042 *5*
2092.27[@]	2195.00		102.7325	(3/2)⁻	0.046 *8*
2092.9[@]	2092.90		0.0	3/2⁻	0.020 *5*
2093.42[@]	2389.11		295.6810	(5/2⁻)	0.023 *6*
2098.0[@]	2098.05		0.0	3/2⁻	0.024 *5*
2102.37[@]	2205.1		102.7325	(3/2)⁻	0.040 *6*
2108.4[@]	2181.3		72.9015	(5/2)⁻	0.019 *5*
2109.12[@]	2150.6		41.4842	(1/2⁻)	0.018 *7*
2109.28[@]	2508.31		399.018	(5/2)⁻	0.020 *5*
2111.32[@]	2407.01		295.6810	(5/2⁻)	0.041 *7*
2111.33[@]	2567.11		455.773	(5/2)⁻	0.047 *6*
2111.7[@]	2111.7		0.0	3/2⁻	0.024 *5*
2112.78[@]	2511.81		399.018	(5/2)⁻	0.086 *6*
2113.6[@]	2822.8		709.199	(5/2⁻,7/2⁻)	0.030 *7*
2114.14[@]	2348.01		233.8558	1/2⁻,3/2⁻	0.029 *6*
2124.33[@]	2580.11		455.773	(5/2)⁻	0.037 *6*
2125.72[@]	2432.81		307.0837	1/2⁻,3/2⁻	0.037 *9*
2127.04[@]	2360.9		233.8558	1/2⁻,3/2⁻	0.021 *6*
2127.22[@]	2168.71		41.4842	(1/2⁻)	0.187 *11*
2127.87[@]	2230.6		102.7325	(3/2)⁻	0.042 *6*
2133.0[@]	2133.00		0.0	3/2⁻	0.030 *5*
2134.14[@]	2368.01		233.8558	1/2⁻,3/2⁻	0.172 *11*
2134.2[@]	2134.2		0.0	3/2⁻	0.021 *5*
2139.82[@]	2181.3		41.4842	(1/2⁻)	0.056 *7*
2143.92[@]	2185.41		41.4842	(1/2⁻)	0.017 *6*
2146.37[@]	2249.11		102.7325	(3/2)⁻	0.067 *8*
2147.03[@]	2602.81		455.773	(5/2)⁻	0.022 *6*
2150.92[@]	2192.4		41.4842	(1/2⁻)	0.063 *7*
2151.32[@]	2447.0		295.6810	(5/2⁻)	0.019 *6*
2151.42[@]	2458.5		307.0837	1/2⁻,3/2⁻	0.017 *6*
2153.17[@]	2255.9		102.7325	(3/2)⁻	0.021 *6*
2154.6[@]	2863.82		709.199	(5/2⁻,7/2⁻)	0.045 *7*
2154.62[@]	2461.7		307.0837	1/2⁻,3/2⁻	0.031 *6*
2155.24[@]	2389.11		233.8558	1/2⁻,3/2⁻	0.020 *5*
2157.1[@]	2157.1		0.0	3/2⁻	0.030 *5*
2160.62[@]	2467.71		307.0837	1/2⁻,3/2⁻	0.019 *6*
2163.32[@]	2470.4		307.0837	1/2⁻,3/2⁻	0.025 *6*
2168.08[@]	2567.11		399.018	(5/2)⁻	0.034 *6*
2168.7[@]	2168.71		0.0	3/2⁻	0.111 *8*
2175.97[@]	2278.7		102.7325	(3/2)⁻	0.021 *6*
2176.2[@]	2249.11		72.9015	(5/2)⁻	0.152 *9*
2179.62[@]	2486.7		307.0837	1/2⁻,3/2⁻	0.016 *6*
2182.52[@]	2489.61		307.0837	1/2⁻,3/2⁻	0.024 *6*
2182.67[@]	2285.4		102.7325	(3/2)⁻	0.055 *6*
2183.62[@]	2225.1		41.4842	(1/2⁻)	0.251 *12*
2187.92[@]	2495.01		307.0837	1/2⁻,3/2⁻	0.024 *5*
2192.94[@]	2426.8		233.8558	1/2⁻,3/2⁻	0.017 *5*
2194.57[@]	2297.3		102.7325	(3/2)⁻	0.017 *6*
2198.42[@]	2239.9		41.4842	(1/2⁻)	0.021 *6*
2201.22[@]	2508.31		307.0837	1/2⁻,3/2⁻	0.022 *5*
2203.78[@]	2602.81		399.018	(5/2)⁻	0.028 *6*
2204.02[@]	2499.71		295.6810	(5/2⁻)	0.051 *6*
2204.72[@]	2511.81		307.0837	1/2⁻,3/2⁻	0.023 *6*
2204.82[@]	2246.3		41.4842	(1/2⁻)	0.029 *6*
2205.8[@]	2278.7		72.9015	(5/2)⁻	0.028 *5*
2207.02[@]	2514.11		307.0837	1/2⁻,3/2⁻	0.027 *6*
2209.42[@]	2250.9		41.4842	(1/2⁻)	0.028 *6*
2217.77[@]	2320.51		102.7325	(3/2)⁻	0.076 *6*
2218.42[@]	2514.11		295.6810	(5/2⁻)	0.020 *6*
2218.6[@]	2218.61		0.0	3/2⁻	0.030 *5*
2222.0[@]	2222.0		0.0	3/2⁻	0.014 *5*
2223.37[@]	2326.11		102.7325	(3/2)⁻	0.291 *11*
2223.82[@]	2530.9		307.0837	1/2⁻,3/2⁻	0.021 *6*
2224.4[@]	2297.3		72.9015	(5/2)⁻	0.033 *5*
2227.84[@]	2461.7		233.8558	1/2⁻,3/2⁻	0.110 *7*
2229.87[@]	2332.6		102.7325	(3/2)⁻	0.017 *6*
2230.6[@]	2230.6		0.0	3/2⁻	0.023 *5*
2233.84[@]	2467.71		233.8558	1/2⁻,3/2⁻	0.022 *5*
2234.6[@]	2234.6		0.0	3/2⁻	0.021 *5*
2234.72[@]	2541.81		307.0837	1/2⁻,3/2⁻	0.051 *6*
2240.17[@]	2342.9		102.7325	(3/2)⁻	0.055 *6*
2245.27[@]	2348.01		102.7325	(3/2)⁻	0.055 *6*
2247.52[@]	2554.6		307.0837	1/2⁻,3/2⁻	0.019 *6*
2249.02[@]	2290.5		41.4842	(1/2⁻)	0.033 *5*
2250.44[@]	2484.3		233.8558	1/2⁻,3/2⁻	0.035 *5*
2250.9[@]	2250.9		0.0	3/2⁻	0.60 *3*
2251.02[@]	2558.1		307.0837	1/2⁻,3/2⁻	0.022 *6*
2252.52[@]	2548.2		295.6810	(5/2⁻)	0.029 *7*
2253.32[@]	2560.41		307.0837	1/2⁻,3/2⁻	0.040 *6*
2255.82[@]	2297.3		41.4842	(1/2⁻)	0.032 *5*
2258.4[@]	2258.4		0.0	3/2⁻	0.024 *9*
2260.02[@]	2567.11		307.0837	1/2⁻,3/2⁻	0.042 *6*
2261.14[@]	2495.01		233.8558	1/2⁻,3/2⁻	0.015 *5*

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_{γ}[†]	E_i(level)	J^{π}_i	E_f	J^{π}_f	I_{γ}[&]
2261.47[@]	2364.2		102.7325	(3/2)$^-$	0.025 *6*
2264.43[@]	2720.22		455.773	(5/2)$^-$	0.024 *7*
2265.27[@]	2368.01		102.7325	(3/2)$^-$	0.093 *8*
2265.84[@]	2499.71		233.8558	1/2$^-$,3/2$^-$	0.025 *5*
2268.52[@]	2310.0		41.4842	(1/2$^-$)	0.045 *5*
2274.42[@]	2315.91		41.4842	(1/2$^-$)	0.056 *5*
2274.44[@]	2508.31		233.8558	1/2$^-$,3/2$^-$	0.073 *6*
2280.24[@]	2514.11		233.8558	1/2$^-$,3/2$^-$	0.039 *5*
2280.58[@]	2679.61		399.018	(5/2)$^-$	0.072 *6*
2284.42[@]	2580.11		295.6810	(5/2$^-$)	0.024 *6*
2284.62[@]	2326.11		41.4842	(1/2$^-$)	0.048 *5*
2286.37[@]	2389.11		102.7325	(3/2)$^-$	0.055 *6*
2290.5[@]	2290.5		0.0	3/2$^-$	0.020 *8*
2291.12[@]	2332.6		41.4842	(1/2$^-$)	0.016 *5*
2294.3[@]	2294.3		0.0	3/2$^-$	0.021 *8*
2298.62[@]	2340.1		41.4842	(1/2$^-$)	0.026 *5*
2299.84[@]	2533.7		233.8558	1/2$^-$,3/2$^-$	0.058 *5*
2300.48[@]	2699.52		399.018	(5/2)$^-$	0.026 *5*
2301.42[@]	2342.9		41.4842	(1/2$^-$)	0.029 *5*
2304.27[@]	2407.01		102.7325	(3/2)$^-$	0.080 *8*
2304.68[@]	2703.72		399.018	(5/2)$^-$	0.016 *5*
2306.52[@]	2348.01		41.4842	(1/2$^-$)	0.110 *6*
2307.94[@]	2541.81		233.8558	1/2$^-$,3/2$^-$	0.052 *5*
2308.1[@]	2381.01		72.9015	(5/2)$^-$	0.019 *5*
2310.0[@]	2310.0		0.0	3/2$^-$	0.052 *14*
2314.34[@]	2548.2		233.8558	1/2$^-$,3/2$^-$	0.093 *6*
2315.62[@]	2611.31		295.6810	(5/2$^-$)	0.048 *6*
2315.9[@]	2315.91		0.0	3/2$^-$	0.026 *9*
2320.5[@]	2320.51		0.0	3/2$^-$	0.107 *13*
2321.18[@]	2720.22		399.018	(5/2)$^-$	0.021 *5*
2322.22[@]	2629.3		307.0837	1/2$^-$,3/2$^-$	0.015 *6*
2324.07[@]	2426.8		102.7325	(3/2)$^-$	0.036 *6*
2326.1[@]	2326.11		0.0	3/2$^-$	0.066 *10*
2326.33[@]	2782.12		455.773	(5/2)$^-$	0.026 *7*
2326.52[@]	2368.01		41.4842	(1/2$^-$)	0.052 *6*
2326.54[@]	2560.41		233.8558	1/2$^-$,3/2$^-$	0.035 *5*
2328.57[@]	2431.3		102.7325	(3/2)$^-$	0.093 *10*
2330.07[@]	2432.81		102.7325	(3/2)$^-$	0.019 *8*
2344.14[@]	2578.0		233.8558	1/2$^-$,3/2$^-$	0.027 *9*
2346.24[@]	2580.11		233.8558	1/2$^-$,3/2$^-$	0.052 *9*
2347.37[@]	2450.1		102.7325	(3/2)$^-$	0.019 *6*
2347.62[@]	2389.11		41.4842	(1/2$^-$)	0.026 *6*
2348.0[@]	2348.01		0.0	3/2$^-$	0.032 *5*
2349.73[@]	2805.52		455.773	(5/2)$^-$	0.032 *6*
2354.72[@]	2661.8		307.0837	1/2$^-$,3/2$^-$	0.020 *6*
2355.77[@]	2458.5		102.7325	(3/2)$^-$	0.027 *6*
2363.54[@]	2597.4		233.8558	1/2$^-$,3/2$^-$	0.019 *5*
2364.2[@]	2364.2		0.0	3/2$^-$	0.024 *5*
2364.32[@]	2671.42		307.0837	1/2$^-$,3/2$^-$	0.060 *6*
2364.97[@]	2467.71		102.7325	(3/2)$^-$	0.021 *6*
2365.52[@]	2407.01		41.4842	(1/2$^-$)	0.072 *6*
2372.52[@]	2414.0		41.4842	(1/2$^-$)	0.021 *6*
2373.1[@]	2373.1		0.0	3/2$^-$	0.016 *5*
2377.2[@]	2450.1		72.9015	(5/2)$^-$	0.015 *5*
2379.52[@]	2421.0		41.4842	(1/2$^-$)	0.070 *7*
2380.84[@]	2614.7		233.8558	1/2$^-$,3/2$^-$	0.028 *5*
2381.0[@]	2381.01		0.0	3/2$^-$	0.043 *5*
2381.57[@]	2484.3		102.7325	(3/2)$^-$	0.023 *6*
2386.87[@]	2489.61		102.7325	(3/2)$^-$	0.021 *8*
2389.1[@]	2389.11		0.0	3/2$^-$	0.153 *10*
2389.92[@]	2697.01		307.0837	1/2$^-$,3/2$^-$	0.019 *6*
2391.32[@]	2432.81		41.4842	(1/2$^-$)	0.155 *9*
2396.22[@]	2437.7		41.4842	(1/2$^-$)	0.017 *6*
2396.3[@]	2396.3		0.0	3/2$^-$	0.046 *5*
2396.62[@]	2703.72		307.0837	1/2$^-$,3/2$^-$	0.045 *6*
2396.97[@]	2499.71		102.7325	(3/2)$^-$	0.021 *8*
2401.32[@]	2697.01		295.6810	(5/2$^-$)	0.051 *8*
2405.52[@]	2447.0		41.4842	(1/2$^-$)	0.051 *6*
2405.57[@]	2508.31		102.7325	(3/2)$^-$	0.027 *8*
2407.0[@]	2407.01		0.0	3/2$^-$	0.024 *5*
2407.72[@]	2714.8		307.0837	1/2$^-$,3/2$^-$	0.032 *6*
2408.03[@]	2863.82		455.773	(5/2)$^-$	0.082 *7*
2409.07[@]	2511.81		102.7325	(3/2)$^-$	0.07 *1*
2409.82[@]	2716.9		307.0837	1/2$^-$,3/2$^-$	0.029 *6*
2413.12[@]	2720.22		307.0837	1/2$^-$,3/2$^-$	0.028 *6*
2413.22[@]	2708.9		295.6810	(5/2$^-$)	0.022 *7*
2416.47[@]	2519.21		102.7325	(3/2)$^-$	0.034 *8*
2422.1[@]	2495.01		72.9015	(5/2)$^-$	0.070 *5*
2425.67[@]	2528.41		102.7325	(3/2)$^-$	0.019 *8*
2426.22[@]	2467.71		41.4842	(1/2$^-$)	0.052 *6*
2426.8[@]	2426.8		0.0	3/2$^-$	0.055 *6*
2426.8[@]	2499.71		72.9015	(5/2)$^-$	0.027 *5*
2431.3[@]	2431.3		0.0	3/2$^-$	0.047 *6*
2432.8[@]	2432.81		0.0	3/2$^-$	0.019 *5*
2433.4[@]	2506.3		72.9015	(5/2)$^-$	0.045 *5*
2434.82[@]	2741.92		307.0837	1/2$^-$,3/2$^-$	0.021 *6*
2437.54[@]	2671.42		233.8558	1/2$^-$,3/2$^-$	0.035 *6*
2438.9[@]	2511.81		72.9015	(5/2)$^-$	0.040 *5*
2439.07[@]	2541.81		102.7325	(3/2)$^-$	0.076 *10*
2442.5[@]	2442.5		0.0	3/2$^-$	0.032 *5*

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^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ [†]	E_i(level)	J^π_i	E_f	J^π_f	I_γ [&]
2442.82[@]	2484.3		41.4842	(1/2⁻)	0.057 *6*
2445.47[@]	2548.2		102.7325	(3/2)⁻	0.044 *8*
2445.74[@]	2679.61		233.8558	1/2⁻,3/2⁻	0.022 *6*
2445.82[@]	2752.9		307.0837	1/2⁻,3/2⁻	0.027 *6*
2446.3[@]	2519.21		72.9015	(5/2)⁻	0.018 *5*
2455.5[@]	2528.41		72.9015	(5/2)⁻	0.030 *5*
2456.34[@]	2690.2		233.8558	1/2⁻,3/2⁻	0.033 *7*
2457.67[@]	2560.41		102.7325	(3/2)⁻	0.030 *8*
2457.82[@]	2764.9		307.0837	1/2⁻,3/2⁻	0.026 *6*
2458.22[@]	2499.71		41.4842	(1/2⁻)	0.077 *15*
2461.7[@]	2461.7		0.0	3/2⁻	0.027 *5*
2463.14[@]	2697.01		233.8558	1/2⁻,3/2⁻	0.030 *7*
2465.64[@]	2699.52		233.8558	1/2⁻,3/2⁻	0.024 *7*
2466.82[@]	2508.31		41.4842	(1/2⁻)	0.034 *7*
2466.82[@]	2773.92		307.0837	1/2⁻,3/2⁻	0.033 *6*
2468.9[@]	2541.81		72.9015	(5/2)⁻	0.022 *6*
2469.84[@]	2703.72		233.8558	1/2⁻,3/2⁻	0.076 *9*
2470.4[@]	2470.4		0.0	3/2⁻	0.025 *8*
2472.62[@]	2514.11		41.4842	(1/2⁻)	0.023 *7*
2475.02[@]	2782.12		307.0837	1/2⁻,3/2⁻	0.023 *6*
2475.04[@]	2708.9		233.8558	1/2⁻,3/2⁻	0.066 *8*
2477.02[@]	2784.1		307.0837	1/2⁻,3/2⁻	0.041 *6*
2477.37[@]	2580.11		102.7325	(3/2)⁻	0.158 *10*
2477.72[@]	2519.21		41.4842	(1/2⁻)	0.032 *7*
2480.94[@]	2714.8		233.8558	1/2⁻,3/2⁻	0.022 *6*
2484.92[@]	2792.0		307.0837	1/2⁻,3/2⁻	0.049 *6*
2486.34[@]	2720.22		233.8558	1/2⁻,3/2⁻	0.026 *6*
2487.5[@]	2560.41		72.9015	(5/2)⁻	0.030 *5*
2487.98[@]	2887.0		399.018	(5/2)⁻	0.028 *6*
2489.6[@]	2489.61		0.0	3/2⁻	0.044 *6*
2489.74[@]	2723.6		233.8558	1/2⁻,3/2⁻	0.048 *6*
2490.82[@]	2797.92		307.0837	1/2⁻,3/2⁻	0.039 *6*
2494.2[@]	2567.11		72.9015	(5/2)⁻	0.057 *6*
2496.32[@]	2792.0		295.6810	(5/2⁻)	0.024 *7*
2499.7[@]	2499.71		0.0	3/2⁻	0.027 *6*
2500.44[@]	2734.3		233.8558	1/2⁻,3/2⁻	0.027 *6*
2503.5[@]	2503.5		0.0	3/2⁻	0.019 *6*
2504.17[@]	2606.9		102.7325	(3/2)⁻	0.023 *6*
2504.52[@]	2811.6		307.0837	1/2⁻,3/2⁻	0.029 *6*
2504.54[@]	2738.4		233.8558	1/2⁻,3/2⁻	0.021 *6*
2507.2[@]	2580.11		72.9015	(5/2)⁻	0.045 *5*
2508.04[@]	2741.92		233.8558	1/2⁻,3/2⁻	0.020 *6*
2508.3[@]	2508.31		0.0	3/2⁻	0.083 *8*
2508.57[@]	2611.31		102.7325	(3/2)⁻	0.049 *6*
2509.98[@]	2909.02		399.018	(5/2)⁻	0.028 *5*

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	I_γ[&]
2511.8[@]	2511.81		0.0	3/2⁻	0.031 6
2514.1[@]	2514.11		0.0	3/2⁻	0.026 6
2516.62[@]	2558.1		41.4842	(1/2⁻)	0.081 7
2516.63[@]	2972.4		455.773	(5/2)⁻	0.047 6
2519.04[@]	2752.9		233.8558	1/2⁻,3/2⁻	0.016 6
2519.2[@]	2519.21		0.0	3/2⁻	0.032 6
2524.34[@]	2758.2		233.8558	1/2⁻,3/2⁻	0.044 6
2525.62[@]	2567.11		41.4842	(1/2⁻)	0.040 6
2526.57[@]	2629.3		102.7325	(3/2)⁻	0.044 6
2528.4[@]	2528.41		0.0	3/2⁻	0.015 6
2529.57[@]	2632.3		102.7325	(3/2)⁻	0.030 6
2529.9[@]	2602.81		72.9015	(5/2)⁻	0.043 5
2533.7[@]	2533.7		0.0	3/2⁻	0.105 9
2535.07[@]	2637.8		102.7325	(3/2)⁻	0.015 6
2538.62[@]	2580.11		41.4842	(1/2⁻)	0.032 6
2540.04[@]	2773.92		233.8558	1/2⁻,3/2⁻	0.022 6
2541.8[@]	2541.81		0.0	3/2⁻	0.015 6
2543.52[@]	2585.0		41.4842	(1/2⁻)	0.030 6
2545.54[@]	2779.4		233.8558	1/2⁻,3/2⁻	0.018 6
2548.24[@]	2782.12		233.8558	1/2⁻,3/2⁻	0.029 9
2549.22[@]	2856.3		307.0837	1/2⁻,3/2⁻	0.032 6
2550.24[@]	2784.1		233.8558	1/2⁻,3/2⁻	0.027 9
2551.3[@]	2551.3		0.0	3/2⁻	0.144 10
2553.87[@]	2656.6		102.7325	(3/2)⁻	0.040 8
2554.6[@]	2554.6		0.0	3/2⁻	0.016 6
2561.32[@]	2602.81		41.4842	(1/2⁻)	0.029 7
2564.04[@]	2797.92		233.8558	1/2⁻,3/2⁻	0.022 6
2567.1[@]	2567.11		0.0	3/2⁻	0.070 9
2568.67[@]	2671.42		102.7325	(3/2)⁻	0.057 11
2569.82[@]	2611.31		41.4842	(1/2⁻)	0.233 13
2573.5[#]	(5583.93)	1/2⁺	3010.4		
2577.3[#]	(5583.93)	1/2⁺	3006.62		
2579.92[@]	2887.0		307.0837	1/2⁻,3/2⁻	0.019 6
2582.2[#]	(5583.93)	1/2⁺	3001.7		
2585.0[@]	2585.0		0.0	3/2⁻	0.018 6
2590.82[@]	2632.3		41.4842	(1/2⁻)	0.041 7
2591.17[@]	2693.9		102.7325	(3/2)⁻	0.019 6
2594.27[@]	2697.01		102.7325	(3/2)⁻	0.047 8
2596.32[@]	2637.8		41.4842	(1/2⁻)	0.039 6
2596.44[@]	2830.3		233.8558	1/2⁻,3/2⁻	0.097 7
2596.77[@]	2699.52		102.7325	(3/2)⁻	0.101 10
2597.0[#]	(5583.93)	1/2⁺	2986.9		
2597.02[@]	2904.1		307.0837	1/2⁻,3/2⁻	0.034 6
2597.4[@]	2597.4		0.0	3/2⁻	0.067 9
2598.5[@]	2671.42		72.9015	(5/2)⁻	0.040 6

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	I_γ[&]
2600.97[@]	2703.72		102.7325	(3/2)$^-$	0.032 *8*
2601.92[@]	2909.02		307.0837	1/2$^-$,3/2$^-$	0.030 *7*
2602.8[@]	2602.81		0.0	3/2$^-$	0.021 *6*
2604.0[#]	(5583.93)	1/2$^+$	2979.9		
2606.22[@]	2913.3		307.0837	1/2$^-$,3/2$^-$	0.043 *7*
2610.92[@]	2918.0		307.0837	1/2$^-$,3/2$^-$	0.021 *6*
2611.3[@]	2611.31		0.0	3/2$^-$	0.020 *6*
2611.5[#]	(5583.93)	1/2$^+$	2972.4		
2614.2[@]	2687.1		72.9015	(5/2)$^-$	0.026 *6*
2615.12[@]	2656.6		41.4842	(1/2$^-$)	0.057 *7*
2621.0[@]	2693.9		72.9015	(5/2)$^-$	0.026 *6*
2625.47[@]	2728.2		102.7325	(3/2)$^-$	0.029 *6*
2626.6[@]	2699.52		72.9015	(5/2)$^-$	0.024 *6*
2629.92[@]	2671.42		41.4842	(1/2$^-$)	0.077 *7*
2632.3[@]	2632.3		0.0	3/2$^-$	0.049 *8*
2635.67[@]	2738.4		102.7325	(3/2)$^-$	0.021 *8*
2637.8[@]	2637.8		0.0	3/2$^-$	0.018 *6*
2638.12[@]	2679.61		41.4842	(1/2$^-$)	0.035 *6*
2639.17[@]	2741.92		102.7325	(3/2)$^-$	0.030 *8*
2641.94[@]	2875.8		233.8558	1/2$^-$,3/2$^-$	0.020 *6*
2643.97[@]	2746.7		102.7325	(3/2)$^-$	0.053 *8*
2645.62[@]	2687.1		41.4842	(1/2$^-$)	0.032 *6*
2646.14[@]	2880.0		233.8558	1/2$^-$,3/2$^-$	0.025 *6*
2647.07[@]	2749.8		102.7325	(3/2)$^-$	0.038 *8*
2647.3[@]	2720.22		72.9015	(5/2)$^-$	0.026 *6*
2648.72[@]	2690.2		41.4842	(1/2$^-$)	0.028 *6*
2650.7[@]	2723.6		72.9015	(5/2)$^-$	0.023 *6*
2656.6[@]	2656.6		0.0	3/2$^-$	0.043 *6*
2658.02[@]	2699.52		41.4842	(1/2$^-$)	0.041 *7*
2662.22[@]	2703.72		41.4842	(1/2$^-$)	0.046 *7*
2665.9[#]	(5583.93)	1/2$^+$	2918.0		
2670.6[#]	(5583.93)	1/2$^+$	2913.3		
2671.17[@]	2773.92		102.7325	(3/2)$^-$	0.070 *8*
2671.4[@]	2671.42		0.0	3/2$^-$	0.125 *11*
2674.9[#]	(5583.93)	1/2$^+$	2909.02		
2675.14[@]	2909.02		233.8558	1/2$^-$,3/2$^-$	0.069 *6*
2676.9[@]	2749.8		72.9015	(5/2)$^-$	0.056 *6*
2678.72[@]	2720.22		41.4842	(1/2$^-$)	0.057 *12*
2679.37[@]	2782.12		102.7325	(3/2)$^-$	0.030 *6*
2679.6[@]	2679.61		0.0	3/2$^-$	0.030 *8*
2679.8[#]	(5583.93)	1/2$^+$	2904.1		
2686.72[@]	2728.2		41.4842	(1/2$^-$)	0.057 *7*
2695.17[@]	2797.92		102.7325	(3/2)$^-$	0.087 *8*
2696.9[#]	(5583.93)	1/2$^+$	2887.0		
2696.92[@]	2738.4		41.4842	(1/2$^-$)	0.018 *10*

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	I_γ[&]
2699.5[@]	2699.52		0.0	3/2⁻	0.076 *8*
2702.77[@]	2805.52		102.7325	(3/2)⁻	0.072 *6*
2703.9[#]	(5583.93)	1/2⁺	2880.0		
2708.1[#]	(5583.93)	1/2⁺	2875.8		
2709.2[@]	2782.12		72.9015	(5/2)⁻	0.032 *6*
2713.9[#]	(5583.93)	1/2⁺	2870.0		
2720.1[#]	(5583.93)	1/2⁺	2863.82		
2720.2[@]	2720.22		0.0	3/2⁻	0.025 *6*
2727.57[@]	2830.3		102.7325	(3/2)⁻	0.036 *6*
2727.6[#]	(5583.93)	1/2⁺	2856.3		
2731.57[@]	2834.3		102.7325	(3/2)⁻	0.042 *6*
2732.1[@]	2732.1		0.0	3/2⁻	0.062 *11*
2732.42[@]	2773.92		41.4842	(1/2⁻)	0.018 *6*
2734.3[@]	2734.3		0.0	3/2⁻	0.062 *10*
2738.7[@]	2811.6		72.9015	(5/2)⁻	0.024 *6*
2740.62[@]	2782.12		41.4842	(1/2⁻)	0.023 *6*
2741.9[@]	2741.92		0.0	3/2⁻	0.056 *6*
2749.6[#]	(5583.93)	1/2⁺	2834.3		
2749.8[@]	2749.8		0.0	3/2⁻	0.025 *6*
2750.52[@]	2792.0		41.4842	(1/2⁻)	0.015 *6*
2753.57[@]	2856.3		102.7325	(3/2)⁻	0.036 *6*
2753.6[#]	(5583.93)	1/2⁺	2830.3		
2761.07[@]	2863.82		102.7325	(3/2)⁻	0.055 *6*
2761.1[#]	(5583.93)	1/2⁺	2822.8		
2761.7[@]	2761.7		0.0	3/2⁻	0.030 *6*
2764.02[@]	2805.52		41.4842	(1/2⁻)	0.082 *7*
2767.27[@]	2870.0		102.7325	(3/2)⁻	0.19 *1*
2772.3[#]	(5583.93)	1/2⁺	2811.6		
2772.74[@]	3006.62		233.8558	1/2⁻,3/2⁻	0.016 *6*
2773.07[@]	2875.8		102.7325	(3/2)⁻	0.019 *6*
2773.9[@]	2773.92		0.0	3/2⁻	0.040 *6*
2778.4[#]	(5583.93)	1/2⁺	2805.52		
2782.1[@]	2782.12		0.0	3/2⁻	0.025 *6*
2786.0[#]	(5583.93)	1/2⁺	2797.92		
2791.9[#]	(5583.93)	1/2⁺	2792.0		
2797.9[@]	2797.92		0.0	3/2⁻	0.037 *6*
2799.8[#]	(5583.93)	1/2⁺	2784.1		
2801.8[#]	(5583.93)	1/2⁺	2782.12		
2804.5[#]	(5583.93)	1/2⁺	2779.4		
2805.5[@]	2805.52		0.0	3/2⁻	0.027 *6*
2806.27[@]	2909.02		102.7325	(3/2)⁻	0.116 *8*
2807.1[@]	2880.0		72.9015	(5/2)⁻	0.027 *6*
2810.0[#]	(5583.93)	1/2⁺	2773.92		
2814.1[@]	2887.0		72.9015	(5/2)⁻	0.127 *9*
2819.0[#]	(5583.93)	1/2⁺	2764.9		

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^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	I_γ[&]
2822.2[#]	(5583.93)	1/2+	2761.7		
2822.32[@]	2863.82		41.4842	(1/2−)	0.041 6
2825.7[#]	(5583.93)	1/2+	2758.2		
2828.52[@]	2870.0		41.4842	(1/2−)	0.099 9
2831.0[#]	(5583.93)	1/2+	2752.9		
2834.1[#]	(5583.93)	1/2+	2749.8		
2837.2[#]	(5583.93)	1/2+	2746.7		
2842.0[#]	(5583.93)	1/2+	2741.92		
2845.5[#]	(5583.93)	1/2+	2738.4		
2849.6[#]	(5583.93)	1/2+	2734.3		
2851.8[#]	(5583.93)	1/2+	2732.1		
2855.7[#]	(5583.93)	1/2+	2728.2		
2856.3[@]	2856.3		0.0	3/2−	0.138 9
2860.3[#]	(5583.93)	1/2+	2723.6		
2863.7[#]	(5583.93)	1/2+	2720.22		
2867.0[#]	(5583.93)	1/2+	2716.9		
2867.52[@]	2909.02		41.4842	(1/2−)	0.153 12
2869.1[#]	(5583.93)	1/2+	2714.8		
2870.0[@]	2870.0		0.0	3/2−	0.071 8
2871.82[@]	2913.3		41.4842	(1/2−)	0.037 7
2875.0[#]	(5583.93)	1/2+	2708.9		
2875.8[@]	2875.8		0.0	3/2−	0.045 6
2877.17[@]	2979.9		102.7325	(3/2)−	0.034 8
2880.2[#]	(5583.93)	1/2+	2703.72		
2884.4[#]	(5583.93)	1/2+	2699.52		
2886.9[#]	(5583.93)	1/2+	2697.01		
2890.0[#]	(5583.93)	1/2+	2693.9		
2893.7[#]	(5583.93)	1/2+	2690.2		
2896.8[#]	(5583.93)	1/2+	2687.1		
2898.97[@]	3001.7		102.7325	(3/2)−	0.025 6
2903.87[@]	3006.62		102.7325	(3/2)−	0.076 8
2904.3[#]	(5583.93)	1/2+	2679.61		
2909.0[@]	2909.02		0.0	3/2−	0.026 8
2912.5[#]	(5583.93)	1/2+	2671.42		
2914.0[@]	2986.9		72.9015	(5/2)−	0.025 6
2918.0[@]	2918.0		0.0	3/2−	0.021 6
2922.1[#]	(5583.93)	1/2+	2661.8		
2927.3[#]	(5583.93)	1/2+	2656.6		
2930.92[@]	2972.4		41.4842	(1/2−)	0.121 10
2937.5[@]	3010.4		72.9015	(5/2)−	0.042 5
2938.42[@]	2979.9		41.4842	(1/2−)	0.060 7
2946.1[#]	(5583.93)	1/2+	2637.8		
2951.6[#]	(5583.93)	1/2+	2632.3		
2954.6[#]	(5583.93)	1/2+	2629.3		
2965.12[@]	3006.62		41.4842	(1/2−)	0.026 7

E_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	I_γ[&]
2969.2[#]	(5583.93)	1/2+	2614.7		
2972.6[#]	(5583.93)	1/2+	2611.31		
2977.0[#]	(5583.93)	1/2+	2606.9		
2981.1[#]	(5583.93)	1/2+	2602.81		
2986.5[#]	(5583.93)	1/2+	2597.4		
2998.9[#]	(5583.93)	1/2+	2585.0		
3001.7[@]	3001.7		0.0	3/2−	0.024 6
3003.8[#]	(5583.93)	1/2+	2580.11		
3005.9[#]	(5583.93)	1/2+	2578.0		
3006.6[@]	3006.62		0.0	3/2−	0.070 8
3010.4[@]	3010.4		0.0	3/2−	0.035 8
3016.8[#]	(5583.93)	1/2+	2567.11		
3023.5[#]	(5583.93)	1/2+	2560.41		
3025.8[#]	(5583.93)	1/2+	2558.1		
3029.3[#]	(5583.93)	1/2+	2554.6		
3032.6[#]	(5583.93)	1/2+	2551.3		
3035.7[#]	(5583.93)	1/2+	2548.2		
3042.1[#]	(5583.93)	1/2+	2541.81		
3050.2[#]	(5583.93)	1/2+	2533.7		
3053.0[#]	(5583.93)	1/2+	2530.9		
3055.5[#]	(5583.93)	1/2+	2528.41		
3064.7[#]	(5583.93)	1/2+	2519.21		
3069.8[#]	(5583.93)	1/2+	2514.11		
3072.1[#]	(5583.93)	1/2+	2511.81		
3075.6[#]	(5583.93)	1/2+	2508.31		
3077.6[#]	(5583.93)	1/2+	2506.3		
3080.4[#]	(5583.93)	1/2+	2503.5		
3084.2[#]	(5583.93)	1/2+	2499.71		
3088.9[#]	(5583.93)	1/2+	2495.01		
3094.3[#]	(5583.93)	1/2+	2489.61		
3097.2[#]	(5583.93)	1/2+	2486.7		
3099.6[#]	(5583.93)	1/2+	2484.3		
3113.5[#]	(5583.93)	1/2+	2470.4		
3116.2[#]	(5583.93)	1/2+	2467.71		
3122.2[#]	(5583.93)	1/2+	2461.7		
3125.4[#]	(5583.93)	1/2+	2458.5		
3133.8[#]	(5583.93)	1/2+	2450.1		
3136.9[#]	(5583.93)	1/2+	2447.0		
3141.4[#]	(5583.93)	1/2+	2442.5		
3146.2[#]	(5583.93)	1/2+	2437.7		
3151.1[#]	(5583.93)	1/2+	2432.81		
3152.6[#]	(5583.93)	1/2+	2431.3		
3157.1[#]	(5583.93)	1/2+	2426.8		
3162.9[#]	(5583.93)	1/2+	2421.0		
3169.9[#]	(5583.93)	1/2+	2414.0		

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f
3176.9[#]		(5583.93)	1/2$^+$	2407.01	3426.8[#]		(5583.93)	1/2$^+$	2157.1
3187.6[#]		(5583.93)	1/2$^+$	2396.3	3430.1[#]		(5583.93)	1/2$^+$	2153.8
3194.8[#]		(5583.93)	1/2$^+$	2389.11	3433.3[#]		(5583.93)	1/2$^+$	2150.6
3202.9[#]		(5583.93)	1/2$^+$	2381.01	3449.7[#]		(5583.93)	1/2$^+$	2134.2
3210.8[#]		(5583.93)	1/2$^+$	2373.1	3450.9[#]		(5583.93)	1/2$^+$	2133.00
3215.9[#]		(5583.93)	1/2$^+$	2368.01	3452.3[§]	7.4[§]	(5583.93)	1/2$^+$	2131.6
3219.7[#]		(5583.93)	1/2$^+$	2364.2	3457.5[#]		(5583.93)	1/2$^+$	2126.4
3223.0[#]		(5583.93)	1/2$^+$	2360.9	3459.8[#]		(5583.93)	1/2$^+$	2124.1
3233.5[#]		(5583.93)	1/2$^+$	2350.4	3468.0[#]		(5583.93)	1/2$^+$	2115.9
3235.9[#]		(5583.93)	1/2$^+$	2348.01	3472.2[#]		(5583.93)	1/2$^+$	2111.7
3241.0[#]		(5583.93)	1/2$^+$	2342.9	3475.8[#]		(5583.93)	1/2$^+$	2108.1
3243.8[#]		(5583.93)	1/2$^+$	2340.1	3480.5[#]		(5583.93)	1/2$^+$	2103.4
3251.3[#]		(5583.93)	1/2$^+$	2332.6	3485.5[§a]	6.1[§]	(5583.93)	1/2$^+$	2098.05
3257.8[#]		(5583.93)	1/2$^+$	2326.11	3491.0[#]		(5583.93)	1/2$^+$	2092.90
3263.4[#]		(5583.93)	1/2$^+$	2320.51	3493.6[§]	5.7[§]	(5583.93)	1/2$^+$	2090.3
3268.0[#]		(5583.93)	1/2$^+$	2315.91	3502.8[#]		(5583.93)	1/2$^+$	2081.11
3273.9[#]		(5583.93)	1/2$^+$	2310.0	3505.6[#]		(5583.93)	1/2$^+$	2078.31
3286.6[#]		(5583.93)	1/2$^+$	2297.3	3506.6[§]	12.1[§]	(5583.93)	1/2$^+$	2077.3
3289.6[#]		(5583.93)	1/2$^+$	2294.3	3516.3[#]		(5583.93)	1/2$^+$	2067.60
3293.4[#]		(5583.93)	1/2$^+$	2290.5	3519.7[§a]	11.1[§]	(5583.93)	1/2$^+$	2064.12
3298.5[#]		(5583.93)	1/2$^+$	2285.4	3524.2[#]		(5583.93)	1/2$^+$	2059.7
3305.2[#]		(5583.93)	1/2$^+$	2278.7	3530.4[#]		(5583.93)	1/2$^+$	2053.5
3325.5[#]		(5583.93)	1/2$^+$	2258.4	3533.1[#]		(5583.93)	1/2$^+$	2050.8
3328.0[#]		(5583.93)	1/2$^+$	2255.9	3535.3[§a]	7.4[§]	(5583.93)	1/2$^+$	2048.21
3333.0[#]		(5583.93)	1/2$^+$	2250.9	3544.0[#]		(5583.93)	1/2$^+$	2039.9
3334.7[#]		(5583.93)	1/2$^+$	2249.2	3546.5[#]		(5583.93)	1/2$^+$	2037.41
3334.8[#]		(5583.93)	1/2$^+$	2249.11	3559.6[#]		(5583.93)	1/2$^+$	2024.3
3337.6[#]		(5583.93)	1/2$^+$	2246.3	3563.1[#]		(5583.93)	1/2$^+$	2020.8
3340.9[§a]	24[§]	(5583.93)	1/2$^+$	2243.0	3570.3[#]		(5583.93)	1/2$^+$	2013.60
3344.0[#]		(5583.93)	1/2$^+$	2239.9	3581.8[#]		(5583.93)	1/2$^+$	2002.11
3349.3[#]		(5583.93)	1/2$^+$	2234.6	3594.1[#]		(5583.93)	1/2$^+$	1989.8
3353.3[#]		(5583.93)	1/2$^+$	2230.6	3600.5[#]		(5583.93)	1/2$^+$	1983.41
3358.8[#]		(5583.93)	1/2$^+$	2225.1	3606.5[#]		(5583.93)	1/2$^+$	1977.40
3361.9[#]		(5583.93)	1/2$^+$	2222.0	3629.1[#]		(5583.93)	1/2$^+$	1954.81
3363.5[§]	10.1[§]	(5583.93)	1/2$^+$	2220.4	3634.9[#]		(5583.93)	1/2$^+$	1949.0
3365.3[#]		(5583.93)	1/2$^+$	2218.61	3645.3[#]		(5583.93)	1/2$^+$	1938.6
3378.8[#]		(5583.93)	1/2$^+$	2205.1	3648.8[#]		(5583.93)	1/2$^+$	1935.1
3388.9[#]		(5583.93)	1/2$^+$	2195.00	3651.8[#]		(5583.93)	1/2$^+$	1932.1
3391.5[#]		(5583.93)	1/2$^+$	2192.4	3662.7[#]		(5583.93)	1/2$^+$	1921.2
3393.6[§]	11.4[§]	(5583.93)	1/2$^+$	2190.3	3668.8[§a]	14.5[§]	(5583.93)	1/2$^+$	1915.28
3398.5[#]		(5583.93)	1/2$^+$	2185.41	3675.3[#]		(5583.93)	1/2$^+$	1908.6
3402.6[#]		(5583.93)	1/2$^+$	2181.3	3691.3[#]		(5583.93)	1/2$^+$	1892.61
3405.8[#]		(5583.93)	1/2$^+$	2178.1	3695.0[#]		(5583.93)	1/2$^+$	1888.90
3415.2[#]		(5583.93)	1/2$^+$	2168.71	3709.3[#]		(5583.93)	1/2$^+$	1874.6
3420.2[#]		(5583.93)	1/2$^+$	2163.7	3721.2[#]		(5583.93)	1/2$^+$	1862.7

Continued on next page (footnotes at end of table)

^{192}Os(n,γ) E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

γ(^{193}Os) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π
3730.3[#]		(5583.93)	1/2+	1853.6	
3735.3[§]	5.4[§]	(5583.93)	1/2+	1848.6	
3736.8[#]		(5583.93)	1/2+	1847.11	
3745.0[§a]	13.5[§]	(5583.93)	1/2+	1838.40	
3753.3[§a]	3.7[§]	(5583.93)	1/2+	1830.6	
3757.2[#]		(5583.93)	1/2+	1826.7	
3778.8[#]		(5583.93)	1/2+	1805.1	
3781.9[#]		(5583.93)	1/2+	1802.0	
3785.0[#]		(5583.93)	1/2+	1798.9	
3788.1[#]		(5583.93)	1/2+	1795.8	
3798.7[§]	8.1[§]	(5583.93)	1/2+	1785.2	
3800.1[#]		(5583.93)	1/2+	1783.81	
3818.6[§a]	8.4[§]	(5583.93)	1/2+	1765.13	
3823.5[#]		(5583.93)	1/2+	1760.4	
3829.7[#]		(5583.93)	1/2+	1754.2	
3839.0[#]		(5583.93)	1/2+	1744.9	
3846.3[#]		(5583.93)	1/2+	1737.6	
3852.3[#]		(5583.93)	1/2+	1731.6	
3861.4[#]		(5583.93)	1/2+	1722.5	
3900.8[§a]	16.8[§]	(5583.93)	1/2+	1683.28	
3903.6[#]		(5583.93)	1/2+	1680.3	
3923.6[#]		(5583.93)	1/2+	1660.3	
3980.6[§a]	24[§]	(5583.93)	1/2+	1603.21	
3992.8[§a]	3.4[§]	(5583.93)	1/2+	1590.93	1/2−,3/2−
4028.1[#a]		(5583.93)	1/2+	1555.8	
4053.4[§a]	8.8[§]	(5583.93)	1/2+	1530.34	
4059.7[§a]	7.7[§]	(5583.93)	1/2+	1523.64	
4069.0[§a]	7.7[§]	(5583.93)	1/2+	1515.52	1/2−,3/2−
4079.8		(5583.93)	1/2+	1504.10	
4082.1[§]	5.7[§]	(5583.93)	1/2+	1501.8	
4086.5[#]		(5583.93)	1/2+	1497.4	
4137.4[#]		(5583.93)	1/2+	1446.5	
4149.9[#]		(5583.93)	1/2+	1434.0	
4165.9[#]		(5583.93)	1/2+	1418.00	
4183.9[#]		(5583.93)	1/2+	1400.00	
4185.7[#]		(5583.93)	1/2+	1398.2	
4198.2[§a]	11.4[§]	(5583.93)	1/2+	1385.96	1/2(−),3/2(−)
4200.3[#]		(5583.93)	1/2+	1383.6	
4225.1[§a]	13.8[§]	(5583.93)	1/2+	1359.52	
4250.1[§a]	8.1[§]	(5583.93)	1/2+	1333.53	
4295.5[§a]	13.5[§]	(5583.93)	1/2+	1288.468	1/2−,3/2−
4301.5[§a]	7.1[§]	(5583.93)	1/2+	1281.480	1/2−,3/2−
4316.6[#]		(5583.93)	1/2+	1267.3	
4339.3[#]		(5583.93)	1/2+	1244.6	
4358.2[#]		(5583.93)	1/2+	1225.7	

Continued on next page (footnotes at end of table)

$^{192}Os(n,\gamma)$ E=thermal 1979Wa04,1978Be22,2002Ba66 (continued)

$\gamma(^{193}Os)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
4366.7[§a]	18.2[§]	(5583.93)	1/2+	1216.927	1/2(−),3/2(−)	
4378.7[#]		(5583.93)	1/2+	1205.2		
4398.5[#]		(5583.93)	1/2+	1185.4		
4405.7[§a]	20[§]	(5583.93)	1/2+	1178.654	1/2−,3/2−	
4413.5[§a]	23[§]	(5583.93)	1/2+	1170.860	(1/2+,3/2+)	
4499.4[#]		(5583.93)	1/2+	1085.385	(1/2−,3/2−)	
4530.7[§a]	78[§]	(5583.93)	1/2+	1053.856	1/2−,3/2−	
4617.0[#]		(5583.93)	1/2+	966.9		
4694.9[§a]	25[§]	(5583.93)	1/2+	889.462		
4795.4[#]		(5583.93)	1/2+	788.5		
4908.7[#]		(5583.93)	1/2+	675.2		
4996.3[#]		(5583.93)	1/2+	587.6		
5010.7[#]		(5583.93)	1/2+	573.2		
5033.0[#]		(5583.93)	1/2+	550.9		
5276.0[§]	116[§]	(5583.93)	1/2+	307.0837	1/2−,3/2−	E_γ: Other: 5277.0 (2002Ba66).
5348.3[§]	3.7[§]	(5583.93)	1/2+	233.8558	1/2−,3/2−	
5481.0[§]	5.1[§]	(5583.93)	1/2+	102.7325	(3/2)−	
5542.0[§]	6.1[§]	(5583.93)	1/2+	41.4842	(1/2−)	
5583.3[§]	79[§]	(5583.93)	1/2+	0.0	3/2−	

† From 1979Wa04, unless otherwise noted; uncertainties do not include absolute calibration errors. Calibration (secondary γ's): E(Os Kα_2 x ray)=61.488.

‡ From 1979Wa04, unless otherwise noted. Units are arbitrary, relative to Iγ=100 for 265.6γ. 1978Be22 report 263 mb for the partial cross section of 265.6γ and total cross section≥1.9 b (from summation of Iγ (high energy)). Uncertainties are statistical only, and do not include estimated systematic errors of<15%.

§ From 1978Be22.

& From 2002Ba66. γ-ray intensity from $\gamma\gamma$ coincidence measurement and reported value for 100 neutron capture (per 100 decay).

@ From 2002Ba66.

Primary transition from 2002Ba66.

a Also reported in 2002Ba66.

b Multiply placed with undivided intensity.

x γ ray not placed in level scheme.

^{192}Os(n,γ) E=res 1979Wa04

E(res)=2 keV (mean energy of neutron beam (scandium filter used to spread beam over 20 to 30 resonances); FWHM=800 eV); osmium metal targets enriched to 99.03% in ^{192}Os; measured averaged intensities of primary transitions (3-crystal pair spectrometer system); determined full set of $1/2^-$ or $3/2^-$ states below 1700 keV.

1974Be78 observed resonances at energies (in eV): 26.03 *9*; 36.17 *15*; 43.9 *2*; 95.7 *7*; 115.8 *11*; 126.0 *12* transmission through enriched targets, time-of-flight method.

See 2006MuZX for properties of neutron resonances.

^{193}Os Levels

E(level)†	J^{π}‡	Comments
0.0	$1/2^-,3/2^-$	
41.2 *2*	$1/2^-,3/2^-$	
102.4 *2*	$1/2^-,3/2^-$	
233.7 *3*	$1/2^-,3/2^-$	
307.3 *3*	$1/2^-,3/2^-$	
434.8 *2*	$1/2^-,3/2^-$	
888.9 *3*	$1/2^-,3/2^-$	At least one member of the 888.6 − 889.5 doublet has $J^{\pi}=1/2^-,3/2^-$.
1053.3 *6*	$1/2^-,3/2^-$	
1178.3 *3*	$1/2^-,3/2^-$	
1218.0 *6*	$1/2^{(-)},3/2^{(-)}$	
1282.4 *4*	$1/2^-,3/2^-$	
1288.0 *4*	$1/2^-,3/2^-$	
1385.6 *12*	$1/2^{(-)},3/2^{(-)}$	
1437.4 *9*	$1/2^{(-)},3/2^{(-)}$	
1515.2 *6*	$1/2^-,3/2^-$	
1589.6 *7*	$1/2^-,3/2^-$	
(5587.1)	$1/2^+$	E(level): approximate energy of 2-keV resonance capture states (E(level)=S(n) + 2 keV). J^{π}: s-wave capture dominant; target $J^{\pi}=0^+$.

† From Eγ(g.s.) − Eγ (1979Wa04); uncertainties do not include calibration errors (estimated to be 1.0 keV for absolute energies, 0.3-0.8 keV for relative energies).

‡ From intense population, suggesting E1 (or probable E1) multipolarity, by primary transitions ($1/2^+$ capture states).

^{192}Os(d,p) 1978Be22

E(d)=12.0 MeV, θ=20°, 30°, 40°, 55°, 75°, 90°, 95°, 125°; isotope separated ^{192}Os targets (≥99% pure); measured E(level) (mag spect, FWHM=12-17 keV), angular distributions.

^{193}Os Levels

E(level)†	L‡	$\sigma(\theta = 55°)$#	E(level)†	L‡	$\sigma(\theta = 55°)$#
0.0		0.02	952	3	0.04
72	3	0.17	1086	1	0.27
102.8	1	0.45	1178	1	0.10
234	1	0.46	1461	3	0.04
307	1	0.21	1496	3	0.03
399	3	0.08	1517	3	0.05
434	1	0.20	1566	<5	0.39
455	3	0.08	1644		0.03
544		0.03	1668	<5	0.24
762	3	0.08	1697		0.19

† Weighted mean values from measurements at all angles, uncertainties not given. Energies were measured relative to 102.8 level, except those at 30°, which were measured relative to 307 level (calibration energies are from ^{192}Os(n,γ) E=thermal (1978Be22)).

‡ Inferred from angular distributions.

In mb/sr. Assumed Q = 3 MeV. Uncertainties not given; evaluated relative uncertainties in the range 5-20%.

^{192}Os(^{7}Li,^{6}Liγ) 2014Ga14

^{193}Os produced via the one neutron transfer ^{192}Os(^{7}Li,^{6}Li) reaction with a E(^{7}Li)=44 MeV beam provided by the HI-13 Tandem Accelerator at the China Institute of Atomic Energy (CIAE). Target consisted of a 1.7 mg/cm^2 isotopically enriched ^{192}Os metallic foil on a 1.1 mg/cm^2 carbon backing. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma$(t) and x-ray-γ(t) coincidences using 14 Compton-suppressed HPGe detectors. Coincidence spectra were analyzed with two time ranges: prompt coincidences defined as t < 50 ns and delayed coincidences defined as 150 ns < t < 400 ns.

Includes data from the ^{192}Os(^{82}Se,^{81}Se) reaction with E(^{82}Se)=460 MeV carried out at the Laboratori Nazionali di Legnaro, Italy; used as a cross check of the ^{192}Os(^{7}Li,^{6}Li) results. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$ using the GASP array consisting of 40 Compton-suppressed HPGe detectors and an inner BGO ball. Assignment of new gamma rays to ^{193}Os was supported by cross coincidences with the 191-keV transition in the partner nucleus ^{81}Se.

^{193}Os Levels

E(level)†	J$^\pi$‡	T$_{1/2}$	Comments
0.0	3/2$^-$		
73.2 *3*	(5/2)$^-$		
315.9 *4*	(9/2$^-$)	110 ns *28*	Configuration=9/2$^-$[505]. Configuration: from a comparison of the hindrance factor per degree of K forbiddenness in the neighboring ^{187}W and ^{191}Os nuclei, configurations of 9/2$^-$[505] and 9/2$^+$[624] are suggested. Systematics of these configurations in lighter odd-A Os isotopes suggest the 9/2$^-$[505] configuration is most likely. T$_{1/2}$: from γ(t) of 242.7γ (2014Ga14). J$^\pi$: from configuration assignment in 2014Ga14.
558.6 *5*			
868.0 *6*			
905.1 *6*			
970.8 *6*			
1196.2 *7*			

† From Eγ.
‡ From Adopted Levels, except where noted.

γ(^{193}Os)

R$_{ADO}$ ratios are from the ^{192}Os(^{82}Se,^{81}Se) experiment.

E$_\gamma$†	I$_\gamma$‡	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.	Comments
73.2 *3*		73.2	(5/2)$^-$	0.0	3/2$^-$		E$_\gamma$: from Table 1 of 2014Ga14. A value of 72.9 keV is given in the authors' Figure 3.
242.7& *3*		315.9	(9/2$^-$)	73.2	(5/2)$^-$	[E2]	
242.7& *3*	100 *15*	558.6		315.9	(9/2$^-$)		
309.4§ *3*	27 *4*	868.0		558.6			R$_{ADO}$=0.74 *10*.
328.2§ *3*	17 *3*	1196.2		868.0			R$_{ADO}$=0.74 *13*.
346.5§ *3*	19 *3*	905.1		558.6			R$_{ADO}$=0.63 *10*.
412.2§ *3*	40 *6*	970.8		558.6			R$_{ADO}$=1.63 *15*.

† Authors provide a general statement that systematic uncertainties are 0.1 to 0.6 keV depending on the energy region. Evaluator assigns ΔEγ=0.3 keV.
‡ From the ^{192}Os(^{82}Se,^{81}Se) experiment.
§ Observed only in the ^{192}Os(^{82}Se,^{81}Se) experiment.
& Multiply placed.

Adopted Levels, Gammas

Q(β^-)=−56.6 *3*; S(n)=7771.99 *20*; S(p)=5943.0 *24*; Q(α)=1018 *8* 2017Wa10

^{193}Ir Levels

The rotational bands of ^{193}Ir with axially asymmetric core are discussed in 1979Vi06, 1983Ci01, 1987Pr10 and 1997Dr04. The band assignments are based on assignments in ^{193}Ir(n,n′γ) (1987Pr10), ^{194}Pt(t,α) (1983Ci01), ^{192}Os(^{3}He,d) (1971Pr13) and ^{192}Ir(n,γ) (1997Dr04). Spin(6) symmetry and U(6/4), U(6/20) supersymmetry are used to describe ^{193}Ir (1983Ci01, 1984Mu19, 1987Mc01, 2000Be07).

Cross Reference (XREF) Flags

A	^{193}Os β^- decay	G	^{192}Os(^{3}He,d), (α,t)	M	Coulomb excitation
B	^{193}Ir IT decay (10.53 d)	H	^{192}Os(^{7}Li,α2nγ)	N	^{194}Pt(d,^{3}He)
C	^{193}Pt ε decay (50 y)	I	^{193}Ir(γ,γ):Mossbauer	O	^{194}Pt(pol t,α), (t,α)
D	^{191}Ir(t,p)	J	^{193}Ir(γ,γ'):res fluorescence	P	Muonic atom
E	^{192}Ir(n,γ) E=TH	K	^{193}Ir(n,n′γ)	Q	(HI,xnγ)
F	^{192}Os(d,nγ)	L	Inelastic scattering		

E(level)[†]	J$^\pi$	$T_{1/2}$	XREF	Comments
0.0[@]	3/2$^+$	stable	ABCDEFGHIJKLMNOPQ	μ=+0.1637 *6*; Q=+0.751 *9* J$^\pi$: optical spectroscopy (1976Fu06), L(^{3}He,d)=2, L(d,^{3}He)=2. μ: Atomic beam (direct) (2014StZZ,1984Bu15). Other: +0.1591 *6* (NMR 2014StZZ,1968Na01). Q: Hyperfine structure of muonic x rays (2014StZZ,1984Ta04); Others: +0.7 *2* Atomic beam (1978Bu17), +0.73 *7* Laser spectroscopy (2006Ve10). Isotope shift: Δ<r^2>(^{191}Ir,^{193}Ir)=0.044 fm^2 *4* (1989Sa31); <r^2>$^{1/2}$=5.40 fm *11* (2004An14).
73.041[&] *5*	1/2$^+$	6.09 ns *15*	A EFG I KLMNO	μ=+0.519 *2* J$^\pi$: J=1/2 from ^{193}Ir(γ,γ): Mossbauer; π from M1+E2 γ to 3/2$^+$ level. $T_{1/2}$: from ^{193}Os β^- decay; other: 4.1 ns *3* (B(E2) in Coulomb excitation). μ: Mossbauer (2014StZZ,1969Pe05). 2005Ki01 observed nuclear excitation by electron transitions (NEET) of 2.8×10^{-9} *4* times the K-shell photoelectric cross section at energy: Ir K-edge + 128 eV (76.229 keV); synchrotron radiation, internal conversion electron time spectroscopy using Si avalanche photodiode.
80.238[a] *6*	11/2$^-$	10.53 d *4*	AB EFGH JK M O Q	%IT=100 J$^\pi$: M4 γ to 3/2$^+$. $T_{1/2}$: from ^{193}Ir IT decay (10.53 d) (1987Li16).
138.941[@] *5*	5/2$^+$	69.7 ps *10*	A EFG I KLMNOP	μ=+0.89 *4* J$^\pi$: M1+E2 γ to 3/2$^+$ level, M1+E2 γ from 7/2$^+$ level; $T_{1/2}$: from recoil-distance method in Coulomb excitation (2000Be07). Other: 80 ps *5* (^{193}Os β^- decay); 80 ps *2* (^{193}Ir(γ,γ):Mossbauer). μ: From transient field IMPAC measurement ((^{58}Ni,^{58}Ni′) and (^{65}Cu,^{65}Cu′) – 2000Be07). Others: +0.53 *3* transient field IMPAC measurement ((^{32}S,^{32}S′) (Coulomb excitation) 2014StZZ,1986Ko20); +0.93 *5* (1996St22) (transient field IMPAC measurement) (1996St22) (the reason for discrepancy with the datum from 1986Ko20 is not clear (1996St22)).

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Adopted Levels, Gammas (continued)

^{193}Ir Levels (continued)

E(level)[†]	Jπ	T1/2	XREF	Comments
180.069[&] *4*	3/2+	44 ps *15*	A EFG KLMNO	μ=1.1 *4* (2014StZZ,1973Il02) Jπ: M1+E2 γ to 1/2+ level. T1/2: unweighted average of 59 ps *7* (^{193}Os β^- decay) and 28 ps *4* (B(E2) in Coulomb excitation). μ: from integral perturbed angular correlation.
299.396[b] *7*	7/2−	0.19 ns *3*	A EFG K MNO	Jπ: L=3 in ^{194}Pt(d,^{3}He); J=L+1/2 ^{194}Pt(pol t,α); E2 γ to 11/2− level. T1/2: from γγ(t) in ^{193}Os β^- decay.
357.768[@] *5*	7/2+	18.7 ps *7*	A EFG KLM o	μ=+1.54 *6* Jπ: γγ(θ) in Coulomb excitation (1958Mc02) is consistent only with J=7/2; M1+E2 γ to π=+ level; L=2 in inelastic scattering. T1/2: from recoil-distance method in Coulomb excitation (2000Be07,1986Ko20). μ: From transient field IMPAC measurement ((^{58}Ni,^{58}Ni′) and (^{65}Cu,^{65}Cu′) − 2014StZZ, 2000Be07, 1996St22). Others: +1.7 *3* (transient field IMPAC measurement in Coulomb Excitation − relative to μ (138.9 level)=+0.528 *30* - 2014StZZ,1986Ko20).
361.857[&] *5*	5/2+[‡]	27 ps *3*	A EFG K MNo	Jπ: L=2 in ^{194}Pt(d,^{3}He), (E2) to 1/2+. T1/2: weighted average of 36 ps *7* (^{193}Os β^- decay) and 25 ps *3* (B(E2) in Coulomb excitation).
460.538[c] *4*	3/2+	13.4 ps *10*	A EF JKLMNO	Jπ: M1+E2 γ to 1/2+ level, band structure. T1/2: Weighted average of 17 ps *4* (^{193}Os β^- decay), 13.8 ps *10* (B(E2) in Coulomb excitation), 11 ps *2* (^{193}Ir(γ,γ′):res fluorescence).
469.384[a] *11*	(13/2−)[#]		EF H K Q	Jπ: (M1) γ to 11/2− level. Band structure.
478.988[a] *14*	(15/2−)[#]		EF H K Q	Jπ: (E2) γ to 11/2− level. Band structure.
516.414[&] *6*	(7/2)+		A EF K M	Jπ: (E2) γ to 3/2+ level, γ from (11/2+) level; band structure.
521.926[@] *6*	(9/2)+	13.2 ps *19*	EF KLM	μ=+2.2 *2* Jπ: (M1) γ to 7/2+ level, (E2) γ to 5/2+ level; band structure. T1/2: From recoil-distance method in Coulomb excitation. μ: From transient field IMPAC measurement ((^{58}Ni,^{58}Ni′) - 2014StZZ, 1996St22). Other: +3.8 *11* (relative to μ(138.9 level)=+0.528 *30*, transient field IMPAC in Coulomb excitation (1986Ko20)).
557.413[c] *6*	(1/2)+	34 ps *8*	A EF JK M	Jπ: M1+E2 γ to 3/2+ level; 1/2+ consistent with band assignment. T1/2: from ^{193}Os β^- decay.
559.298 *5*	5/2+[‡]	1.08 ps *16*	A EFG JK MNO	XREF: G(562). Jπ: L=2 in ^{194}Pt(d,^{3}He); M1 γ to 5/2+ level. T1/2: from ^{193}Ir(γ,γ′) res fluorescence. configuration: assigned as 5/2+ 5/2[402] state by 1971Pr13 (^{193}Os(^{3}He,d), (α,t)).
563.402[b] *7*	(9/2−)[#]		A EF K M	Jπ: (M1) γ's to 7/2− and 11/2− levels; band structure.
598.220[d] *6*	3/2−	2.8 ps *+28−9*	A EF JKLM	Jπ: M1 γ from 5/2− level; γ to 1/2+ level. Band structure. T1/2: from ^{194}Ir(γ,γ′): res fluorescence.
620.991[e] *7*	7/2+	4.3 ps *3*	A EFG KLMNO	μ=+1.16 *14* Jπ: L=4 in ^{194}Pt(d,^{3}He) and ^{192}Os(^{3}He,d), (α,t); J=L-1/2 in ^{194}Pt(pol t,α); γ to 3/2+. T1/2: from recoil distance method and B(E2) in Coulomb

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Adopted Levels, Gammas (continued)

^{193}Ir Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
				excitation. μ: From transient field IMPAC measurement ((^{58}Ni,^{58}Ni′) - 2014StZZ, 1996St22). Other: +0.5 *4* (relative to μ(138.9 level)=+0.528 *30* transient field IMPAC measurement in Coulomb excitation 2014StZZ, 1986Ko20).
695.142[c] *5*	5/2+[‡]		A EF KLMNO	Jπ: 234.6γ M1+E2 to 3/2+ level, 337.3γ to 7/2+ level. Band structure.
712.180 *5*	3/2+[‡]	15 ps *14*	A EF K MNO	Jπ: M1+E2 γ's to 3/2+ and 5/2+ levels. $T_{1/2}$: from ^{193}Os β− decay.
740.380[d] *6*	5/2−		A EF KLM	Jπ: M1+E2 γ to 7/2− level; M1 γ to 3/2− level.
806.902 *8*	(5/2)+		A EF K M	Jπ: (M1) γ to 7/2+ level, γ to 1/2+ level.
828.92 *9*	(9/2−)[#]		K o	Jπ: γ to 11/2− level.
832.893[b] *10*	(11/2−)[#]		EF K o	Jπ: (M1) γ to (9/2−) level, (E2) γ to 7/2− level; band structure.
838.918[&] *8*	(9/2+)		EF M	Jπ: (M1) γ to (7/2)+ level, (E2) γ to 5/2+ level; band structure.
848.967 *13*	3/2(+),5/2(+)[‡]		A E g K nO	Jπ: 388.60γ (M1) to 3/2+ level, 487.217γ (E2) to 5/2+ level, 491.26γ to 7/2+.
857.027[@] *7*	(11/2)+	4.2 ps *4*	EFg KLM	μ=+2.7 *7* Jπ: (E2) γ to 7/2+ level, (M1) γ to (9/2)+ level; band structure. $T_{1/2}$: From B(E2) to 357.8 level in Coulomb excitation. μ: From transient field IMPAC measurement ((^{58}Ni,^{58}Ni′) - 2014StZZ, 1996St22).
874.290 *8*	3/2+,5/2+		A EF K nO	Jπ: γ's to 1/2+ and 7/2+. Assigned 7/2+ member of the second Kπ=1/2 band in (n,n′γ); however, this assignment is inconsistent with observed transitions to 1/2+ levels.
879.49 *17*			A	
882.19 *7*			A	
890.41 *7*			A	
892.269[e] *11*	(9/2+)		EF K M	Jπ: γ's to 5/2+ and (9/2)+ levels; band structure.
918.363[d] *7*	(7/2−)[#]		EF K	Jπ: (M1) γ to 5/2− level, (E2) γ to 3/2− level; band structure.
930.429[a] *16*	(17/2−)[#]		EF H K Q	Jπ: γ to (15/2−) level; band structure.
959.73 *3*			A	
964.41 *3*	1/2+		A G K N	XREF: G(969). Jπ: L=0 in ^{194}Pt(d,^{3}He).
972.872 *11*	(5/2+)[#]		EF K O	Jπ: γ's to 1/2+, 5/2 and 7/2+ levels.
975.330 *13*	(11/2−)[‡]		E O	Jπ: (E2) γ to (15/2−) level, (M1) γ to (13/2−) level.
1009.354 *10*	(11/2+)[#]		E K	Jπ: (E2) γ to (7/2)+ level, γ to (13/2−) level.
1019.589[&] *10*	(11/2+)[#]		E K	Jπ: (E2) γ to (7/2)+ level; band structure.
1026.0[a] *3*	(19/2−)		H Q	Jπ: 545.7γ Q to (17/2−), band structure.
1035.465[@] *8*	(13/2+)		EF M	Jπ: (M1) γ to (11/2)+ level, (E2) γ to (9/2)+ level; band structure.
1035.855 *25*	3/2+,5/2(+),7/2+		EF K o	XREF: o(1032).

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Adopted Levels, Gammas (continued)

^{193}Ir Levels (continued)

E(level)[†]	J^π	XREF	Comments
			J^π: γ's to $3/2^+$ and $7/2^+$ levels; $5/2^-$ not consistent with ^{193}Ir(n,n′γ) data.
1038.054 *10*	$(5/2^+,7/2^+)$[#]	E K o	XREF: o(1032). J^π: γ's to $(9/2)^+$ and $3/2^+$ levels.
1065.89 *6*	$1/2^+,3/2^{(+)},5/2^+$	g K O	J^π: γ's to $1/2^+$ and $5/2^+$ levels; $3/2^-$ not consistent with ^{193}Ir(n,n′γ) data; multiply placed γ to $7/2^+$ level would rule out $1/2^+$.
1076.47 *8*	$(3/2^+)$[#]	g K o	XREF: o(1080). J^π: γ's to $5/2^+$ and $7/2^+$ levels.
1077.99 *14*	$(3/2^-,5/2^-)$[#]	A Fg K o	XREF: o(1080). J^π: γ's to $5/2^-$ and $7/2^-$ levels.
1126		L	
1131.17 *11*	$5/2^-$	G K O	XREF: O(1146). J^π: L=3 in ^{192}Os(^{3}He,d), (α,t); γ to $3/2^+$ level. Assigned as $5/2^-$ 1/2[541] state by 1971Pr13 (^{192}Os(^{3}He,d), (α,t)).
1145.614[d] *10*	$(9/2)^-$	E G K O	XREF: G(1150)O(1146). J^π: L=5 in ^{192}Os(^{3}He,d), (α,t); $9/2^-$ consistent with band assignment. Alternatively assigned as $9/2^-$ 1/2[541] state by 1971Pr13 (^{192}Os(^{3}He,d), (α,t)).
1163 *3*	$(13/2)^+$	G O	XREF: O(1146). J^π: L=6 in ^{192}Os(^{3}He,d), (α,t). Assigned as $13/2^+$ 1/2[660] state by 1971Pr13.
1168.06[b] *13*	$(13/2^-)$[#]	K	J^π: γ's to $(11/2^-)$ and $(13/2^-)$ levels; band structure.
1169.170[e] *8*	$(11/2^+)$[#]	EF K M	J^π: (E2) γ to $7/2^+$ level, (M1) γ to $(11/2)^+$ level; band structure.
1193		L	
1201 *3*	$1/2^-,3/2^-$[‡]	G O	E(level): from ^{192}Os(^{3}He,d), (α,t). J^π: L=1 in ^{192}Os(^{3}He,d), (α,t).
1250.42 *8*	$(3/2,5/2)^+$[#]	K O	J^π: γ's to $5/2^+$ and $7/2^+$ levels.
1286	$5/2^-,7/2^-$	G O	E(level): from ^{192}Os(^{3}He,d), (α,t). J^π: L=3 in ^{192}Os(^{3}He,d), (α,t).
1358.8 *5*	$(19/2^-)$	H L O	XREF: L(1347)O(1344). J^π: 428.4γ d to $(17/2^-)$.
1398 *10*		O	
1407		G	
1438.429[&] *11*	$(13/2^+)$[#]	E K	J^π: γ to $(9/2^+)$ level; band structure.
1459.968[@] *11*	$(15/2)^+$	EF M	J^π: γ's to $(11/2)^+$ and $(13/2)^+$ levels; band structure.
1511.714 *17*	$(3/2^+)$[‡]	EF KL O	XREF: O(1504). J^π: (M1+E2) γ to $5/2^+$ level, γ to $(1/2)^+$ level.
1527.7 *4*	$(21/2^-)$	H Q	J^π: 501.3γ d to $(19/2^-)$, γ to $(17/2^-)$.
1552 *10*		O	
1592.6[a] *4*	$(21/2^-)$	H O Q	XREF: O(1583). J^π: 662.7γ Q to $(17/2^-)$, band structure.
1609 *5*		O	
1639 *5*		O	
1650.5[@] *5*	$(17/2^+)$	M	J^π: γ to $(13/2)^+$ level; band structure.
1690 *5*		O	
1698 *3*	$3/2^+,5/2,7/2^-$	G	J^π: L=2 or 3 in (^{3}He,d), (α,t).
1714.9[a] *4*	$(23/2^-)$	H Q	J^π: Q γ to $(19/2^-)$, band structure.
1728.5 *4*	$(23/2^-,25/2^-)$	H Q	J^π: 200.8γ to $(19/2^-)$.
1744 *5*		O	
1759[f] *3*	$(3/2)^-$	G	J^π: L=1 in ^{192}Os(^{3}He,d), (α,t); band structure.
1820[f] *3*	$(7/2)^-$	G	J^π: L=3 in ^{192}Os(^{3}He,d), (α,t); band structure.
1823.7 *4*	(23/2)	Q	J^π: 231.3γ to $(23/2^-,25/2^-)$, 797.4γ to $(19/2^-)$.

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Adopted Levels, Gammas (continued)

^{193}Ir Levels (continued)

E(level)†	J^π	$T_{1/2}$	XREF	Comments
1826 *5*			O	J^π: J=L+1/2 in ^{194}Pt(pol t,α).
1845.2 *6*	(23/2)		Q	J^π: 819.2γ to (19/2$^-$).
1866 *5*			O	
1893.9 *5*	(25/2$^-$)		H O Q	XREF: O(1898). J^π: 165.3γ M1 to (23/2$^-$).
1935 *5*	(5/2$^+$)‡		O	
1944.3 *5*	25/2$^-$,27/2$^-$		Q	J^π: 215.8γ M1+E2 to (23/2$^-$).
1970 *3*			G	
1999 *3*			G	
2029			G	
2052.3 *5*	(27/2$^-$)		Q	J^π: 323.9γ (E2) to (23/2$^-$), 158.3γ M1 to (27/2$^-$).
2179.0@ *5*	(19/2$^+$)		M	J^π: decay to (15/2)$^+$ level; band structure.
2231.7 *6*	(29/2$^+$)		Q	J^π: 337.8γ M2 to (25/2$^-$).
2278.9 *5*	31/2$^+$	124.8 μs *21*	Q	%IT=100 $T_{1/2}$: from γ(t) (HI,xnγ). configuration: possible ν(9/2$^-$[505],11/2$^+$[615])$\otimes\pi$(11/2$^-$[505]).
2404?@	(21/2$^+$)		M	J^π: possible member of rotational band (Coulomb excitation).

† For levels seen in ^{193}Os β^- decay, ^{192}Ir(n,γ), ^{192}Os(d,nγ) and ^{193}Ir(n,n′γ) reaction and Coulomb excitation, E(level) is from a least-squares fit to Eγ, assuming ΔE=0.5 keV for missing uncertainties. Fifteen γ transitions fit poorly. Uncertainty tripled for those γ rays during the fit: 96.815γ, 418.431γ from 557.427; 154.721γ, 573.267γ from 712.169; 181.38γ, 176.907γ from 740.376; 388.60γ, 487.217γ, 709.924γ from 848.982; 282.34γ, 418.31γ from 879.49; 369.81γ, 752.73γ from 892.262; 459.5γ from 930.430; and 662.636γ from 1511.665. χ^2_{crit}=1.3, prior χ^2=6 and later χ^2=1.8. 282.34γ, 418.31γ yet had a poor fit.
740 keV level during the fit. For levels seen only in particle reactions, the source is given only if an ambiguity exists.

‡ From angular distributions and analyzing powers in ^{194}Pt(pol t,α), (t,α).

\# From comparison of experimental and theoretical level-population rates in ^{193}Ir(n,n′γ), and γ-ray decay systematics (1987Pr10).

@ Band(A): K^π=3/2$^+$, 3/2[402] band.

& Band(B): K^π=1/2$^+$, 1/2[400] band.

a Band(C): K^π=11/2$^-$, 11/2[505] band.

b Band(D): K^π=7/2$^-$, 7/2[523] band.

c Band(E): K^π=1/2$^+$, 1/2[411] band.

d Band(F): K^π=3/2$^-$, 3/2[532] band.

e Band(G): K^π=7/2$^+$, 7/2[404] band.

f Band(H): K^π=1/2$^-$, 1/2[530] band.

Adopted Levels, Gammas (continued)

$\gamma(^{193}\mathrm{Ir})$

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[e]	$I_{(\gamma+ce)}$	Comments
73.041	1/2+	73.029[§] *15*	100	0.0	3/2+	M1+E2	−0.558 *5*	6.10 *10*		B(M1)(W.u.)=0.00100 *3*; B(E2)(W.u.)=22.6 *8* δ: from ^{193}Ir(γ,γ): Mossbauer.
80.238	11/2−	80.234[a] *7*	100	0.0	3/2+	M4		2.11×10^4		B(M4)(W.u.)=2.15 *4* Mult.: From ^{193}Ir IT decay (10.53 d).
138.941	5/2+	138.930 *18*	100	0.0	3/2+	M1+E2	−0.362[#] *6*	2.26		B(M1)(W.u.)=0.0320 *6*; B(E2)(W.u.)=84 *3* δ: Others: 0.316 *15*, 0.353 *21*, 0.329 *12* (^{193}Os β^- decay).
180.069	3/2+	41.18[§] *7*		138.941	5/2+				12[§] *3*	
		107.022[&] *5*	100[&] *4*	73.041	1/2+	M1+E2	+0.164 *8*	5.00		B(M1)(W.u.)=0.061 *23*; B(E2)(W.u.)=55 *22*
		180.071[&] *7*	28.6[&] *14*	0.0	3/2+	M1+E2	−0.48 *2*	1.028 *17*		B(M1)(W.u.)=0.0031 *12*; B(E2)(W.u.)=8 *4* I_γ: Other: 71 *8* (Coulomb Excitation).
299.396	7/2−	219.158[&] *7*	100	80.238	11/2−	E2		0.254		B(E2)(W.u.)=71 *12*
357.768	7/2+	218.826[&] *7*	87[&] *4*	138.941	5/2+	M1+E2[#]	−0.280[#] *9*	0.638 *10*		B(M1)(W.u.)=0.0375 *24*; B(E2)(W.u.)=23.8 *21*
		357.761[§] *10*	100[§] *2*	0.0	3/2+	E2[#]		0.0571		B(E2)(W.u.)=32.3 *17* Mult.: Q from Coulomb excitation, E2 from ce data (^{192}Ir(n,γ)).
361.857	5/2+	181.792[&] *7*	66 *3*	180.069	3/2+	M1+E2	+0.149 *11*	1.107		B(M1)(W.u.)=0.026 *5*; B(E2)(W.u.)=6.8 *16* I_γ: Weighted average of data from β^- decay, (n,γ), (d,nγ), Coul. Ex., and (n,n′γ).
		288.819[§] *10*	49.5 *6*	73.041	1/2+	(E2)		0.1063		B(E2)(W.u.)=22 *4* I_γ: Weighted average of data from β^- decay, (n,γ), Coul. Ex., and (n,n′γ).
		361.858[§] *10*	100[#] *7*	0.0	3/2+	M1+E2	−0.315 *19*	0.159 *3*		B(M1)(W.u.)=0.0041 *7*; B(E2)(W.u.)=1.21 *25*
460.538	3/2+	98.681[§] *10*	0.42[§] *1*	361.857	5/2+	M1		6.36		B(M1)(W.u.)=0.0032 *6*
		280.465[&] *3*	31.7[§] *2*	180.069	3/2+	M1+E2	−0.049 *12*	0.337		B(M1)(W.u.)=0.0105 *8*; B(E2)(W.u.)=0.12 *7*
		321.604[&] *7*	32.1[§] *2*	138.941	5/2+	M1+E2	+0.234 *10*	0.225		B(M1)(W.u.)=0.0067 *6*; B(E2)(W.u.)=1.38 *16* I_γ: Other: 42 *3* (n,n′γ).
		387.509[§] *10*	31.6[§] *2*	73.041	1/2+	M1+E2	−0.24 *4*	0.136 *3*		B(M1)(W.u.)=0.0038 *3*; B(E2)(W.u.)=0.56 *19*
		460.547[&] *7*	100.0[§] *5*	0.0	3/2+	M1+E2	−0.64 *3*	0.0718 *16*		B(M1)(W.u.)=0.0053 *5*; B(E2)(W.u.)=4.0 *4*
469.384	(13/2−)	389.140[&] *10*	100	80.238	11/2−	(M1)[&]		0.1395		
478.988	(15/2−)	398.775[&] *23*	100	80.238	11/2−	(E2)[&]		0.0424		
516.414	(7/2)+	154.554[&] *7*	24[&] *3*	361.857	5/2+	(M1)[&]		1.770		I_γ: Others: 15 *4* (β^- decay), 30 *4* (Coul. Ex), 14 *6* (n,n′γ).
		336.343[&] *9*	99[&] *9*	180.069	3/2+	(E2)[&]		0.0679		I_γ: Others: 100 *6* (β^- decay), 57 *12* (Coul. Ex), 47 *6* (n,n′γ), 21 *5* ((d,nγ) − complex peak).

$\gamma(^{193}Ir)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[e]	Comments
516.414	(7/2)+	377.477[&] 7	100[#] 7	138.941	5/2+	(M1)[&]		0.1513	
		516.475[&h] 15	≤11[&]	0.0	3/2+				γ multiply placed in ^{192}Ir(n,γ).
521.926	(9/2)+	164.158[&] 4	10.5 8	357.768	7/2+	(M1)[&]		1.493	B(M1)(W.u.)=0.028 5 I_γ: Weighted average of data (n,γ) and Coul. Ex.
		382.989[&] 7	100[#] 3	138.941	5/2+	(E2)[&]		0.0473	B(E2)(W.u.)=61 9
557.413	(1/2)+	96.815[§] 15	7.18[§] 15	460.538	3/2+	M1+E2	0.171 19	6.68	B(M1)(W.u.)=0.027 7; B(E2)(W.u.)=32 11
		377.340[&] 10	4.96[§] 4	180.069	3/2+	M1(+E2)	1.0 5	0.10 3	B(M1)(W.u.)=0.00016 10; B(E2)(W.u.)=0.4 3
		418.431[§] 16	3.98[§] 3	138.941	5/2+	[E2]		0.0373	B(E2)(W.u.)=0.44 11 I_γ: Other: 8.7 15 (n,γ).
		484.359[§] 10	12.85[§] 18	73.041	1/2+	(M1)		0.0782	
		557.401[§] 10	100.0[§] 9	0.0	3/2+	(M1)		0.0541	B(M1)(W.u.)=0.0020 5
559.298	5/2+	197.486[§] 24	0.89[§] 5	361.857	5/2+	[M1,E2]		0.6 3	
		201.535[&] 7	0.78[§] 7	357.768	7/2+	[M1,E2]		0.6 3	
		379.230[&] 11	2.08[§] 8	180.069	3/2+	[M1,E2]		0.10 5	
		420.351[&] 8	32.8[§] 3	138.941	5/2+	M1		0.1136	B(M1)(W.u.)=0.061 10
		486.255[§] 10	2.19[§] 2	73.041	1/2+	[E2]		0.0254	B(E2)(W.u.)=5.6 12
		559.289[§] 10	100.0[§] 8	0.0	3/2+	(M1)		0.0537	B(M1)(W.u.)=0.077 13
563.402	(9/2−)	264.005[&] 5	100.0[&] 5	299.396	7/2−	(M1)[&]		0.398	
		483.160[&] 8	63[&] 4	80.238	11/2−	(M1)[&]		0.0787	
598.220	3/2−	236.31[§] 4	0.35[§] 6	361.857	5/2+				
		298.828[&] 10	100.0[§] 10	299.396	7/2−	(E2)		0.0959	B(E2)(W.u.) exceeds RUL, however, with considerable uncertainty.
		418[§]	3.8[§] 8	180.069	3/2+	[E1]		0.01176	B(E1)(W.u.)=3.0×10^{-5} +12−30
		525.190[§] 10	10.8[@] 4	73.041	1/2+	[E1]		0.00717	B(E1)(W.u.)=4.0×10^{-5} +14−40
		598.42[§] 7	0.38[§] 13	0.0	3/2+	[E1]		0.00547	B(E1)(W.u.)=1.0×10^{-6} +5−10
620.991	7/2+	259.8[@] 13	5.5[@] 20	361.857	5/2+	[M1,E2]		0.28 14	I_γ: relative to Iγ(620.98)=74.
		263.218[&] 8	13.6[&] 7	357.768	7/2+	M1+E2[#]	−0.26[#] 11	0.385 16	B(M1)(W.u.)=0.0174 20; B(E2)(W.u.)=7 6
		482.048[&] 8	100[#] 4	138.941	5/2+	M1+E2[#]	−0.93[#] 11	0.054 4	B(M1)(W.u.)=0.0119 18; B(E2)(W.u.)=17 3
		620.98[&] 3	75[&] 6	0.0	3/2+	[E2]		0.01425	B(E2)(W.u.)=7.8 8
695.142	5/2+	96.969[§] 15	0.73[§] 16	598.220	3/2−				
		135.88[&] 3	1.9[&] 10	559.298	5/2+	[M1,E2]		2.0 6	I_γ: Unweighted average from β^- decay and (n,γ).
		234.608[&] 7	100.0[§] 2	460.538	3/2+	M1+E2	−0.36 9	0.505 21	
		333.28[&] 4	5.3[§] 4	361.857	5/2+	(M1)[&]		0.211	
		337.33[&] 3	1.38[§] 24	357.768	7/2+	[M1,E2]		0.14 7	I_γ: Others: 80 20 (d,nγ), 100 10 (n,γ) (discrepant data).

$^{193}_{77}Ir_{116}$-7

$\gamma(^{193}Ir)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[†]	E_f	J^π_f	Mult.[‡]	δ[‡]	α[e]	Comments
695.142	5/2+	515.064[&] *9*	23.8[§] *3*	180.069	3/2+	(M1+E2)[&]		0.044 *23*	
		556.175[&] *9*	6.1[&] *5*	138.941	5/2+	(M1+E2)[&]		0.036 *18*	
		695.159[§] *14*	5.53[§] *16*	0.0	3/2+	[M1,E2]		0.021 *10*	
712.180	3/2+	154.721[&] *4*	12.96[§] *24*	557.413	(1/2)+	M1+E2	+0.26 *3*	1.71 *3*	B(M1)(W.u.)=0.019 *18*; B(E2)(W.u.)=20 *20* I_γ: Other: 32 *15* (n,n′γ).
		251.635[&] *7*	100.0[§] *13*	460.538	3/2+	M1+E2	−0.11 *3*	0.451	B(M1)(W.u.)=0.04 *4*; B(E2)(W.u.)=3 *3*
		350.325[&] *9*	2.64[§] *22*	361.857	5/2+	[M1,E2]		0.12 *7*	I_γ: 69 *10* (n,γ).
		354.25[§] *12*	0.043[§] *24*	357.768	7/2+				
		532.126[§] *10*	40.0[§] *4*	180.069	3/2+	M1+E2	+0.48 *+32−16*	0.053 *9*	B(M1)(W.u.)=0.0013 *13*; B(E2)(W.u.)=0.4 *+6−4*
		573.267[§] *10*	9.72[§] *9*	138.941	5/2+	M1+E2	+0.03 *2*	0.0503	B(M1)(W.u.)=0.0003 *3*
		639.151[§] *10*	3.69[§] *4*	73.041	1/2+	[M1,E2]		0.026 *13*	
		712.188[§] *10*	8.07[§] *7*	0.0	3/2+	[M1,E2]		0.020 *10*	
740.380	5/2−	142.159[&] *3*	75.8[§] *13*	598.220	3/2−	M1		2.24	
		176.907[§] *16*	<1.28[§]	563.402	(9/2−)				
		181.38[§] *4*	0.18[§] *4*	559.298	5/2+				
		378.533[&] *8*	1.9 *3*	361.857	5/2+	[E1]		0.01470	I_γ: Weighted average of data from β^- decay and (n,γ).
		382.63[§] *15*	0.08[§] *4*	357.768	7/2+				
		440.980[&] *13*	100[§] *5*	299.396	7/2−	M1+E2	−0.37 *4*	0.0920 *21*	
		560.33[&] *3*	3.1[§] *9*	180.069	3/2+	[E1]		0.00626	I_γ: there is a disagreement about this Iγ. The branching ratios are given as 3.1 *9* (^{193}Os β^- decay, deduced from γγ data), 31 *4* (^{192}Ir(n,γ)), 44 *7* (^{192}Os(d,nγ)). See ^{192}Ir(n,γ) for comment.
		601.45[&] *5*	0.28[&] *4*	138.941	5/2+				I_γ: Other 16 *3* (n,γ).
806.902	(5/2)+	445.023[&] *14*	5.6[&] *7*	361.857	5/2+				
		449.149[&] *18*	53[&] *5*	357.768	7/2+	(M1)[&]		0.0953	
		626.88[&] *8*	8.0[&] *10*	180.069	3/2+				
		667.963[&] *9*	100[&] *7*	138.941	5/2+				
		733.93[@] *15*	7.9[@] *16*	73.041	1/2+				
		807[#]		0.0	3/2+				
828.92	(9/2−)	748.68[@] *9*	100	80.238	11/2−				
832.893	(11/2−)	269.490[&] *7*	100[&] *5*	563.402	(9/2−)	(M1)[&]		0.377	
		533.51[&] *3*	70[&] *7*	299.396	7/2−	(E2)[&]		0.0203	
		752.73[g@] *15*	<35[g@]	80.238	11/2−				multiply placed, with undivided intensity Iγ=30 *5* in ^{193}Ir(n,n′γ).

$^{193}_{77}Ir_{116}$-8

γ(^{193}Ir) (continued)

E_i(level)	J^π_i	E_γ	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[e]	Comments
838.918	(9/2+)	279.611[&] *18*	2.3[&] *4*	559.298	5/2+			
		322.505[&] *21*	33.4[&] *20*	516.414	(7/2)+	(M1)[&]	0.231	
		477.062[&] *8*	100[&] *5*	361.857	5/2+	(E2)[&]	0.0267	
848.967	3/2(+),5/2(+)	290[§]	≈10[§]	559.298	5/2+	[M1,E2]	0.21 *11*	
		388.60[&b] *4*	100[&] *21*	460.538	3/2+	(M1)[&]	0.1400	
		487.217[&b] *13*	64[&] *6*	361.857	5/2+	(E2)[&]	0.0253	
		491.26[§] *8*	3.9[§] *16*	357.768	7/2+			
		709.924[§] *13*	46.5[§] *18*	138.941	5/2+	[M1,E2]	0.020 *10*	
		775.9[§] *3*	9[§] *40*	73.041	1/2+	[E2]	0.00876	
		848.944[§] *16*	100[§] *3*	0.0	3/2+	[M1,E2]	0.013 *6*	
857.027	(11/2)+	335.101[&] *11*	31[&] *3*	521.926	(9/2)+	(M1)[&]	0.208	B(M1)(W.u.)≈0.043
		499.254[&] *8*	100[#] *4*	357.768	7/2+	(E2)[&]	0.0238	B(E2)(W.u.)=57 *10*
874.290	3/2+,5/2+	253.08[§] *8*	<9[§]	620.991	7/2+			
		314.93[§] *5*	10.4[§] *21*	559.298	5/2+			
		317[§]	5.4[§] *15*	557.413	(1/2)+	[M1,E2]	0.16 *8*	
		413.756[&] *8*	23 *3*	460.538	3/2+	(M1,E2)[&]	0.08 *4*	
		512.3[§] *3*	8[§] *4*	361.857	5/2+	[M1,E2]	0.045 *23*	
		516.52[§] *4*	15.2[§] *4*	357.768	7/2+	[M1,E2]	0.044 *22*	
		735.32[§] *34*	5.6[§] *2*	138.941	5/2+	[M1,E2]	0.018 *9*	
		800.9[§] *3*	1.5[§] *7*	73.041	1/2+	[M1,E2]	0.015 *7*	
		874.306[§] *25*	100[§] *6*	0.0	3/2+	[M1,E2]	0.012 *6*	
879.49		282.34[§] *9*	100[§] *12*	598.220	3/2−			
		418.31[§] *7*	48[§] *28*	460.538	3/2+			
882.19		283.97[§] *7*	100	598.220	3/2−			
890.41		292.19[§] *7*	100	598.220	3/2−			
892.269	(9/2+)	271.282[&] *12*	47[&] *5*	620.991	7/2+			
		369.81[@] *10*	65[#] *17*	521.926	(9/2)+			I_γ: Other: 26 *4* (n,n′γ).
		534.482[&] *21*	100[&] *6*	357.768	7/2+			
		752.73[g@] *15*	<47[g@]	138.941	5/2+			
918.363	(7/2−)	177.986[&] *7*	100[&] *8*	740.380	5/2−	(M1)[&]	1.189	
		320.142[&] *17*	11.8[&] *18*	598.220	3/2−	(E2)[&]	0.0783	
		354.960[&] *7*	17.6[&] *26*	563.402	(9/2−)	(M1)[&]	0.1784	
		618.94[&] *3*	51 *4*	299.396	7/2−			I_γ: Weighted average of branching data from (n,γ) E=TH and (n,n′γ).
930.429	(17/2−)	451.441[&] *8*	100	478.988	(15/2−)	D+Q		E_γ,Mult.: Other: 449.3 *5* (^{7}Li,α2nγ). Mult: From (HI,xnγ).

Adopted Levels, Gammas (continued)

$\gamma(^{193}Ir)$ (continued)

E_i(level)	J^{π}_i	E_γ	I_γ[†]	E_f	J^{π}_f	Mult.[‡]	α[e]	Comments
930.429	(17/2⁻)	459.5[c] 5		469.384	(13/2⁻)			
959.73		361.51[§] 3	100	598.220	3/2⁻			
964.41	1/2⁺	784.43[§] 5	24.3 23	180.069	3/2⁺	[M1,E2]	0.016 7	I_γ: Weighted average of branching data from (n,γ) E=TH and (n,n′γ).
		891.34[§] 3	100[§] 5	73.041	1/2⁺	[M1,E2]	0.011 5	
972.872	(5/2⁺)	232.507[&] 19	14.6[&] 15	740.380	5/2⁻			
		351.864[&] 14	61[&] 5	620.991	7/2⁺			
		611.037[&] 21	100[&] 18	361.857	5/2⁺			I_γ: 71 16 (n,n′γ).
		615.09[&] 5	94[&] 13	357.768	7/2⁺			
		899.98[@] 13	100[@] 14	73.041	1/2⁺			E_γ: Only reported in (n,n′γ).
		972.08[@h] 24	49[@] 16	0.0	3/2⁺			
975.330	(11/2⁻)	496.345[&] 8	100[&] 10	478.988	(15/2⁻)	(E2)[&]	0.0242	
		505.943[&] 8	50[&] 4	469.384	(13/2⁻)	(M1)[&]	0.0697	
1009.354	(11/2⁺)	492.940 8	100[&] 9	516.414	(7/2)⁺	(E2)[&]	0.0246	
		539.92[&] 8	17[&] 3	469.384	(13/2⁻)			
1019.589	(11/2⁺)	503.174[&] 8	100	516.414	(7/2)⁺	(E2)[&]	0.0234	
1026.0	(19/2⁻)	96.0[d] 5		930.429	(17/2⁻)			
		545.7[d] 5	100	478.988	(15/2⁻)	Q		Mult.: From (HI,xnγ).
1035.465	(13/2⁺)	178.441[&] 4	5.0[&] 10	857.027	(11/2)⁺	(M1)[&]	1.181	
		513.529[&] 8	100[&] 8	521.926	(9/2)⁺	(E2)[&]	0.0222	
1035.855	3/2⁺,5/2⁽⁺⁾,7/2⁺	340.1[@] 9	31[@] 23	695.142	5/2⁺			
		678.085[&] 24	100[@] 13	357.768	7/2⁺			
		856.5[@] 6	16[@] 10	180.069	3/2⁺			
1038.054	(5/2⁺,7/2⁺)	516.153[&] 23	30.3[&] 24	521.926	(9/2)⁺			
		676.192[&] 13	100[&] 17	361.857	5/2⁺			
		680.280[&] 15	69[&] 14	357.768	7/2⁺			
		858.2[@] 3	67[@] 27	180.069	3/2⁺			
1065.89	1/2⁺,3/2⁽⁺⁾,5/2⁺	444.75[@] 12	8[@] 5	620.991	7/2⁺			γ multiply placed in (n,n′γ); only observed in (n,n′γ).
		704.01[@] 11	35[@] 6	361.857	5/2⁺			
		885.91[@] 8	100[@] 14	180.069	3/2⁺			
		992.2[f@] 5	18[f@] 11	73.041	1/2⁺			
1076.47	(3/2⁺)	718.72[@] 10	100[@] 10	357.768	7/2⁺			
		937.49[@] 13	30[@] 5	138.941	5/2⁺			
1077.99	(3/2⁻,5/2⁻)	337.8[@] 2	8.3[@] 25	740.380	5/2⁻			
		778.43[§] 19	100 10	299.396	7/2⁻	[M1,E2]	0.016 8	

$^{193}_{77}Ir_{116}$-10

$\gamma(^{193}Ir)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[e]	Comments
1131.17	5/2⁻	951.10[@] *11*	100[@] *17*	180.069	3/2⁺			
		992.2[f@] *5*	37[f@] *22*	138.941	5/2⁺			
1145.614	(9/2)⁻	227.252[&] *7*	100[&] *9*	918.363	(7/2⁻)			
		582.201[&] *20*	17 *3*	563.402	(9/2⁻)			I_γ: Weighted average of data from (n,γ) and (n,n′γ).
1168.06	(13/2⁻)	335.21[@] *19*	100[@] *44*	832.893	(11/2⁻)			
		698.64[@] *17*	67[@] *26*	469.384	(13/2⁻)			
1169.170	(11/2⁺)	276.890[&] *20*	14.5[&] *21*	892.269	(9/2⁺)	(M1)[&]	0.350	
		312.125[&] *9*	9.7[&] *24*	857.027	(11/2)⁺			
		548.19[&] *3*	75[&] *4*	620.991	7/2⁺	(E2)[&]	0.0190	
		647.257[&] *8*	100[&] *11*	521.926	(9/2)⁺			
		654[#]		516.414	(7/2)⁺			
		812[#]		357.768	7/2⁺			
1250.42	(3/2,5/2)⁺	888.42[@] *10*	100.0[@] *9*	361.857	5/2⁺			
		892.89[@] *13*	92[@] *12*	357.768	7/2⁺			
1358.8	(19/2⁻)	428.4[c] *5*	100	930.429	(17/2⁻)	D		
1438.429	(13/2⁺)	599.510[&] *7*	100	838.918	(9/2⁺)			
1459.968	(15/2)⁺	425[#]		1035.465	(13/2⁺)			
		440.37[&] *5*	15.8[&] *24*	1019.589	(11/2⁺)			
		602.940[&] *8*	100[&] *12*	857.027	(11/2)⁺			
1511.714	(3/2⁺)	538.845[&] *20*	34[&] *4*	972.872	(5/2⁺)	(M1+E2)[&]	0.039 *20*	
		637.46[&] *3*	100[&] *6*	874.290	3/2⁺,5/2⁺			
		662.636[&] *15*	100[&] *33*	848.967	3/2⁽⁺⁾,5/2⁽⁺⁾			
		954.37[@] *15*	100[@] *20*	557.413	(1/2)⁺			
1527.7	(21/2⁻)	501.3[c] *5*	100	1026.0	(19/2⁻)	D		
		597.7[d] *5*		930.429	(17/2⁻)			
1592.6	(21/2⁻)	566.3[c] *5*	100[c] *9*	1026.0	(19/2⁻)	D+Q		Mult.: From (HI,xnγ).
		662.7[c] *5*	43[c] *4*	930.429	(17/2⁻)	Q		
1650.5	(17/2⁺)	615[#]	100	1035.465	(13/2⁺)			
1714.9	(23/2⁻)	187.3[d] *5*		1527.7	(21/2⁻)			
		688.8[c] *5*	100	1026.0	(19/2⁻)	Q		Mult.: From (HI,xnγ).
1728.5	(23/2⁻,25/2⁻)	135.9[c] *5*	56[c] *11*	1592.6	(21/2⁻)	M1+E2	2.0 *6*	
		200.8[c] *5*	100[c] *11*	1527.7	(21/2⁻)	(E2)	0.341 *6*	δ: From (HI,xnγ).
1823.7	(23/2)	231.3[d] *5*		1592.6	(21/2⁻)			
		797.4[d] *5*		1026.0	(19/2⁻)			
1845.2	(23/2)	819.2[d] *5*	100	1026.0	(19/2⁻)			

$\gamma(^{193}Ir)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[†]	E_f	J^π_f	Mult.[‡]	α[e]	Comments
1893.9	(25/2⁻)	165.3[d] *5*		1728.5	(23/2⁻,25/2⁻)	M1	1.464 *24*	Mult.: M1 in (HI,xnγ) for a placement from 25/2⁻ to 23/2⁻,25/2⁻.
		178.9[c] *5*	100	1714.9	(23/2⁻)	E2	0.507 *9*	Mult.: From (HI,xnγ).
1944.3	25/2⁻,27/2⁻	120.7[d] *5*		1823.7	(23/2)			
		215.8[d] *5*		1728.5	(23/2⁻,25/2⁻)	M1+E2	0.48 *22*	Mult.: From (HI,xnγ).
2052.3	(27/2⁻)	158.3[d] *5*		1893.9	(25/2⁻)	M1	1.65 *3*	Mult.: α(exp)=1.60 *30* (HI,xnγ).
		323.9[d] *5*		1728.5	(23/2⁻,25/2⁻)	(E2)	0.0757	Mult.: α(exp)=0.02 *12* (HI,xnγ).
2179.0	(19/2⁺)	719[#]	100	1459.968	(15/2)⁺			
2231.7	(29/2⁺)	337.8[d] *5*		1893.9	(25/2⁻)	M2	0.743	Mult.: α(exp)=0.68 *16* (HI,xnγ).
		503.3[d] *5*		1728.5	(23/2⁻,25/2⁻)			
2278.9	31/2⁺	226.7[d] *5*	41.3[d] *12*	2052.3	(27/2⁻)	M2	2.81 *5*	B(M2)(W.u.)≈0.0051 Mult.: α(exp)=3.30 *20* (HI,xnγ).
		334.5[d] *5*	100.0[d] *14*	1944.3	25/2⁻,27/2⁻	(E3)	0.303	B(E3)(W.u.)=3.2 *9* Mult.: α(exp)=0.31 *7*.
		385.0[d] *5*	9.4[d] *11*	1893.9	(25/2⁻)	[E3]	0.179	B(E3)(W.u.)=0.11 *4*
2404?	(21/2⁺)	753[#h]	100	1650.5	(17/2⁺)			

[†] The statistical agreement among different datasets is good. When values are discrepant, branching value from β^- decay and other values are listed. Overall (d,nγ) data are less in agreement with other datasets.
[‡] From ^{193}Os β^- decay, unless otherwise noted.
[§] From ^{193}Os β^- decay.
[&] From ^{192}Ir(n,γ).
[@] From ^{193}Ir(n,n′γ).
[#] From Coulomb excitation.
[a] Weighted average of 80.22 keV *2* (1987Li16 – IT decay) and 80.236 keV *7* (1997Dr04 -(n,γ)).
[b] The γ placed from a slightly higher but different state at 849.084 keV, while the levels could be the same as noted in 2006Ac01 (previous evaluation). Based on measurements in 2005Za15, evaluator merged these two levels into one.
[c] From (^{7}Li,α2nγ).
[d] From (HI,xnγ).
[e] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[f] Multiply placed with undivided intensity.
[g] Multiply placed with intensity suitably divided.
[h] Placement of transition in the level scheme is uncertain.

^{193}Os β^- decay 1972Pr04,2012Kr05,2002Ma18

Parent: ^{193}Os: E=0.0; J^π=3/2$^-$; $T_{1/2}$=29.830 h *18*; Q(β^-)=1141.9 *24*; %β^- decay=100

Others: 2005Za15,2008ZaZY,2007ZaZZ,1972De67,1971Bb09,1968Av01,1968Av02, 1968Pl03,1968Ra24,1967Ag06,1967Pe03,1960Fe03,1958Du76,1954De04,1953Co13.

Other contributing references are:

γ: 1971Lu08, 1970Ra37.

ce: 1970Ba56, 1969Co08.

$\gamma\gamma$(t), $\beta\gamma$(t), β(ce)(t): 1973Il02, 1972Be85, 1969Ba28, 1969Li13, 1969Va36, 1968Av02.

$\gamma\gamma(\theta$,H,T): 1985Be03.

1972Pr04: Measured Eγ, Iγ, E(ce), I(ce), $\gamma\gamma$-coin. Deduced excited level spin and parity, multipolarities, mixing ratios.

2012Kr05: Measured Eγ, Iγ, half-life using HPGe detector. Results are based on the average of three different samples each counted for at least 2 half-lives.

2002Ma18: Measured absolute γ-ray emission (intensity) probabilities in a $4\pi\beta\gamma$ coincidence experiment.

2005Za15: Measured Eγ, Iγ, $\gamma\gamma$-coin using planer detector array in coincidence mode (within 200 ns). Deduced excited levels.

1970Be06: 98.7% enriched ^{192}Os metal powder irradiated for approximately one hour with a neutron flux density of 2×10^{14}. Measured Eγ, Iγ, ce.

1969Pr02, 1958Na15: Measured γ, ce, β, $\gamma\gamma$, $\beta\gamma$, (ce)(ce)(t).

1984Gh01, 1973Kr05: Measured $\gamma\gamma(\theta)$, $\gamma(\theta$,H,T).

The decay scheme shown is from 1972Pr04 and 2005Za15.

Sum of decay energies of this dataset is 1140 keV *35* cf. 1142 keV *2* from ^{28}Ne β^- decay Q(g.s.) and decay branching.

^{193}Ir Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	Comments
0.0	3/2$^+$	stable	
73.037 *6*	1/2$^+$	6.09 ns *15*	$T_{1/2}$: weighted average of 6.3 ns *2* β(ce)(t) (1969Li13), 6.34 ns *16* $\gamma\gamma$(t) (1969Ba28), 5.90 ns *11* $\gamma\gamma$(t) (1972Be85,1973Il02), with increased uncertainty (discrepant data set).
80.234 *7*	11/2$^-$	10.53[‡] d *4*	
138.946 *7*	5/2$^+$	80 ps *5*	$T_{1/2}$: Weighted average of 75 ps *10* (ce)(ce)(t) (1970Be06), 77 ps *17* $\gamma\gamma$(t) (1969Ba28), 74 ps *11* β(ce)(t) (1969Li13), 88 ps *9* β(ce)(t) (1968Av02). Other: 1960Fe03. Adopted value 69.7 ps *10* from recoil-distance method in Coulomb excitation (2000Be07).
180.070 *5*	3/2$^+$	59 ps *7*	$T_{1/2}$: weighted average of 55 ps *+8−15* (ce)(ce)(t) (1970Be06), 46 ps *15* $\gamma\gamma$(t) (1969Ba28), 66 ps *10* β(ce)(t) (1969Li13); other: <35 ps (1968Av02). Adopted value 43 ps *16*.
299.381 *9*	7/2$^-$	0.19 ns *3*	$T_{1/2}$: from (ce)(ce)(t) (1970Ba56).
357.764 *10*	7/2$^+$	18.7[‡] ps *7*	
361.858 *6*	5/2$^+$	36 ps *7*	$T_{1/2}$: from β(ce)(t) (1969Va36). Others: 1968Av02, 1973Il02. Adopted value 31 ps *5*.
460.552 *5*	3/2$^+$	17 ps *4*	$T_{1/2}$: weighted average of 19 ps *5* (1968Av02), 15 ps *6* (1969Va36,1969Li13) β(ce)(t); other: 1973Il02. Adopted value 13.2 ps *10*.
516.585 *24*	(7/2)$^+$		
557.396 *6*	(1/2)$^+$	34 ps *8*	$T_{1/2}$: from β(ce)(t) (1969Va36); others: 1969Li13, 1968Av02, 1973Il02.
559.293 *7*	5/2$^+$	1.08[‡] ps *16*	$T_{1/2}$: <76 ps b(ce)(t) (1969Va36); others: 1968Av02, 1969Li13, 1973Il02.
563.429 *16*			
598.212 *8*	3/2$^-$	2.8[‡] ps *+28−9*	
621.02 *4*	(7/2)$^+$		
695.142 *7*	5/2$^+$		
712.197 *5*	3/2$^+$	15 ps *14*	$T_{1/2}$: from β(ce)(t) (1969Va36); other: 1968Av02.
740.348 *10*	5/2$^-$		
806.96[@] *6*	(5/2)$^+$		
848.905 *11*	5/2$^+$		
874.279 *12*	3/2$^+$,5/2$^+$		
879.50 *17*			

Continued on next page (footnotes at end of table)

^{193}Os β^- decay 1972Pr04,2012Kr05,2002Ma18 (continued)

^{193}Ir Levels (continued)

E(level)†	J^π‡
882.18 *7*	
890.40 *7*	
959.72 *4*	
964.41 *3*	1/2+
1077.81 *19*	(3/2−,5/2−)

† From least-squares fit to γ-ray energies, assuming ΔE=0.5 keV for missing uncertainties. Poor fit (5 to 6 std. dev.) for 181.38γ from 740 keV and 282.34γ, 418.31γ from 879 keV levels. Uncertainty tripled for least-squares fit − yet later two γ-transitions fit with 3 to 4 std. dev. χ^2=2.3 and $\chi^2_{critical}$=1.5.

‡ From Adopted Levels.

Best values from β^-decay unless otherwise noted; adopted values are given under Comments when different.

@ Level proposed by the evaluator: γ 667.7 in ^{193}Os decay agrees with γ 667.97 in (n,γ) and (d,nγ), and γ 668.04 in (n,n′γ) from 860.9 level.

β^- radiations

β^- feedings are from intensity imbalance at each level.
Others: Eβ: 1968Pl03, 1967Ag06, 1958Du76, 1954De04; βγ: 1969Pr02, 1968Pl03, 1967Ag06, 1960Fe03, 1958Du76.

E(decay)	E(level)	$I\beta^-$†	Log *ft*	Comments
(64.1 *24*)	1077.81	0.0018 *5*	7.92 *13*	
(177.5 *24*)	964.41	0.0033 *2*	9.02 *4*	
(267.6 *24*)	874.279	0.033 *2*	8.58 *3*	
(293.0 *24*)	848.905	0.0079 *8*	9.33 *5*	
(401.6 *24*)	740.348	0.32 *1*	8.17 *2*	
(429.7 *24*)	712.197	0.513 *8*	8.06 *1*	L=0 (1984Gh01,1973Kr05); L=1 (1985Be03).
(446.8 *24*)	695.142	0.095 *3*	8.85 *2*	
(543.7 *24*)	598.212	<0.02	>9.8	L=1 (1985Be03).
(582.6 *24*)	559.293	0.72 *1*	8.35 *1*	Eβ, Iβ: see data with 557 level. (L=2)/(L=1)=0.22 *13* (1984Gh01,1973Kr05).
(584.5 *24*)	557.396	2.33 *4*	7.85 *1*	Eβ=510 *50*, Iβ=6, includes group to 559 level (FK analysis, 1958Na15).
(681.3 *24*)	460.552	7.74 *11*	7.55 *1*	Eβ=670 *30*, Iβ=11 (FK analysis, 1958Na15). (L=0)/(L=1)=0.45 *5* (1984Gh01,1973Kr05); (L=0)/(L=1)=0.40 *15* (1985Be03).
(780.0 *24*)	361.858	0.72 *2*	8.79 *1*	(L=2)/(L=1)=0.18 *14* (1984Gh01); L=1 (1985Be03).
(784.1 *24*)	357.764	0.013 *4*	10.88 *14*	No β^-group seen in FK analysis (1958Na15).
(842.5 *24*)	299.381	0.018 *8*	10.50 *20*	L=1 (1985Be03).
(961.8 *24*)	180.070	1.5 *2*	8.79 *6*	Eβ=850 *30*, Iβ=10 (FK analysis, 1958Na15). L=0 (1984Gh01).
(1003.0 *24*)	138.946	10.6 *2*	8.00 *1*	Iβ=10 (FK analysis with Eβ=993, 1958Na15). (L=2)/(L=1)=0.14 *12* (1984Gh01), L=1 (1985Be03).
(1068.9 *24*)	73.037	17 *3*	7.90 *8*	Iβ=21 (FK analysis with Eβ=1059, 1958Na15).
(1141.9 *24*)	0.0	59 *3*	7.46 *2*	E(decay): 1132 *5* (1958Na15). Others: 1130 *15* (1968Pl03), 1040 *30* (1967Ag06). $I\beta^-$: 42 (FK analysis, 1958Na15). (L=2)/(L=1)=0.14 *9* (1985Be03).

† Absolute intensity per 100 decays.

$\gamma(^{193}$Ir)

Iγ normalization: %Iγ(460γ)=3.88 *5*. 2002Ma18 measured absolute intensity in a 4$\pi\beta\gamma$ coincidence experiment. The adopted value is the unweighted average of the four runs presented in 2002Ma18 instead of that quoted by the authors, which is the weighted average of discrepant data. Others: 4.0 *2* (1969Pr02, from Iβ and Iγ measured in singles and $\beta\gamma$ measurements) and 3.9 *2* (1958Na15, from comparison of Iγ/Iβ in ^{193}Os and in ^{198}Au).

Experimental Ice from 1972Pr04, 1970Be06, 1970Ba56, and 1969Co08. Other: 1968Pl03 (not included in the evaluation; Ice uncertainties were not reported).

* I(K x ray), relative to Iγ=100 for 460.5γ (1972Pr04).

R From 2012Kr05.

	E(X-ray)	I(X-ray) *
Ir Kα_2 x ray	63.28 5	98 9
Ir Kα_1 x ray	64.90 5	160 16
Ir Kβ_1' x ray	73.58 10	33 5
Ir Kβ_2' x ray	75.63 5	13 2

E$_\gamma$	I$_\gamma$[e]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[a]	δ[bd]	α[f]	I$_{(\gamma+ce)}$[e]	Comments
41.18 *7*		180.070	3/2$^+$	138.946	5/2$^+$	[M1,E2]		1.5×10^2 *13*	1.9 *5*	E$_\gamma$: From E(ce) measurements (1970Be06). I$_\gamma$: Iγ<0.01 estimated from ce(L1)<0.003 (1970Be06). I$_{(\gamma+ce)}$: Deduced from $\gamma\gamma$ measurements; γ not seen by 1972Pr04.
[x]61.564 *6*										E$_\gamma$: From 2005Za15, propose tentitive placement from 138.948 keV level. However, γ ray off by about 3 keV to final level. Evaluator list as unplaced.
65.87[g] *6*	0.06	138.946	5/2$^+$	73.037	1/2$^+$					E$_\gamma$: From 2005Za15. Other: 65.87 keV *6* (1970Be06). In 1970Be06 this γ-ray placed from 138.949 keV level, however, in 1972Pr04 a comparable transition energy listed as 64.90 keV *5* identified as K$_{\alpha1}$ line. Evaluator mark as uncertain placement and not adopted. 2005Za15 also identified as tentative placement. I$_\gamma$: From 1970Be06. Iγ estimated from I(ce(L3))=0.8 *2*.
73.029[@] *15*	79 *9*	73.037	1/2$^+$	0.0	3/2$^+$	M1+E2	−0.558 *5*	6.10 *10*		E$_\gamma$: Weighted average of 73.012 *7* (1972Pr04), 73.10 *4* (1970Be06), 73.044 *3* (1971Lu08), 72.951 *46* (2012Kr05). I$_\gamma$: Weighted average of 82 *12* (1972Pr04) and 74 *14* (2012Kr05). Mult.,δ: α(L1)exp=1.11 *16* (1972Pr04); L1:L2:L3=72.7 *14*: 105 *3*: 100 *3* (1972Pr04) Other ce measurements (1968Pl03,1969Co08,1970Be06) agree closely with those of 1972Pr04. δ from

γ(^{193}Ir) (continued)

E_γ	I_γ[e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[bd]	α[f]	$I_{(\gamma+ce)}$[e]	Comments
										adopted gammas, Other: δ=0.56 *4* from conversion electron data, see δ footnote. Calculated circular polarization of γ (1988Fe11).
(80.234 *7*)		80.234	11/2$^-$	0.0	3/2$^+$	M4		2.11×10^4	8.8 *7*	E_γ: From Adopted Gammas. Other: 80.19 (1972Pr04). Mult.: From Adopted Gammas. $I_{(\gamma+ce)}$: Deduced from intensity balance at 80.2 level.
96.815[§] *15*	2.42[§] *5*	557.396	(1/2)$^+$	460.552	3/2$^+$	M1+E2	0.171 *19*	6.68		E_γ: Others: 96.82 *3* (1972Pr04), 96.90 *5* (1970Be06). I_γ: Other: 2.5 *2* (1972Pr04).
96.969[&] *15*	0.009[&] *2*	695.142	5/2$^+$	598.212	3/2$^-$					
98.681[§] *10*	0.423[§] *10*	460.552	3/2$^+$	361.858	5/2$^+$	(M1)		6.36		E_γ: Others: 98.70 *8* (1972Pr04), 98.77 *6* (1970Be06). I_γ: Other: 0.42 *6* (1972Pr04).
107.07[@] *7*	14.4 *8*	180.070	3/2$^+$	73.037	1/2$^+$	M1+E2	+0.164 *8*	4.99		E_γ: 106.993 *10* (1972Pr04), 107.10 *4* (1970Be06), 107.16 *8* (1971Lu08), 107.019 *10* (2012Kr05). I_γ: Weighted ave. of 14.6 *3* (2012Kr05), 16.1 *8* (1972Pr04), 12.8 *7* (1970Be06). δ: Weighted average of 0.16 *1* (1984Gh01) and 0.171 *13* (2008ZaZY).
136[†]	0.011[†] *3*	695.142	5/2$^+$	559.293	5/2$^+$	[M1,E2]		2.0 *6*		I_γ: Iγ deduced from coincidence experiment does not agree with the relative branching measured in ^{191}Ir(nn,γ).
138.92[@] *3*	98.4 *13*	138.946	5/2$^+$	0.0	3/2$^+$	M1+E2	−0.329 *12*	2.28		E_γ: 138.892 *7* (1972Pr04), 138.97 *4* (1970Be06), 138.947 *8* (1971Lu08), 138.932 *10* (2012Kr05). I_γ: Weighted ave. of 99.1 *19* (2012Kr05), 108 *5* (1972Pr04), 100 *6* (1970Be06), 95.7 *21* (2002Ma18). Mult.: from L subshell ratios: L1:L2:L3=100.0 *21*: 23.9 *11*: 8.5 *4* (1972Pr04), also 100 *4*: 24.3 *25*: 10.4 *13* (1969Co08). α(L)exp=0.401 *20* (1972Pr04), α(L)exp=0.38 *3* (1970Be06), α(L)exp=0.42 *4* (1969Co08). δ: Weighted ave. of 0.353 *21* (1969Co08) and 0.316 *15* (1970Be06, 1972Pr04). '-' sign from 1973Kr05 (θ,H,T). Also listed in 1984Gh01.

$\gamma(^{193}Ir)$ (continued)

E_γ	I_γ[e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[bd]	α[f]	Comments
142.135 *6*	1.72 *3*	740.348	5/2$^-$	598.212	3/2$^-$	(M1)		2.24	E_γ: Weighted ave. of 142.130 *8* (1972Pr04), 142.26 *6* (1970Be06), 142.139 *10* (2012Kr05). I_γ: Others: 1.9 *2* (1972Pr04), 1.4 *2* (1970Be06). Mult.: α(K)exp=1.5 *3* (1972Pr04), α(K)exp=2.0 *4* (1970Be06).
154.751[&] *24*	0.0080[&] *21*	516.585	(7/2)$^+$	361.858	5/2$^+$				
154.800 *9*	0.692 *13*	712.197	3/2$^+$	557.396	(1/2)$^+$	M1+E2	+0.26 *3*	1.70 *3*	E_γ: Weighted ave. of 154.808 *10* (2012Kr05), 154.74 *3* (1972Pr04), 154.68 *10* (1970Be06). I_γ: Others: 0.76 *11* (1972Pr04), 0.63 *7* (1970Be06). Mult.,δ: α(K)exp=0.8 *3* (1972Pr04). δ=1.3 *6* from α(K)exp datum.
176.907[&] *16*	<0.029[&]	740.348	5/2$^-$	563.429					
180.061[§] *10*	4.31[§] *8*	180.070	3/2$^+$	0.0	3/2$^+$	M1+E2	−0.48 *2*	1.028 *17*	E_γ: Others: 180.03 *3* (1972Pr04), 180.15 *6* (1970Be06). I_γ: Others: 4.6 *5* (1972Pr04), 4.5 *5* (1970Be06). Mult.: α(K)exp=1.00 *19*, α(L)exp=0.14 *3*, L1:L2:L3=100 *15*: 28 *9*: 15 *15* (1972Pr04). δ: Other: 0.63 *9* from conversion electrom data. See δ footnote.
181.38[&] *12*	0.004[&] *1*	740.348	5/2$^-$	559.293	5/2$^+$				E_γ,I_γ: Other: 181 (1972Pr04) seen in coincidence spectra only with Iγ=0.008 at the limit of detection.
181.785[§] *10*	4.63[§] *9*	361.858	5/2$^+$	180.070	3/2$^+$	M1+E2	+0.149 *11*	1.107	E_γ: Others: 181.81 *3* (1972Pr04), 181.89 *6* (1970Be06). I_γ: Others: 4.9 *5* (1972Pr04), 4.7 *5* (1970Be06). Mult.: α(K)exp=0.92 *11*, K/L=6.9 *14*, L1:L2:L3=100 *15*: 21 *10*: 15 *9* (1972Pr04). δ: δ=0.49 *7* from conversion electron data.
197.486[§] *24*	0.110[§] *6*	559.293	5/2$^+$	361.858	5/2$^+$	[M1,E2]		0.6 *3*	E_γ: Others: 197.4 *2* (1972Pr04), 197.486 *24* (2012Kr05). I_γ: Other: 0.12 *4* (1972Pr04).
201.52[§] *5*	0.097[§] *9*	559.293	5/2$^+$	357.764	7/2$^+$	[M1,E2]		0.6 *3*	E_γ,I_γ: Other: 201.5 *3*, 0.07 *4* (1972Pr04). δ: 0.02 *4* (2007ZaZZ).
219[†]	0.22[†] *5*	357.764	7/2$^+$	138.946	5/2$^+$	M1+E2	−0.280 *9*	0.637	Mult.,δ: from Adopted Gammas.
219.144[§] *10*	6.58[§] *11*	299.381	7/2$^-$	80.234	11/2$^-$	E2		0.254	E_γ: Others: 219.13 *5* (1972Pr04), 219.18 *8* (1970Be06). I_γ: Others: 7.0 *5* (1972Pr04), 6.6 *6* (1970Be06). Mult.: α(K)exp=0.12 *3*, K/L=1.5 *4*, L1:L2:L3=<44: 100 *19*: 63 *11* (1972Pr04).
234.572[§] *10*	1.23[§] *3*	695.142	5/2$^+$	460.552	3/2$^+$	M1+E2	−0.36 *9*	0.511 *20*	E_γ: Others: 234.58 *6* (1972Pr04), 234.60 *12* (1970Be06). I_γ: Others: 1.30 *17* (1972Pr04), 1.2 *1* (1970Be06). δ: Weighted average of −0.20 *13* (nuclear orientation - 1973Kr05) and −0.41 *7* (2007ZaZZ).

$^{193}_{77}Ir_{116}$-17

γ(^{193}Ir) (continued)

E_γ	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[bd]	α[f]	Comments
236.31[&] *4*	0.017[&] *3*	598.212	3/2⁻	361.858	5/2⁺				
251.645[§] *10*	5.34[§] *7*	712.197	3/2⁺	460.552	3/2⁺	M1+E2	−0.11 *3*	0.451	E_γ: Others: 251.62 *4* (1972Pr04), 251.66 *8* (1970Be06). I_γ: Others: 5.5 *4* (1972Pr04), 5.4 *4* (1970Be06). δ: Unweighted average of −0.132 *7* (2008ZaZY) and -0.079 *20* (1984Gh01) other: δ=0.45 *14* from conversion electron data, see δ footnote.
253.08[&] *8*	<0.043[&]	874.279	3/2⁺,5/2⁺	621.02	(7/2)⁺				
263.02[&] *15*	0.0012[&] *7*	621.02	(7/2)⁺	357.764	7/2⁺				
263.997[&] *25*	0.016[&] *3*	563.429		299.381	7/2⁻				
280.476 *9*	31.7 *2*	460.552	3/2⁺	180.070	3/2⁺	M1+E2	−0.049 *12*	0.337	E_γ: Weighted average of 280.482 *10* (2012Kr05), 280.43 *3* (1972Pr04) 280.50 *8* (1970Be06), and 280.457 *35* (1971Lu08). I_γ: From 2002Ma18. Others: 31.9 *3* (2012Kr05), 31.5 *16* (1972Pr04), 33.0 *17* (1970Be06). Mult.: α(K)exp=0.35 *3*, K/L=5.7 *3*, L1:L2:L3=100 *5*: 18: 4: <5 (1972Pr04); α(K)exp=0.27 *3*, K/L=5.6 *7* (1970Be06); δ: 0.18 *11* from conversion electron data. See δ footnote.
282.34[&] *9*	0.025[&] *3*	879.50		598.212	3/2⁻				
283.97[&] *7*	0.028[&] *3*	882.18		598.212	3/2⁻				
288.819[§] *10*	3.62[§] *4*	361.858	5/2⁺	73.037	1/2⁺	(E2)		0.1063	E_γ: Others: 288.79 *5* (1972Pr04), 288.98 *15* (1970Be06). I_γ: Others: 3.6 *3* (1972Pr04), 4.0 *3* (1970Be06). Mult.: α(K)exp=0.087 *15* (1972Pr04), 0.077 *19* (1970Be06).
290[†]	0.012[†]	848.905	5/2⁺	559.293	5/2⁺	[M1,E2]		0.21 *11*	I_γ: At detection limit.
292.19[&] *7*	0.0170[&] *24*	890.40		598.212	3/2⁻				
298.831[§] *10*	4.79[§] *5*	598.212	3/2⁻	299.381	7/2⁻	(E2)		0.0959	E_γ: Others: 298.83 *5* (1972Pr04), 298.71 *15* (1970Be06). I_γ: Others: 4.7 *4* (1972Pr04), 4.8 *3* (1970Be06).
314.93[&] *5*	0.050[&] *10*	874.279	3/2⁺,5/2⁺	559.293	5/2⁺				
317[†]	0.026[†] *7*	874.279	3/2⁺,5/2⁺	557.396	(1/2)⁺	[M1,E2]		0.16 *8*	
321.616 *10*	32.1 *2*	460.552	3/2⁺	138.946	5/2⁺	M1+E2	+0.234 *10*	0.225	E_γ: From 2012Kr05. Others: 321.56 *3* (1972Pr04), 321.63 *10* (1970Be06), 321.627 *35* (1971Lu08). I_γ: Weighted ave. of 31.9 *3* (2012Kr05), 32.3 *16* (1972Pr04), 35.0 *20* (1970Be06), 32.2 *2* (2002Ma18). Mult.: α(K)exp=0.244 *18*, K/L=6.1 *9*,

$\gamma(^{193}$Ir) (continued)

E_γ	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[bd]	α[f]	Comments
									L1:L2:L3=100 *11*: 18 *8*: 14 *14* (1972Pr04); α(K)exp=0.182 *21*, K/L=6.4 *9* (1970Be06). δ: Other: +0.236 *16* (2008ZaZY).
333.24 *5*	0.065 *5*	695.142	5/2$^+$	361.858	5/2$^+$	(M1)		0.211	E_γ: From 2012Kr05. Others: 333.3 *3* (1972Pr04), 333.0 *3* (1970Be06). I_γ: Weighted ave. of 0.067 *5* (2012Kr05), 0.07 *4* (1972Pr04), 0.04 *2* (1970Be06).
336.39[&] *15*	0.054[&] *10*	516.585	(7/2)$^+$	180.070	3/2$^+$				
337.30[§] *7*	0.017[§] *3*	695.142	5/2$^+$	357.764	7/2$^+$	[M1,E2]		0.14 *7*	E_γ: Other: 337.7 *5* (1972Pr04). I_γ: Other: 0.03 *2* (1972Pr04).
350.343 *16*	0.141 *12*	712.197	3/2$^+$	361.858	5/2$^+$	[M1,E2]		0.12 *7*	E_γ: From 2012Kr05. Others: 350.2 *2* (1972Pr04), 350.2 *3* (1970Be06). I_γ: Weighted ave. of 0.138 *4* (2012Kr05), 0.18 *6* (1972Pr04), 0.16 *5* (1970Be06).
354.25[&] *12*	0.0023[&] *13*	712.197	3/2$^+$	357.764	7/2$^+$				
357.761[§] *10*	0.233[§] *4*	357.764	7/2$^+$	0.0	3/2$^+$	E2		0.0571	E_γ: Others: 357.7 *2* (1972Pr04), 357.8 *3* (1970Be06). I_γ: Others: 0.25 *8* (1972Pr04), 0.30 *18* (1970Be06).
361.51[&] *3*	0.083[&] *7*	959.72		598.212	3/2$^-$				
361.858[§] *10*	7.30[§] *7*	361.858	5/2$^+$	0.0	3/2$^+$	M1+E2	−0.315 *19*	0.159 *3*	E_γ: Others: 361.79 *5* (1972Pr04), 361.92 *12* (1970Be06). I_γ: others: 7.5 *6* (1972Pr04), 6.4 *4* (1970Be06). Mult.: α(K)exp=0.18 *3* (1972Pr04), 0.17 *3* (1970Be06). δ: Weighted average of −0.314 *27* (2008ZaZY), −0.33 *3* (1984Gh01), and −0.26 *7* (1985Be03).
377.340[§] *10*	1.67[§] *2*	557.396	(1/2)$^+$	180.070	3/2$^+$	(M1+E2)	1.0 *5*	0.10 *3*	E_γ: Others: 377.31 *7* (1972Pr04), 377.60 *20* (1970Be06). I_γ: Others: 1.8 *2* (1972Pr04), 1.7 *2* (1970Be06).
377.41[&] *8*	0.016[&] *4*	516.585	(7/2)$^+$	138.946	5/2$^+$				
378.38[§] *10*	0.04[§] *1*	740.348	5/2$^-$	361.858	5/2$^+$	[E1]		0.01471	E_γ,I_γ: Other: 378, 0.041 *10* (1972Pr04).
379.19[§] *3*	0.26[§] *1*	559.293	5/2$^+$	180.070	3/2$^+$	[M1,E2]		0.10 *5*	E_γ: Others: 379.04 *15* (1972Pr04), 379.0 *5* (1970Be06). I_γ: Others: 0.35 *9* (1972Pr04), 0.20 *8* (1970Be06).
382.63[&] *15*	0.0017[&] *10*	740.348	5/2$^-$	357.764	7/2$^+$				
387.509 *10*	31.6 *2*	460.552	3/2$^+$	73.037	1/2$^+$	M1+E2	−0.24 *4*	0.136 *3*	E_γ: From (2012Kr05). Others: 387.46 *4* (1972Pr04), 387.48 *12* (1970Be06), 387.509 *58* (1971Lu08). I_γ: Weighted ave. of 31.3 *3* (2012Kr05), 31.9 *16* (1972Pr04), 29.0 *20* (1970Be06), 31.8 *2* (2002Ma18). Mult.: α(K)exp=0.138 *10*, K/L=6.3 *9*, L1:L2:L3=100 *15*: 23 *10*: <11 (1972Pr04); α(K)exp=0.131 *17*, K/L=5.6 *10* (1970Be06).

γ(^{193}Ir) (continued)

E_γ	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[bd]	α[f]	Comments
									δ: δ=0.25 10 from conversion electron data. See δ footnote.
413.730 16	0.105 5	874.279	3/2$^+$,5/2$^+$	460.552	3/2$^+$	(M1,E2)		0.08 4	E_γ: Weighted average of 413.729 16 (2012Kr05), 413.8 2 (1972Pr04), and 414.0 3 (1970Be06). I_γ: Others: 0.12 4 (1972Pr04), 0.11 3 (1970Be06).
418[†]	0.18[†] 4	598.212	3/2$^-$	180.070	3/2$^+$	[E1]		0.01176	
418.31[&] 7	0.012[&] 7	879.50		460.552	3/2$^+$				
418.431[§] 16	1.34[§] 1	557.396	(1/2)$^+$	138.946	5/2$^+$	[E2]		0.0373	E_γ: Others: 418.35 8 (1972Pr04), 418.16 20 (1970Be06). I_γ: Others: 1.38 14 (1972Pr04), 1.6 2 (1970Be06).
420.346[§] 10	4.07[§] 4	559.293	5/2$^+$	138.946	5/2$^+$	M1(+E2)	0.03 4	0.1136 17	E_γ: Others: 420.30 5 (1972Pr04), 420.07 20 (1970Be06). I_γ: Others: 4.2 3 (1972Pr04), 3.7 4 (1970Be06).
440.981 18	2.27 12	740.348	5/2$^-$	299.381	7/2$^-$	M1+E2	−0.37 4	0.0920 21	E_γ: Weighted ave. of 440.986 19 (2012Kr05), 440.95 5 (1972Pr04), and 440.90 20 (1970Be06). I_γ: Others: 2.32 16 (1972Pr04), 2.2 2 (1970Be06). Mult.: α(K)exp=0.085 17 (1972Pr04), α(K)exp=0.09 3 (1970Be06). δ: From 1973Kr05. Other: δ=0.19 4 and 0.32 10 from listed α(K)exp values, respectively.
449.16[&] 6	0.007[&] 3	806.96	(5/2)$^+$	357.764	7/2$^+$				
460.541 10	100.0 5	460.552	3/2$^+$	0.0	3/2$^+$	M1+E2	−0.64 3	0.0718 16	E_γ: Weighted average of 460.547 10 (2012Kr05), 460.49 3 (1972Pr04) 460.56 12 (1970Be06), and 460.501 65 (1971Lu08). I_γ: From 2002Ma18. Others: 100 1 (2012Kr05), 100 5 (1972Pr04), 100 6 (1970Be06). δ: Others: −0.49 2 (1985Be03) and −0.634 17 (2008ZaZY).
482.06[&] 5	0.022[&] 4	621.02	(7/2)$^+$	138.946	5/2$^+$				
483.34[&] 7	0.006[&] 2	563.429		80.234	11/2$^-$				
484.359[§] 10	4.33[§] 6	557.396	(1/2)$^+$	73.037	1/2$^+$	(M1)		0.0782	E_γ: Others: 484.25 5 (1972Pr04) and 484.22 15 (1970Be06). I_γ: Others: 4.3 3 (1972Pr04), 4.8 5 (1970Be06).
486.255[§] 10	0.271[§] 3	559.293	5/2$^+$	73.037	1/2$^+$	[E2]		0.0254	E_γ,I_γ: Other: 486.11 15, 0.29 14 (1972Pr04).
487.22[&] 11	0.0053[&] 12	848.905	5/2$^+$	361.858	5/2$^+$				
491.26[&] 8	0.0045[&] 18	848.905	5/2$^+$	357.764	7/2$^+$				
512.3[‡] 3	0.04[‡] 2	874.279	3/2$^+$,5/2$^+$	361.858	5/2$^+$	[M1,E2]		0.045 23	
515.064[§] 10	0.293[§] 4	695.142	5/2$^+$	180.070	3/2$^+$	(M1,E2)		0.044 23	E_γ: Others: 514.95 10 (1972Pr04), 515.2 2 (1970Be06). I_γ: Others: 0.28 5 (1972Pr04), 0.40 6 (1970Be06).
516.52[§] 4	0.073[§] 2	874.279	3/2$^+$,5/2$^+$	357.764	7/2$^+$	[M1,E2]		0.044 22	E_γ,I_γ: Other: 516.3 4, 0.06 3 (1972Pr04).

γ(^{193}Ir) (continued)

E_γ	I_γ[e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	δ[bd]	α[f]	Comments
[x]517.84[&] *4*	0.080[&] *10*								E_γ: 2005Za15 propose the placement from 598 keV level. However, if placed, this would be a 3/2⁻ to 11/2⁻ transition. Evaluator list it as unplaced.
525.190[§] *10*	0.41[§] *44*	598.212	3/2⁻	73.037	1/2⁺	[E1]		0.00717	E_γ: Others: 524.98 *8* (1972Pr04), 525.3 *2* (1970Be06). I_γ: Others: 0.40 *4* (1972Pr04), 0.40 *6* (1970Be06).
532.126[§] *10*	2.14[§] *2*	712.197	3/2⁺	180.070	3/2⁺	M1+E2[c]	+0.48 *+32−16*	0.053 *9*	E_γ: Others: 532.02 *5* (1972Pr04), 532.3 *2* (1970Be06). I_γ: Others: 2.10 *15* (1972Pr04), 2.2 *2* (1970Be06).
556[†]	0.08[†] *2*	695.142	5/2⁺	138.946	5/2⁺	(E2)		0.0184	
557.401[§#] *10*	33.7[§] *3*	557.396	(1/2)⁺	0.0	3/2⁺	(M1)		0.0541	E_γ: Others: 557.36 *8* (1972Pr04) and 557.41 *15* (1970Be06). I_γ: Others: 33 *3* (1972Pr04), 39.1 *50* (1970Be06).
559.289[§#] *10*	12.4[§] *1*	559.293	5/2⁺	0.0	3/2⁺	(M1)		0.0537	E_γ: Others: 559.26 *8* (1972Pr04), 559.22 *15* (1970Be06). I_γ: Others: 12.3 *12* (1972Pr04), 15.5 *20* (1970Be06).
560[†]	0.07[†] *2*	740.348	5/2⁻	180.070	3/2⁺	[E1]		0.00627	
573.267[§] *10*	0.519[§] *5*	712.197	3/2⁺	138.946	5/2⁺	M1+E2[c]	+0.03 *2*	0.0503	E_γ: Others: 573.33 *10* (1972Pr04), 573.4 *2* (1970Be06). I_γ: Others: 0.49 *5* (1972Pr04), 0.54 *6* (1970Be06).
598.42 *7*	0.018 *6*	598.212	3/2⁻	0.0	3/2⁺	[E1]		0.00547	E_γ: Weighted ave. of 598.438 *78* (2012Kr05). 598.1 *3* (1972Pr04), 598.6 *4* (1970Be06). I_γ: Others: 0.017 *8* (1972Pr04), 0.02 *1* (1970Be06).
601.89[&] *18*	0.0063[&] *9*	740.348	5/2⁻	138.946	5/2⁺				
620.93[&] *10*	0.018[&] *4*	621.02	(7/2)⁺	0.0	3/2⁺				
639.151[§] *10*	0.197[§] *2*	712.197	3/2⁺	73.037	1/2⁺	[M1,E2]		0.026 *13*	E_γ: Others: 639.09 *10* (1972Pr04), 639.3 *2* (1970Be06). I_γ: Others: 0.19 *3* (1972Pr04), 0.21 *3* (1970Be06).
668.10 *10*	0.021 *3*	806.96	(5/2)⁺	138.946	5/2⁺				E_γ: Using the Limitation of relative statistical weight method of 668.147 *55* (2012Kr05), 668.09 *9* (2005Za15), 668.3 *3* (1972Pr04), and 667.0 *4* (1970Be06). I_γ: Using the Limitation of relative statistical Weight method of 0.026 *1* (2012Kr05), 0.016 *2* (2005Za15), 0.019 *9* (1972Pr04), and 0.03 *1* (1970Be06).
695.159[§] *14*	0.068[§] *2*	695.142	5/2⁺	0.0	3/2⁺	[M1,E2]		0.021 *10*	E_γ: Others: 695.12 *10* (1972Pr04), 695.3 *2* (1970Be06). I_γ: Others: 0.072 *14* (1972Pr04), 0.09 *2* (1970Be06).
709.924 *13*	0.053 *2*	848.905	5/2⁺	138.946	5/2⁺	[M1,E2]		0.020 *10*	E_γ: Weighted ave. of 709.904 *27* (2012Kr05),

γ(^{193}Ir) (continued)

E_γ	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[f]	Comments
								709.93 15 (1972Pr04), 710.0 4 (1970Be06). I_γ: Others: 0.052 13 (1972Pr04), 0.04 2 (1970Be06).
712.188[§] 10	0.431[§] 4	712.197	3/2+	0.0	3/2+	[M1,E2]	0.020 10	E_γ: Others: 712.10 10 (1972Pr04), 712.1 2 (1970Be06). I_γ: Others: 0.39 6 (1972Pr04), 0.50 5 (1970Be06).
735.32[§] 3	0.027[§] 1	874.279	3/2+,5/2+	138.946	5/2+	[M1,E2]	0.018 9	E_γ: Others: 735.3 3 (1972Pr04), 735.5 4 (1970Be06). I_γ: Others: 0.027 7 (1972Pr04), 0.030 6 (1970Be06).
775.9[‡] 3	0.010[‡] 5	848.905	5/2+	73.037	1/2+	[E2]	0.00876	
778.43 19	0.047 1	1077.81	(3/2−,5/2−)	299.381	7/2−	[M1,E2]	0.016 8	E_γ: Using the Limitation of relative statistical Weight method of 778.513 14 (2012Kr05), 778.48 15 (1972Pr04), and 777.4 4 (1970Be06). I_γ: Others: 0.042 9 (1972Pr04), 0.06 2 (1970Be06).
784.43 5	0.017 2	964.41	1/2+	180.070	3/2+	[M1,E2]	0.016 7	E_γ: Weighted average of 784.447 56 (2012Kr05), 784.2 2 (1972Pr04), and 784.2 4 (1970Be06). I_γ: Others: 0.017 4 (1972Pr04), 0.02 1 (1970Be06).
800.9[‡] 3	0.008[‡] 4	874.279	3/2+,5/2+	73.037	1/2+	[M1,E2]	0.015 7	
848.944[§] 16	0.114[§] 3	848.905	5/2+	0.0	3/2+	[M1,E2]	0.013 6	E_γ: Others: 848.85 15 (1972Pr04), 848.9 4 (1970Be06). I_γ: Others: 0.11 2 (1972Pr04), 0.12 2 (1970Be06).
874.306 25	0.48 3	874.279	3/2+,5/2+	0.0	3/2+	[M1,E2]	0.012 6	E_γ: From 2012Kr05. Others: 874.36 15 (1972Pr04), 874.2 3 (1970Be06). I_γ: Weighted ave. of 0.46 3 (2012Kr05), 0.48 7 (1972Pr04), 0.58 6 (1970Be06).
891.34[§] 3	0.067[§] 3	964.41	1/2+	73.037	1/2+	[M1,E2]	0.011 5	E_γ: Others: 891.26 15 (1972Pr04), 891.0 4 (1970Be06). I_γ: Others: 0.072 11 (1972Pr04), 0.080 12 (1970Be06).

[†] From 1972Pr04; seen in coincidence spectra only.

[‡] From 1972Pr04.

[§] From 2012Kr05.

[&] From 2005Za15. Coincidence measurements − for transition intensity Iγ, summation for angular dependence assumed to be a constant.

[@] Using the Limitation of relative statistical weight method of values listed in comments section.

[#] ΔE(559.26γ-557.36γ)=1.9 1 (1967Me12). From analysis of complex γ-line obtained withGe(Li) detector using I(557γ)/I(559γ)=3.0 6.

[a] From conversion electron data in 1972Pr04, 1970Be06, and others, unless noted otherwise.

[b] Signed values are from 1984Gh01 and unsigned ones from internal conversion coefficient data; exceptions are noted. 1984Gh01 performed a combined analysis of angular correlation and nuclear orientation data, using δ(138.9γ)=0.329 12 from ICC. The Ice data have been normalized by the evaluators (2006Ac01) at the theoretical α(K) for the 138.9γ; their average (LWM) was used to deduce ICC using the adopted Iγ, and were fitted to δ following 1980Ry04 algorithm. Some of these values are listed in comments section.

[c] From $\gamma(\theta$,H,T) (1973Kr05,1984Gh01).

[d] If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

[e] For absolute intensity per 100 decays, multiply by 0.0388 5.

[f] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies,

$\gamma(^{193}Ir)$ (continued)

assigned multipolarities, and mixing ratios, unless otherwise specified.

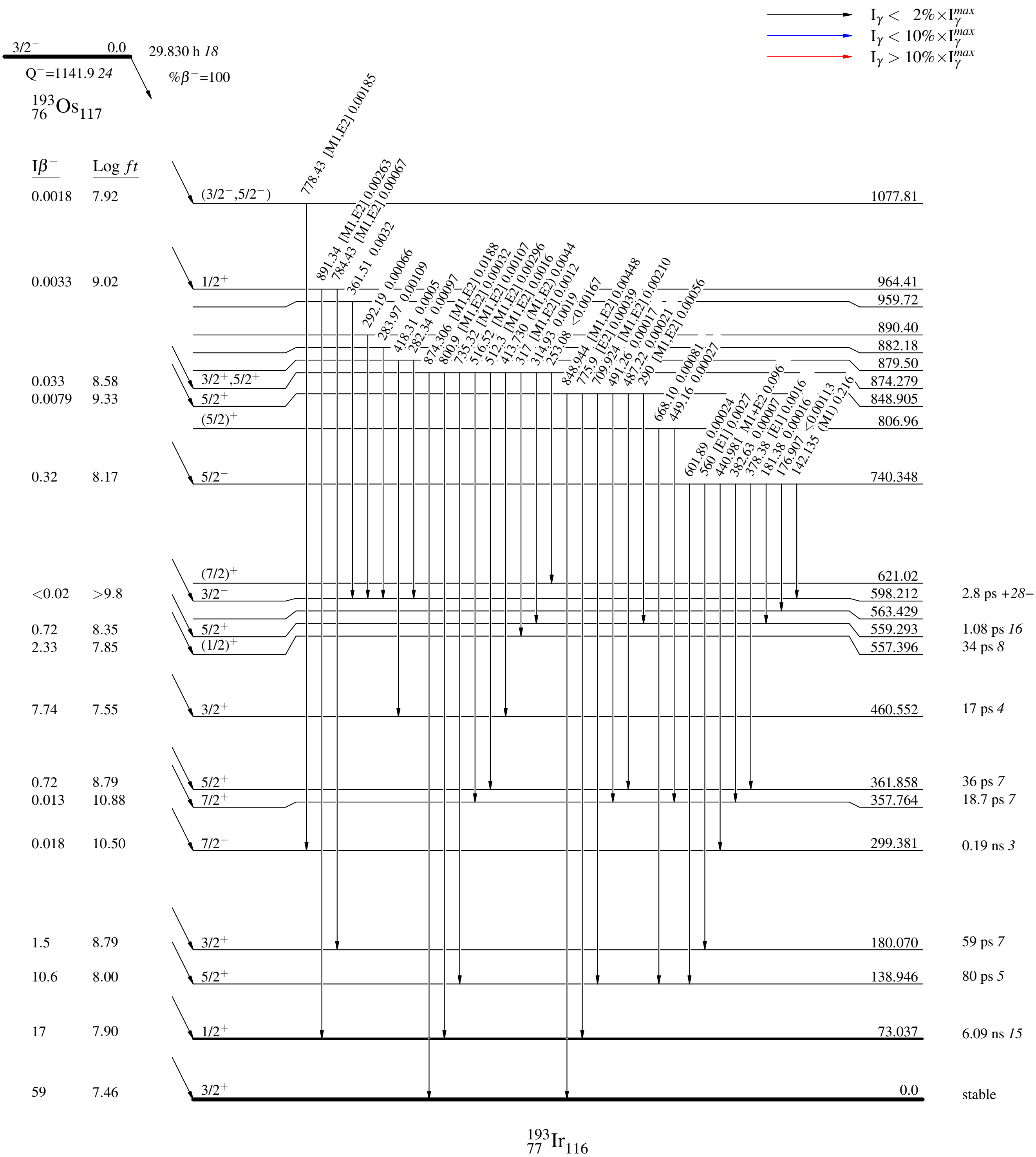
[g] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{193}Os β^- decay 1972Pr04,2012Kr05,2002Ma18

Decay Scheme

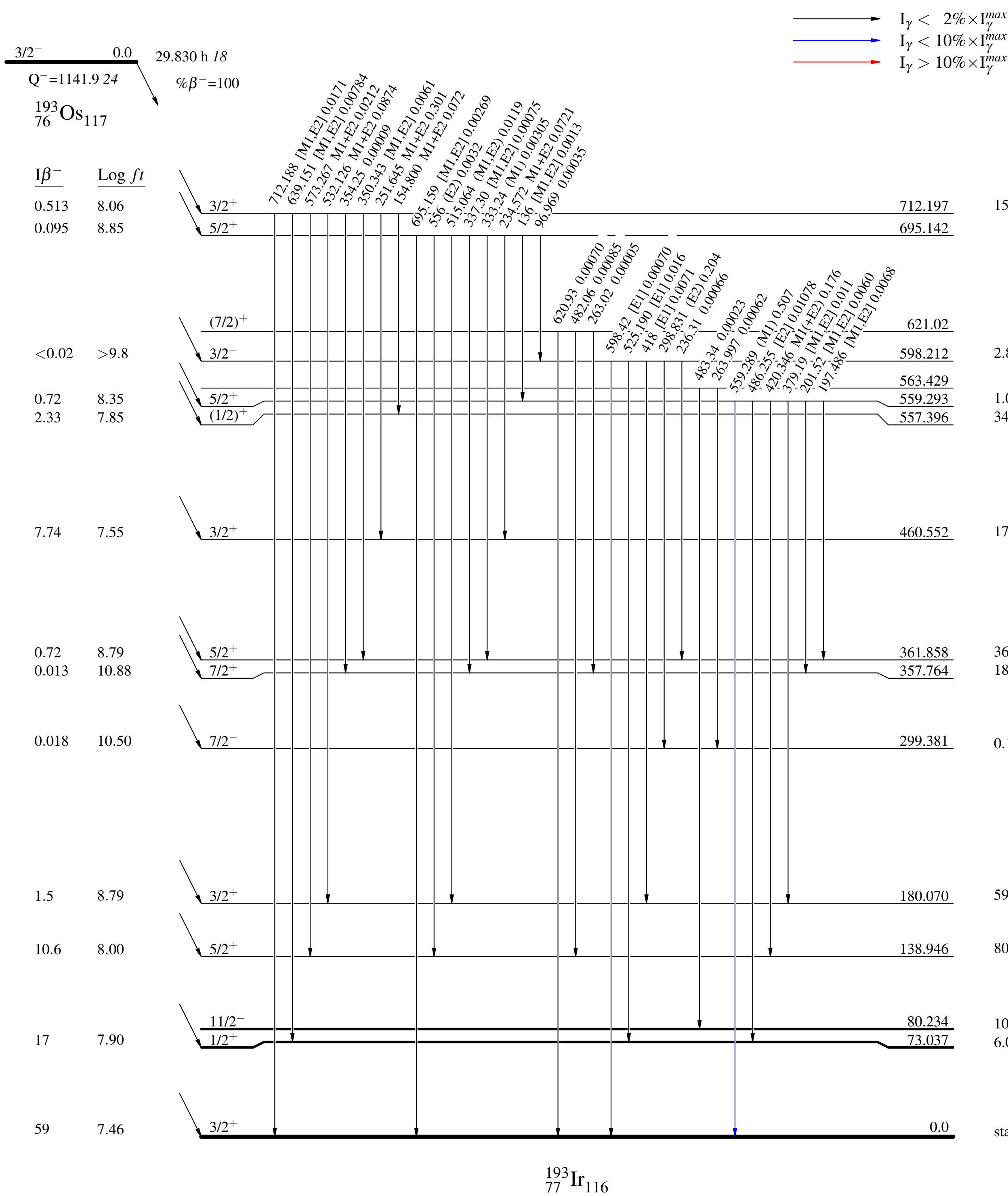
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



$^{193}Os\ \beta^-$ decay 1972Pr04,2012Kr05,2002Ma18

Decay Scheme (continued)

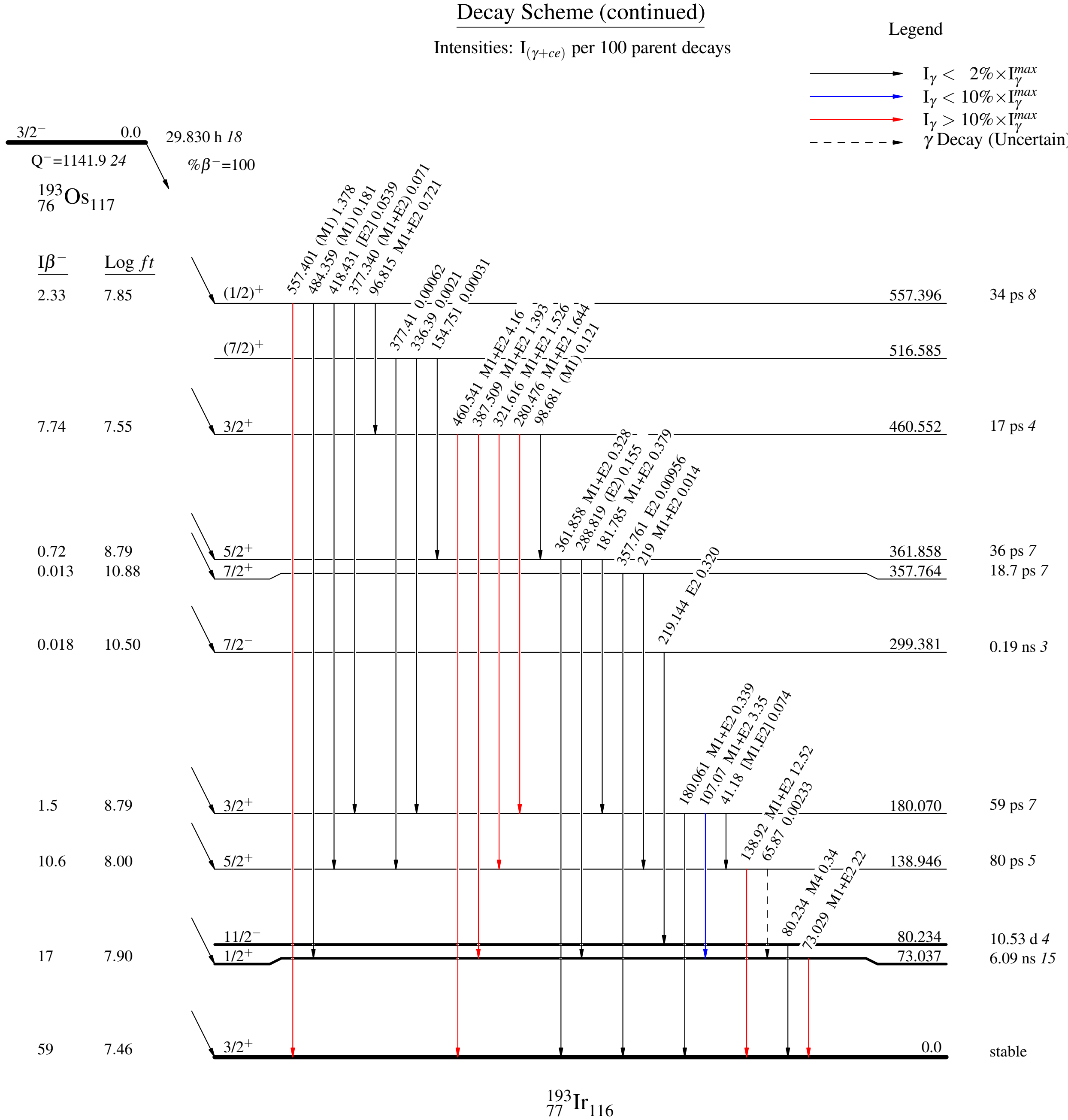
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{193}Os β^- decay 1972Pr04,2012Kr05,2002Ma18

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{193}Ir IT decay (10.53 d) 2004Ni14,1987Li16

Parent: ^{193}Ir: E=80.238 *6*; J^π=11/2$^-$; $T_{1/2}$=10.53 d *4*; %IT decay=100

^{193}Ir Levels

Data are from 1987Li16, except where noted, highly pure sources from ^{192}Os(n,γ) E=thermal, osmium enriched to 99.4% in ^{192}Os, chemical separation; measured Eγ, Iγ(absolute) (calibrated planar germanium, well-type germanium detectors), E(ce), Ice(absolute) (4$\pi\beta$ proportional counter, evacuated windowless Si(Li) detector); determined Ir L-subshell fluorescence yield and Coster-Kronig coefficients.

2004Ni14 accurately measured the isomeric transition α(K); enriched (99.935%) ^{192}Os target, chemical separation, HPGe detector.

E(level)	J^{π}†	$T_{1/2}$	Comments
0.0	3/2$^+$	stable	
80.238 *6*	11/2$^-$	10.53 d *4*	%IT=100 $T_{1/2}$: Absolute electron counting in 4$\pi\beta$ proportional counter (1987Li16). Other values: 11.9 d *5* (1957Bo12), 10.8 d *5* (1969Bi01), 12 d *2* (1970Ba56), 10.60 d *11* (1975Ba35).

† From Adopted Levels.

γ(^{193}Ir)

It has been suggested that α(K) for this isomeric transition is decreased due to an 'electronic bridge' effect (1988Zh11); however, additional calculations (1989Ba76,1990Ba48) seem to indicate that this second-order effect does not contribute measurably to the α of this transition. This effect is further discussed in 1989Pi14, 1990Ko06, 1990Ko22, 1990Ko28, 1992Tk01, 1994Tk02. 2004Ni14 gives precise value of measured α(K) and compares the experimental value with several theoretical calculations.

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α‡	$I_{(\gamma+ce)}$†	Comments
80.22 *2*	80.238	11/2$^-$	0.0	3/2$^+$	M4	2.14×10^4	100	E_γ: other values: Eγ=80.19 *5* (1957Bo12), Eγ=80.27 *4* (1970Ba56). Other: 1966Sy01. Mult.: from L1:L2:L3 (exp)=54.5 *3*:10.9 *2*:225 *1*. Also: α(K)exp=103.0 *8* (from I(K x ray)/Iγ assuming ω(K)=0.958 *4* given by 1996Sc06) (2004Ni14). Other: α(K)exp=104 *3* (I(K x ray)/Iγ) (1987Li16); α(K)exp=92.6 *9* (I(K x ray)/Iγ) (1988Zh11). K:L:M:N:(O+P)(exp)= 2.08 *4*:290.4 *6*:101.4 *6*:26.6 *3*:3.8 *1* (Ice(K) deduced from I(K x ray) (Ir fluorescence yield =0.95)); (O+P)/N3(exp)=0.228 *2* (1975Ma32). Other ce data: 1970Ba56, 1969Bi01, 1957Bo12.

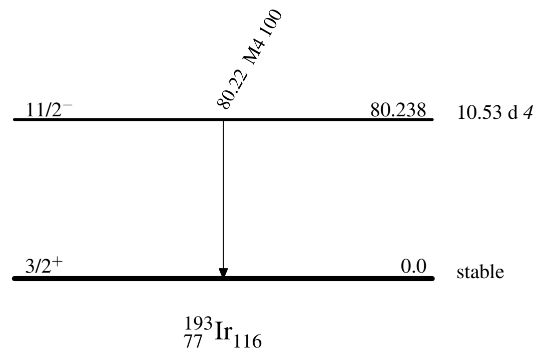
† Absolute intensity per 100 decays.

‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{193}Ir IT decay (10.53 d) 2004Ni14,1987Li16

Decay Scheme

%IT=100



Muonic atom 1984Ta04,1977Li20

Measured difference between Eγ in an ordinary atom and a muonic atom. Deduced muonic isomer shift. (1974Ba77).
Observed hyperfine splitting of the $5/2^+$ to $3/2^+$ transition (139γ) in muonic atom (1977Li20).
Discussion of precision measurements of nuclear quadrupole moments by muonic X-rays (1985St28).

^{193}Ir Levels

E(level)†	J^{π}†	Comments
0.0	$3/2^+$	Q=0.751 *9* from hyperfine splitting of muonic x-rays (1984Ta04).
138.941	$5/2^+$	

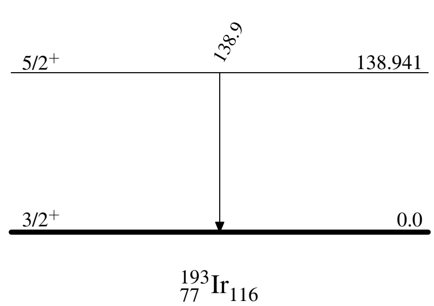
† From Adopted Levels.

$\gamma(^{193}Ir)$

E_γ	E_i(level)	J_i^{π}	E_f	J_f^{π}	Comments
138.9	138.941	$5/2^+$	0.0	$3/2^+$	Eγ: rounded-off value from Adopted Gammas. Eγ(ordinary atom) − Eγ(muonic atom)=−0.27 *5* (1974Ba77); γ observed by 1977Li20.

Muonic atom 1984Ta04,1977Li20

Level Scheme



^{193}Pt ε decay (50 y) 1983Jo04

Parent: ^{193}Pt: E=0.0; $J^\pi=1/2^-$; $T_{1/2}$=50 y *6*; Q(ε)=56.6 *3*; %ε+%β^+ decay=100

1983Jo04 and 1985Ri05 report≤500 eV for electron-neutrino mass (measured internal bremsstrahlung spectrum, bremmstrahlung-L x ray coin (^{193}Pt sources extracted from lead in ISOLDE facility; silicon, intrinsic germanium detectors)).

1983Ke07 discuss recoilless resonant neutrino absorption by nuclei.

^{193}Ir Levels

E(level)	J^π †	$T_{1/2}$
0.0	$3/2^+$	stable

† From Adopted Levels.

ε radiations

E(decay)	E(level)	Iε †	Log *ft*	I($\varepsilon+\beta^+$) †	Comments
(56.6 *3*)	0.0	100	7.16 *6*	100	εM/εL=0.386 *14* (1971Ra18).

† Absolute intensity per 100 decays.

Inelastic scattering 1980Ha47,1971No01

(p,p′), (p,p): 1980Ha47: E(p)=50 MeV; measured E(p′) (mag spect), σ, (p′)(θ) (θ(lab) 15° to 51°), absolute σ; compared results with transition rates predicted by the supersymmetry scheme.
(d,d′): 1971No01: ED=12.1 MeV; measured E(d), σ, d(θ) (θ=90°, 125°, 150°). Deduced band structure.

^{193}Ir Levels

Band structure from 1971No01.
B(E2)↑: 1980Ha47 measured B(E2)↑ relative to the B(E2)↑ of ^{194}Pt(358.5 level). Evaluator has recalculated the B(E2)↑'s using B(E2)↑(^{194}Pt, 358.5 level)=1.649 *15* (2006Si17).

E(level)[†]	J^{π}[‡]	L[#]	Comments
0.0[a]	3/2+		
73[b]	1/2+		B(E2)↑≤0.13 ((p,p′) 1980Ha47). Level composed of 73.0 level (J^{π}=1/2+), plus possible minor component from 80.2 level (J^{π}=11/2−) ((p,p′) 1980Ha47).
138.9[@a]	5/2+	2	β_2=0.183; B(E2)↑=0.79 ((p,p′) 1980Ha47).
180[b]	3/2+		B(E2)↑=0.12 ((p,p′) 1980Ha47).
358[a]	7/2+	2	β_2=0.145; B(E2)↑=0.66 ((p,p′) 1980Ha47). Level composed of 357.7 (J^{π}=7/2+) and possibly also 361.9 (J^{π}=5/2+) levels ((p,p′) 1980Ha47).
460			B(E2)↑=0.031 ((p,p′) 1980Ha47).
522[&a]	9/2+		
596[&]			
620[c]	7/2+		B(E2)↑=0.16 ((p,p′) 1980Ha47).
693[&]			
739[&]			
857[&a]	11/2+		
1126[&]			
1193[&]			
1347[&]			
1510[&]			

† From 1971No01. Uncertainties range from 4 keV for levels near g.s. up to 8 keV for highest-lying levels. E(level)=138.9 was adopted by 1971No01 for calibration. Levels observed by both (p,p′) and (d,d′), unless otherwise noted.
‡ From 1971No01. Based on magnitudes and angular dependence of cross sections; authors used combined analysis of their (d,d′) and Coulomb excitation data.
# From 1980Ha47.
@ Calibration value.
& Observed only in (d,d′) experiment.
a Band(A): 3/2[402] band.
b Band(B): 1/2[400] band (partly of γ-vibrational in character).
c Band(C): γ-vibrational band.

^{191}Ir(t,p) 1981Ci02

E(t)=17 MeV; measured ground-state σ, deduced enhancement factors and supersymmetry predictions.

^{193}Ir Levels

E(level)	J^{π} †
0.0	3/2^{+}

† From Adopted Levels.

^{192}Os(d,nγ) 1997Dr04

E=12.0, 12.4, 14.2, 16.4 MeV. Measured Eγ, Iγ, γγ, γ(θ), but angular distribution data not given; Compton-suppressed Ge detectors FWHM=1.8 keV at 1.4 MeV.

^{193}Ir Levels

E(level)†	Jπ†	$T_{1/2}$	Comments
0.0	3/2+		
73.057	1/2+		
80.242	11/2−	10.53 d 4	$T_{1/2}$: From Adopted Levels.
138.939	5/2+		
180.077	3/2+		
299.401	7/2−		
357.767	7/2+		
361.863	5/2+		
460.540	3/2+		
469.387	13/2−		
478.992	15/2−		
516.421	7/2+		
521.924	9/2+		
557.447	1/2+,3/2+		Jπ: Adopted (1/2)+.
559.303	3/2+,5/2+		Jπ: Adopted 5/2+.
563.407	9/2−		
598.228	3/2−		
620.988	7/2+		
695.137	5/2+		
712.176	3/2+,5/2+		Jπ: Adopted 3/2+.
740.387	5/2−		
806.901	5/2+		
832.897	11/2−		
838.923	9/2+		
849.088			
857.025	11/2+		
874.28	3/2+,5/2+		
892.268	9/2+,11/2+		Jπ: Adopted (9/2+).
918.368	7/2−		
930.43 3			
972.874	3/2+,5/2,7/2		Jπ: Adopted (5/2+).
1019.595	11/2+		
1035.463	13/2+		
1078.8			
1169.40	11/2+		
1432.407			
1459.965			
1511.725			

† From combined data of ^{192}Ir(n,γ) and ^{192}Os(d,nγ) (1997Dr04).

γ(^{193}Ir)

Eγ†	Iγ	E_i(level)	J^π_i	E_f	J^π_f	Mult.	Comments
(73.05)	‡	73.057	1/2+	0.0	3/2+		
80.24		80.242	11/2−	0.0	3/2+	M4	Mult.: From Adopted Gammas.
107.02	4.4 2	180.077	3/2+	73.057	1/2+		

Continued on next page (footnotes at end of table)

^{192}Os(d,nγ) 1997Dr04 (continued)

γ(^{193}Ir) (continued)

Eγ[†]	Iγ	Ei(level)	J^π_i	Ef	J^π_f	Comments
135.9	[‡]	695.137	5/2+	559.303	3/2+,5/2+	
138.94	8.5[§] 4	138.939	5/2+	0.0	3/2+	
142.16	[‡]	740.387	5/2−	598.228	3/2−	
154.55	[‡]	516.421	7/2+	361.863	5/2+	
154.72	[‡]	712.176	3/2+,5/2+	557.447	1/2+,3/2+	
164.16	[‡]	521.924	9/2+	357.767	7/2+	
177.99	2.1 5	918.368	7/2−	740.387	5/2−	
178.44	[‡]	1035.463	13/2+	857.025	11/2+	
180.07	1.3 2	180.077	3/2+	0.0	3/2+	
181.79	1.3 3	361.863	5/2+	180.077	3/2+	
201.54	[‡]	559.303	3/2+,5/2+	357.767	7/2+	
218.83	<20	357.767	7/2+	138.939	5/2+	Iγ: Iγ(218.83+219.16)=19.9 5.
219.16	<20	299.401	7/2−	80.242	11/2−	Iγ: Iγ(218.83+219.16)=19.9 5.
232.51	[‡]	972.874	3/2+,5/2,7/2	740.387	5/2−	
234.61	1.0[§] 2	695.137	5/2+	460.540	3/2+	
251.64	6.2 4	712.176	3/2+,5/2+	460.540	3/2+	
263.22	<6.4	620.988	7/2+	357.767	7/2+	Iγ: Iγ(263.22+264.01)=6.4 4.
264.01	<6.4	563.407	9/2−	299.401	7/2−	Iγ: Iγ(263.22+264.01)=6.4 4.
269.49	2.3 2	832.897	11/2−	563.407	9/2−	
271.28	3.1[§] 3	892.268	9/2+,11/2+	620.988	7/2+	
276.89	12.0[§] 4	1169.40	11/2+	892.268	9/2+,11/2+	
280.47	2.3 4	460.540	3/2+	180.077	3/2+	
288.81		361.863	5/2+	73.057	1/2+	
298.83	5.6 4	598.228	3/2−	299.401	7/2−	
321.60	2.2 3	460.540	3/2+	138.939	5/2+	
322.51	3.5 3	838.923	9/2+	516.421	7/2+	
333.3	[‡]	695.137	5/2+	361.863	5/2+	
335.10	2.5 3	857.025	11/2+	521.924	9/2+	
336.34	0.8 2	516.421	7/2+	180.077	3/2+	
337.3[@]	0.8[&] 2	695.137	5/2+	357.767	7/2+	
351.86	[‡]	972.874	3/2+,5/2,7/2	620.988	7/2+	
357.8	4.8 3	357.767	7/2+	0.0	3/2+	
361.86	1.5 3	361.863	5/2+	0.0	3/2+	
377.48	3.9[§] 4	516.421	7/2+	138.939	5/2+	
378.53	[‡]	740.387	5/2−	361.863	5/2+	
379.23	[‡]	559.303	3/2+,5/2+	180.077	3/2+	
382.99	15.6 5	521.924	9/2+	138.939	5/2+	
387.52	2.2 3	460.540	3/2+	73.057	1/2+	
388.6	<3.6	849.088		460.540	3/2+	Iγ: Iγ(388.6+389.14)=3.6 3.
389.14	<3.6	469.387	13/2−	80.242	11/2−	Iγ: Iγ(388.6+389.14)=3.6 3.
398.78	20.8 6	478.992	15/2−	80.242	11/2−	
413.76	17[§] 3	874.28	3/2+,5/2+	460.540	3/2+	
418.5	[‡]	557.447	1/2+,3/2+	138.939	5/2+	
420.35	13.8[§] 5	559.303	3/2+,5/2+	138.939	5/2+	
440.4	[‡]	1459.965		1019.595	11/2+	
440.98	4.5 5	740.387	5/2−	299.401	7/2−	
449.15	7.1[§] 5	806.901	5/2+	357.767	7/2+	
451.44	3.1 3	930.43		478.992	15/2−	
460.55	8.4 5	460.540	3/2+	0.0	3/2+	

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^{192}Os(d,nγ) 1997Dr04 (continued)

γ(^{193}Ir) (continued)

E_γ †	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
477.06	11.2 5	838.923	9/2+	361.863	5/2+	
482.05	4.5 5	620.988	7/2+	138.939	5/2+	
483.16	9.5§ 5	563.407	9/2−	80.242	11/2−	
484.32	‡	557.447	1/2+,3/2+	73.057	1/2+	
499.25	4.8 4	857.025	11/2+	357.767	7/2+	
503.17	2.7 4	1019.595	11/2+	516.421	7/2+	
525.2	2.6§ 3	598.228	3/2−	73.057	1/2+	
532.13	1.2 4	712.176	3/2+,5/2+	180.077	3/2+	
533.5	1.4 4	832.897	11/2−	299.401	7/2−	
548.2	1.1 3	1169.40	11/2+	620.988	7/2+	
557.43	4.2 5	557.447	1/2+,3/2+	0.0	3/2+	
559.3	3.8 5	559.303	3/2+,5/2+	0.0	3/2+	
560.3	2.0& 3	740.387	5/2−	180.077	3/2+	
573.21	§	712.176	3/2+,5/2+	138.939	5/2+	
599.51	4.0 5	1432.407		832.897	11/2−	
621.0	3.1 4	620.988	7/2+	0.0	3/2+	
637.46	2.3 2	1511.725		874.28	3/2+,5/2+	
647.26	2.5 3	1169.40	11/2+	521.924	9/2+	
662.64	2.1 3	1511.725		849.088		
667.96	4.0 5	806.901	5/2+	138.939	5/2+	
779.5 2	≤2.5	1078.8		299.401	7/2−	Line observed in coincidence experiment only.

† Rounded-off value from ^{192}Ir(n,γ) experiment (1997Dr04).
‡ Line obscured by impurities.
§ Complex line, total intensity of line given.
& γ is either influenced by an impurity, or is placed incorrectly. A γ of this intensity is not seen in ^{193}Os β^- decay (evaluator).
@ Placement of transition in the level scheme is uncertain.

^{192}Os(^{3}He,d), (α,t) 1971Pr13

E(^{3}He)=28 MeV; θ=30°, 55°.
E(α)=28 MeV; θ=45°, 60°.
Osmium metal targets enriched to 98.7% in ^{192}Os; measured E(level) (mag spect, FWHM=16-17 keV for (^{3}He,d), =12 keV for (α,t)), differential cross sections.

^{193}Ir Levels

E(level)[†]	Jπ[‡]	L[@]	$C^2_{jl}U^2$[#]	Comments
0.0[b]	3/2+	2	0.67	$C^2_{jl}U^2$ in (α,t) for all transitions were normalized to give 0.67 for this transition.
77[d] 3	1/2+ AND 11/2−			Unresolved doublet, with division of intensity assumed to be the same as that for the analogous states in ^{191}Ir. L=0 and $C^2_{jl}U^2$=0.25 (0.24 in (α,t)) for 73.0 level; L=5 and $C^2_{jl}U^2$=0.77 (0.89 in (α,t)) for 80.2 level.
140[b]	5/2+	2	0.04	$C^2_{jl}U^2$=0.04 in (α,t).
181[c]	3/2+	2	0.05	$C^2_{jl}U^2$=0.05 in (α,t).
300	7/2−	3	0.04	$C^2_{jl}U^2$=0.03 in (α,t).
364[c] 3	7/2+ AND 5/2+	4+2		Unresolved doublet. If the entire cross section is assumed to be of the assigned L, $C^2_{jl}U^2$=1.28 (0.50 in (α,t)) for L=4 and $C^2_{jl}U^2$=0.30 (0.26 in (α,t)) for L=2.
562[e] 3	5/2+	2	0.25	$C^2_{jl}U^2$=0.26 in (α,t).
622[f]	7/2+	4	0.03	$C^2_{jl}U^2$=0.02 in (α,t).
852				
969 3		0,1		
1071		1,2		
1133[&g]	5/2−	3		$C^2_{jl}U^2$=0.06 in (α,t).
1150[g] 3	9/2−	5	1.33	$C^2_{jl}U^2$=1.31 in (α,t).
1163[h] 3	13/2+	6	0.44	$C^2_{jl}U^2$=0.50 in (α,t).
1201 3		1		
1286		3		
1407				
1698 3		2,3		
1759[i] 3	3/2−	1	0.05	$C^2_{jl}U^2$=0.15 in (α,t).
1820[i] 3	7/2−	3	0.77	$C^2_{jl}U^2$=0.61 in (α,t).
1970[a] 3				
1999[a] 3				
2029[a]				

[†] Averages from (^{3}He,d) and (α,t), except where noted; uncertainties are 3 keV for strongly populated states (estimated by evaluator to be those with dσ/dΩ≥10).
[‡] From Nilsson-model interpretation of L values and spectroscopic factors; fingerprint evaluated taking into account Coriolis interaction (1971Pr13).
[#] From DWBA analysis, $C^2_{jl}U^2$=(dσ/dΩ)(exp)/2N (dσ/dΩ)(DWBA) where N=4.42 for (^{3}He,d); values for (α,t) are given under comments, normalized to (^{3}He,d) observed value for g.s., which required N=118, much greater than the expected value N=48.
[@] From DWBA analysis of angular distributions.
[&] Seen in (α,t) only.
[a] Seen in (^{3}He,d) only.
[b] Band(A): 3/2[402] band.
[c] Band(B): 1/2[400] band.
[d] Band(C): 11/2[505] band.
[e] Band(D): 5/2[402] band.

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^{192}Os(^{3}He,d), (α,t) 1971Pr13 (continued)

^{193}Ir Levels (continued)

[f] Band(E): 7/2[404] band.
[g] Band(F): 1/2[541] band.
[h] Band(G): 1/2[660] band.
[i] Band(H): 1/2[530] band.

^{192}Os(^{7}Li,α2nγ) 2011Fa07

^{7}Li beam, E=44 MeV, impinging on an enriched 1.7 mg/cm^2 thick ^{192}Os target with 1.1 mg/cm^2 carbon backing. Used 14 Compton-suppressed HPGe detectors divided into three groups (at 90° 40° and 152°) for angular distribution measurements. Measured Eγ, Iγ, $\gamma\gamma$ coin, $\gamma\gamma(\theta)$. Deduced level scheme, spin and parity.

^{193}Ir Levels

E(level)	J$^\pi$†	T$_{1/2}$	Comments
0.0	3/2$^+$		
80.234‡ *7*	11/2$^-$	10.53 d *4*	%IT=100 T$_{1/2}$: From Adopted Levels.
469.2# *5*	13/2$^-$		
479.2‡ *5*	15/2$^-$		
928.6# *5*	17/2$^-$		
1025.0‡ *6*	19/2$^-$		
1357.0 *7*	(19/2$^-$)		
1526.3 *7*	(19/2$^-$)		
1591.3# *6*	21/2$^-$		
1713.8‡ *8*	23/2$^-$		
1727.1 *7*	(23/2$^-$)		
1892.7‡ *9*	(27/2$^-$)		J$^\pi$: (25/2$^-$) in Adopted Levels. 2012Dr02 (HI,xnγ) argue 178.9γ as a ΔJ=1 transition.

† proposed in 2011Fa07, on the basis of measured ADO ratios.
‡ Band(A): $\pi h_{11/2}$ band,α=−1/2.
# Band(a): $\pi h_{11/2}$ band,α=+1/2.

γ(^{193}Ir)

E$_\gamma$†	I$_\gamma$	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.‡	Comments
80.234 *7*		80.234	11/2$^-$	0.0	3/2$^+$	M4	E$_\gamma$,Mult.: From Adopted Gammas.
135.9 *5*	5 *1*	1727.1	(23/2$^-$)	1591.3	21/2$^-$		
178.9 *5*	6 *1*	1892.7	(27/2$^-$)	1713.8	23/2$^-$	Q	R$_{ADO}$=1.14 *24*.
200.8 *5*	9 *1*	1727.1	(23/2$^-$)	1526.3	(19/2$^-$)	Q	R$_{ADO}$=1.10 *17*.
389.1 *5*		469.2	13/2$^-$	80.234	11/2$^-$		
398.9 *5*	100 *7*	479.2	15/2$^-$	80.234	11/2$^-$	Q	R$_{ADO}$=1.17 *11*.
428.4 *5*	11 *1*	1357.0	(19/2$^-$)	928.6	17/2$^-$	D	R$_{ADO}$=0.89 *22*.
449.3 *5*	43 *3*	928.6	17/2$^-$	479.2	15/2$^-$	D	R$_{ADO}$=0.98 *8*.
459.5 *5*		928.6	17/2$^-$	469.2	13/2$^-$		
501.3 *5*	16 *2*	1526.3	(19/2$^-$)	1025.0	19/2$^-$	D	R$_{ADO}$=1.13 *13*. Mult.: 2011Fa07 note the R$_{ADO}$ value is consistent with non-stretched, ΔJ=0, transition.
545.7 *5*	62 *5*	1025.0	19/2$^-$	479.2	15/2$^-$	Q	R$_{ADO}$=1.18 *12*.
566.3 *5*	23 *2*	1591.3	21/2$^-$	1025.0	19/2$^-$	D	R$_{ADO}$=0.92 *11*.
662.7 *5*	10 *1*	1591.3	21/2$^-$	928.6	17/2$^-$	Q	R$_{ADO}$=1.10 *23*.
688.8 *5*	12 *1*	1713.8	23/2$^-$	1025.0	19/2$^-$	Q	R$_{ADO}$=1.10 *16*.

† Placement based on γ-γ coincidence, sum of γ-ray energies, and relative intensities. γ-ray energy uncertainties are noted as within 0.5 keV. Evaluator assigns 0.5 keV for all.
‡ from R$_{ADO}$(γ)=Iγ(35°)/Iγ(90°) ratios. Stretched, ΔJ=2, quadrupole transitions assumed for R$_{ADO}$ values larger than unity and dipole transitions for less than 1.0 in 2011Fa07.

^{192}Ir(n,γ) E=TH 1997Dr04

Target: From thermal neutron capture of ^{191}Ir. Measured Eγ, Iγ, γγ (curved-crystal spectrometer, resolution 220 eV at 900 keV, calibrated with Ir K x ray and some ^{192}Ir γ's); Ice (magnetic spectrometer, resolution 100 eV at 35 keV, 230 eV at 300 keV, calibrated with ^{192}Ir electromagnetic transitions with known multipolarities). γ-spectra were analyzed up to E=700 keV.
The results are interpreted in the framework of the asymmetric rotor and the interacting boson models.

^{193}Ir Levels

E(level)[†]	Jπ[†]	Comments
0.0[‡]	$3/2^+$	
73.057[#] *15*	$1/2^+$	
80.242[@] *10*	$11/2^-$	
138.939[‡] *15*	$5/2^+$	
180.077[#] *10*	$3/2^+$	
299.401[&] *10*	$7/2^-$	
357.767[‡] *8*	$7/2^+$	
361.863[#] *8*	$5/2^+$	
460.540[a] *8*	$3/2^+$	
469.387[@] *15*	$13/2^-$	
478.992[@] *20*	$15/2^-$	
516.421[#] *10*	$7/2^+$	
521.924[‡] *10*	$9/2^+$	
557.447[a] *20*	$1/2^+,3/2^+$	Jπ: Adopted $(1/2)^+$.
559.303 *10*	$5/2^+$	Possibly 5/2[402] + K+2 γ-vibration on 1/2[400]. Jπ: From Adopted Levels. $3/2^+,5/2^+$ in 1997Dr04.
563.407[&] *10*	$9/2^-$	
598.228[b] *10*	$3/2^-$	
620.988[c] *10*	$7/2^+$	Probably influenced by K+2 γ-vibration on 3/2[402].
695.137[a] *10*	$5/2^+$	
712.176 *25*	$3/2^+,5/2^+$	Jπ: Adopted $3/2^+$.
740.387[b] *10*	$5/2^-$	
806.901 *13*	$5/2^+$	
832.897[&] *15*	$11/2^-$	
838.923[#] *15*	$9/2^+$	
849.088 *20*	$3/2^{(+)},5/2^{(+)}$	Jπ: From Adopted Levels.
857.025[‡] *10*	$11/2^+$	
874.28 *3*	$3/2^+,5/2^+$	
892.268[c] *20*	$9/2^+,11/2^+$	Jπ: Adopted $(9/2^+)$.
918.368[b] *15*	$7/2^-$	
930.43[@] *3*		
972.874 *15*	$3/2^+$,5/2,7/2	Jπ: Adopted $(5/2^+)$.
975.333 *25*	$11/2^-$	
1009.361 *15*	$11/2^+$	
1019.595[#] *15*	$11/2^+$	
1035.463[‡] *15*	$13/2^+$	
1035.86 *3*		
1038.055 *20*	$5/2^+$,7/2,$9/2^+$	Jπ: Adopted $(5/2^+,7/2^+)$.
1145.619[b] *20*	$7/2^-,9/2^-$	Jπ: Adopted $(9/2)^-$.
1169.17[c] *11*	$11/2^+$	
1432.407[#] *25*		

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^{192}Ir(n,γ) E=TH 1997Dr04 (continued)

^{193}Ir Levels (continued)

E(level)[†]
1459.965[‡] *20*
1511.725 *25*

[†] E(level), J^π and band assignments are from 1997Dr04.
[‡] Band(A): 3/2[402] band.
[#] Band(B): 1/2[400] band.
[@] Band(C): 11/2[505] band.
[&] Band(D): 7/2[523] band.
[a] Band(E): 1/2[411] band.
[b] Band(F): 3/2[532] band.
[c] Band(G): 7/2[404] band.

γ(^{193}Ir)

Eγ	Iγ	Ei(level)	Jπi	Ef	Jπf	Mult.†	δ	Comments
41.219‡ *13*		180.077	3/2+	138.939	5/2+			Eγ: energy fit very poor in least-squares fit of Eγ. From calculated E(level) Eγ=41.126 *4*.
73.050‡ *22*		73.057	1/2+	0.0	3/2+	M1+E2	0.655 *31*	δ: deduced from L and M subshell ratios.
80.236‡ *7*		80.242	11/2−	0.0	3/2+	M4		
107.022 *5*	3.57 *14*	180.077	3/2+	73.057	1/2+	M1		
135.88 *3*	0.12 *2*	695.137	5/2+	559.303	5/2+			
138.938 *5*	19.1 *15*	138.939	5/2+	0.0	3/2+	M1		
142.159 *3*	3.6 *3*	740.387	5/2−	598.228	3/2−	M1		
154.554 *7*	2.7 *3*	516.421	7/2+	361.863	5/2+	M1		
154.721 *4*	0.09 *4*	712.176	3/2+,5/2+	557.447	1/2+,3/2+			
164.158 *4*	2.53 *23*	521.924	9/2+	357.767	7/2+	M1		
177.986 *7*	3.8 *3*	918.368	7/2−	740.387	5/2−	M1		
178.441 *4*	0.59 *12*	1035.463	13/2+	857.025	11/2+	M1		
180.071 *7*	1.02 *5*	180.077	3/2+	0.0	3/2+	M1+E2		
181.792 *7*	5.6 *3*	361.863	5/2+	180.077	3/2+	M1		
201.535 *7*	0.06 *2*	559.303	5/2+	357.767	7/2+			
218.826 *2*	20.0 *10*	357.767	7/2+	138.939	5/2+	M1+E2	0.37§ *12*	
219.158 *7*	74 *4*	299.401	7/2−	80.242	11/2−	E2		
227.252 *7*	1.31 *12*	1145.619	7/2−,9/2−	918.368	7/2−			
232.507 *19*	0.20 *2*	972.874	3/2+,5/2,7/2	740.387	5/2−			
234.608 *7*	2.26 *11*	695.137	5/2+	460.540	3/2+	M1		
251.635 *7*	0.59 *3*	712.176	3/2+,5/2+	460.540	3/2+	M1		
263.218 *8*	1.40 *7*	620.988	7/2+	357.767	7/2+	M1		
264.005 *5*	19.7 *10*	563.407	9/2−	299.401	7/2−	M1		
269.490 *7*	5.9 *3*	832.897	11/2−	563.407	9/2−	M1		
271.282 *12*	0.73 *7*	892.268	9/2+,11/2+	620.988	7/2+			
276.890 *20*	0.55 *8*	1169.17	11/2+	892.268	9/2+,11/2+	M1		
279.611 *18*	0.25 *4*	838.923	9/2+	559.303	5/2+			
280.465 *3*	2.35 *19*	460.540	3/2+	180.077	3/2+	M1		
288.807 *9*	3.46 *17*	361.863	5/2+	73.057	1/2+	E2		
298.828 *10*	12.8 *12*	598.228	3/2−	299.401	7/2−	E2		
312.125 *9*	0.37 *9*	1169.17	11/2+	857.025	11/2+			
320.142 *17*	0.45 *7*	918.368	7/2−	598.228	3/2−	E2		
321.604 *7*	2.22 *20*	460.540	3/2+	138.939	5/2+	M1+E2		
322.505 *21*	3.61 *22*	838.923	9/2+	516.421	7/2+	M1		
333.28 *4*	0.25 *7*	695.137	5/2+	361.863	5/2+	M1		
335.101 *11*	3.1 *3*	857.025	11/2+	521.924	9/2+	M1		
336.343 *9*	10.9 *10*	516.421	7/2+	180.077	3/2+	E2		
337.33# *3*	4.1& *4*	695.137	5/2+	357.767	7/2+			Expected intensity from adopted branching ratio≈0.05.
350.325# *9*	0.41& *6*	712.176	3/2+,5/2+	361.863	5/2+			Expected intensity from adopted branching ratio≈0.02.

γ(^{193}Ir) (continued)

Eγ	Iγ	Ei(level)	J^{π}_{i}	Ef	J^{π}_{f}	Mult.†	δ	Comments
351.864 *14*	0.83 *7*	972.874	3/2+,5/2,7/2	620.988	7/2+			
354.960 *7*	0.67 *10*	918.368	7/2−	563.407	9/2−	M1		
357.77 *5*	23.0 *18*	357.767	7/2+	0.0	3/2+	E2		
361.860 *15*	7.1 *6*	361.863	5/2+	0.0	3/2+	M1		
377.477 *7*	11.0 *10*	516.421	7/2+	138.939	5/2+	M1(+E2)		
378.533 *8*	0.10 *2*	740.387	5/2−	361.863	5/2+			
379.230 *11*	0.22 *3*	559.303	5/2+	180.077	3/2+			
382.989 *7*	26.0 *21*	521.924	9/2+	138.939	5/2+	E2		
387.520 *18*	1.9 *3*	460.540	3/2+	73.057	1/2+	M1		
388.60 *4*	1.9 *4*	849.088	3/2(+),5/2(+)	460.540	3/2+	M1		
389.140 *10*	17.9 *14*	469.387	13/2−	80.242	11/2−	M1		
398.775 *23*	7.8 *6*	478.992	15/2−	80.242	11/2−	E2		
413.756 *8*	1.82 *11*	874.28	3/2+,5/2+	460.540	3/2+	M1+E2		
418.48 *4*	0.17 *3*	557.447	1/2+,3/2+	138.939	5/2+			
420.351 *8*	2.34 *12*	559.303	5/2+	138.939	5/2+	M1		
440.37 *5*	0.52 *8*	1459.965		1019.595	11/2+			
440.980 *13*	5.0 *5*	740.387	5/2−	299.401	7/2−	M1		
445.023 *14*	0.23 *3*	806.901	5/2+	361.863	5/2+			
449.149 *18*	2.17 *20*	806.901	5/2+	357.767	7/2+	M1		
451.441 *8*	1.64 *10*	930.43		478.992	15/2−			
460.547 *7*	6.7 *5*	460.540	3/2+	0.0	3/2+	M1+E2	0.61§ *23*	
477.062 *8*	10.8 *5*	838.923	9/2+	361.863	5/2+	E2		
482.048 *8*	10.3 *5*	620.988	7/2+	138.939	5/2+	M1+E2	0.92§ *22*	
483.160 *8*	12.4 *9*	563.407	9/2−	80.242	11/2−	M1		
484.323 *12*	0.27 *5*	557.447	1/2+,3/2+	73.057	1/2+	M1		Eγ: energy fit poor in least-squares fit of Eγ. From calculated E(level) Eγ=484.397 *8*.
486.274 *11*	0.19 *3*	559.303	5/2+	73.057	1/2+			
487.217 *13*	1.21 *11*	849.088	3/2(+),5/2(+)	361.863	5/2+	E2		
492.940 *8*	7.2 *7*	1009.361	11/2+	516.421	7/2+	E2		
496.345 *8*	6.0 *6*	975.333	11/2−	478.992	15/2−	E2		
499.254 *8*	10.0 *9*	857.025	11/2+	357.767	7/2+	E2		
503.174 *8*	9.8 *9*	1019.595	11/2+	516.421	7/2+	E2		
505.943 *8*	3.02 *24*	975.333	11/2−	469.387	13/2−	M1		
513.529 *8*	11.7 *10*	1035.463	13/2+	521.924	9/2+	E2		
515.064 *9*	1.28 *8*	695.137	5/2+	180.077	3/2+	M1+E2		
516.153 *23*	0.88 *7*	1038.055	5/2+,7/2,9/2+	521.924	9/2+			
516.475@ *15*	1.01@ *12*	516.421	7/2+	0.0	3/2+			
516.475@ *15*	1.01@ *12*	874.28	3/2+,5/2+	357.767	7/2+			
525.16 *5*	1.54 *15*	598.228	3/2−	73.057	1/2+			
532.127 *18*	0.24 *3*	712.176	3/2+,5/2+	180.077	3/2+			
533.51 *3*	4.1 *4*	832.897	11/2−	299.401	7/2−	E2		

γ(^{193}Ir) (continued)

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	Comments
534.482 *21*	1.57 *10*	892.268	9/2+,11/2+	357.767	7/2+		
538.845 *20*	1.72 *19*	1511.725		972.874	3/2+,5/2,7/2	M1+E2	
539.92 *8*	1.24 *19*	1009.361	11/2+	469.387	13/2−		
548.19 *3*	2.86 *14*	1169.17	11/2+	620.988	7/2+	E2	
556.175 *9*	0.25 *2*	695.137	5/2+	138.939	5/2+	E2(+M1)	
557.429 *21*	1.96 *20*	557.447	1/2+,3/2+	0.0	3/2+	M1	
559.29 *4*	6.4 *5*	559.303	5/2+	0.0	3/2+	M1	
560.33# *3*	1.53& *21*	740.387	5/2−	180.077	3/2+		Expected intensity from adopted branching ratio≈0.15.
573.21 *6*	0.10 *3*	712.176	3/2+,5/2+	138.939	5/2+		
582.201 *20*	0.25 *5*	1145.619	7/2−,9/2−	563.407	9/2−		
599.510 *7*	7.4 *9*	1432.407		832.897	11/2−		
601.45 *5*	0.82 *15*	740.387	5/2−	138.939	5/2+		
602.940 *8*	3.3 *4*	1459.965		857.025	11/2+		
611.037 *21*	1.37 *24*	972.874	3/2+,5/2,7/2	361.863	5/2+		
615.09 *5*	1.29 *18*	972.874	3/2+,5/2,7/2	357.767	7/2+		
618.94 *3*	2.07 *17*	918.368	7/2−	299.401	7/2−		
620.98 *3*	7.7 *6*	620.988	7/2+	0.0	3/2+		
626.88 *8*	0.33 *4*	806.901	5/2+	180.077	3/2+		
637.46 *3*	5.1 *3*	1511.725		874.28	3/2+,5/2+		
647.257 *8*	3.8 *4*	1169.17	11/2+	521.924	9/2+		
662.636 *15*	5.1 *17*	1511.725		849.088	3/2(+),5/2(+)		
667.963 *9*	4.1 *3*	806.901	5/2+	138.939	5/2+		
676.192 *13*	2.9 *5*	1038.055	5/2+,7/2,9/2+	361.863	5/2+		
678.090 *25*	5.9 *3*	1035.86		357.767	7/2+		
680.280 *15*	2.0 *4*	1038.055	5/2+,7/2,9/2+	357.767	7/2+		

† Deduced from conversion coefficients and ce-ratios (data not given by 1997Dr04).
‡ Observed in ce-spectra only.
§ Deduced from α(K)exp and α(L1)exp.
& γ is either influenced by an impurity, or is placed incorrectly. A γ of this intensity was not seen in ^{193}Os β^- decay.
@ Multiply placed with undivided intensity.
# Placement of transition in the level scheme is uncertain.

^{193}Ir(γ,γ):Mossbauer

^{193}Ir Levels

Time-reversal invariance: 1980Da12, 1970Ze04, 1968At01.
Isomer shifts: 1985De51, 1985Be03, 1973Wa05 (also 1970Wa18,1967Wa12), 1967At03.
Quadrupole interaction: 1974Sa08, 1967Wa12.
Hyperfine fields: 1975Ka16, 1969Pe05, 1967He11.
Conversion electron Mossbauer spectra: 1991Sa33.

E(level)†	J^π†	$T_{1/2}$†	Comments
0.0	3/2+	stable	
73.041 *5*	1/2+	6.09 ns *15*	g(73 level)/g(g.s.)=9.1 *3* (1967At03), +8.875 *18* (1967Wa20). J^π: from shape of absorption spectrum (magnetic splitting of 73.0 level) (1967At03); π from Adopted Levels.
138.941 *5*	5/2+	78 ps *4*	$T_{1/2}$: adopted value includes 79.7 ps *21* from measured Γ (1969St04).

† From Adopted Levels.

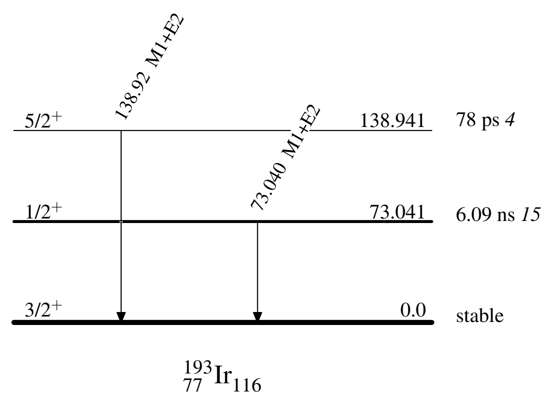
γ(^{193}Ir)

E_γ†	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	δ	Comments
73.040 *12*	73.041	1/2+	0.0	3/2+	M1+E2	−0.558 *5*	δ: from relative intensities of emission lines from completely magnetized ^{193}Os source (1967Wa20) (sign convention not stated by authors, but sign apparently consistent with later data (1984Gh01)); δ=0.61 *5* (1967At03). Other: 1968At01.
138.92 *4*	138.941	5/2+	0.0	3/2+	M1+E2	−0.329 *12*	δ: from Adopted Gammas.

† From adopted gammas.

^{193}Ir(γ,γ):Mossbauer

Level Scheme



^{193}Ir(γ,γ'):res fluorescence 1967Me12,1970Me16

1967Me12: source: ^{193}Os; high-speed-rotor technique used to tune γ-rays (Ge(Li) detector). 1970Me16: reevaluation of data.
1995La16: source: ^{137}Cs, ^{60}Co; measured excitation cross-section for the 10.53 d, 80.22 keV ^{193}Ir isomer. Detected electrons (E≈70 keV), persumably ce(L)(80.22γ) from isomeric level (also 1994La33).
1996La27: source: bremsstrahlung 4 MeV endpoint. Measured excitation cross-section for the 10.53 d, 80.22 keV ^{193}Ir isomer. Detected Ir L x ray.

^{193}Ir Levels

E(level)	J^{π}†	$T_{1/2}$‡	Comments
0.0	3/2$^+$		
460	3/2$^+$	11 ps *2*	$T_{1/2}$: from [(2J+1)/(2J(g.s.)+1)] x [$\Gamma^2_{\gamma 0}/\Gamma$] =7.6×10^{-6} eV *12* (1967Me12); adopted value $T_{1/2}$=14.9 ps *18*.
557	(1/2)$^+$	≤4# ps	$T_{1/2}$: adopted value $T_{1/2}$=34 ps *8*.
559	5/2$^+$	1.08# ps *16*	$T_{1/2}$: the value given in 1970Me16, mean life =1.65 *24*, had been corrected to reflect the adopted branching ratios and γ properties (see adopted gammas).
598.2	3/2$^-$	2.8 ps *+28−9*	$T_{1/2}$: from 1995La16.

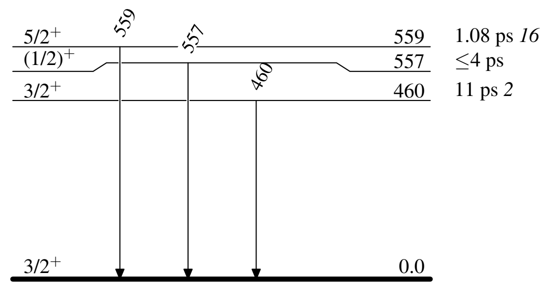
† From Adopted Levels.
‡ From 1970Me16 (results of reanalysis of experimental measurements of 1967Me12); unless otherwise noted.
# From [(2J+1)/(2J(g.s.)+1)] x [$\Gamma^2_{\gamma 0}/\Gamma$] =7.9×10^{-5} eV *6* for the combined 557+559 levels (1967Me12).

γ(^{193}Ir)

E_γ	E_i(level)	J^π_i	E_f	J^π_f
460	460	3/2$^+$	0.0	3/2$^+$
557	557	(1/2)$^+$	0.0	3/2$^+$
559	559	5/2$^+$	0.0	3/2$^+$

$^{193}Ir(\gamma,\gamma')$:res fluorescence 1967Me12,1970Me16

Level Scheme



$^{193}_{77}Ir_{116}$

^{193}Ir(n,n′γ) 1987Pr10

Reactor fast-neutron beam, θ=90°; enriched ^{193}Ir targets (97.6%); measured Eγ, Iγ (Ge(Li), FWHM=2.0 keV at 1332 keV); determined level-population rates.

Others: 1959An30, 1984Ya02.

^{193}Ir Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
0.0[#]	3/2+		
73.0[@]	1/2+		
80.2[c]	11/2−	10.53 d *4*	%IT=100 $T_{1/2}$: From Adopted Levels.
138.9[#]	5/2+		
180.0[@]	3/2+		
299.3[a]	7/2−		
357.7[#]	7/2+		
361.8[@]	5/2+		
460.5[&]	3/2+		
469.4[c]	13/2−		
479.0[c]	15/2−		
516.4[@]	7/2+		
521.8[#]	9/2+		
557.3[&]	1/2+		
559.2	5/2+		
563.3[a]	9/2−		
598.1[b]	3/2−		
621.0	7/2+		
695.1[&]	5/2+		
712.1	3/2+		
740.3[b]	5/2−		
806.9	5/2+		Jπ: alternate 7/2+ assignment by 1987Pr10 not consistent with observation of 733.9γ to 1/2+ (evaluator).
828.9	(9/2−)		
833.2[a]	11/2−		
(834.7[@])	9/2+		
848.9	5/2+		
857.2[#]	11/2+		
874.2			1987Pr10 suggest that this is the 7/2+ member of the second Kπ=1/2+ band. However, a weak γ to 1/2+ level, seen in ^{193}Os $β^-$ decay contradicts this assignment.
892.2	9/2+		
918.3[b]	7/2−		
930.4[c]	17/2−		
964.4	(1/2+,3/2+)		Jπ: Adopted 1/2+.
972.8	(5/2+)		
1009.3	11/2+		
1019.6[@]	11/2+		
1035.6	(3/2,5/2,7/2)+		
1038.2	(+)		
1065.9	(+)		
1076.4	(3/2+)		
1077.9	(3/2−,5/2−)		
1131.1			

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^{193}Ir(n,n′γ) 1987Pr10 (continued)

^{193}Ir Levels (continued)

E(level)[†]	Jπ[‡]	Comments
1145.7[b]	9/2⁻	
1168.2[a]	13/2⁻	
1169.2	11/2⁺	
1250.5	(3/2⁺,5/2⁺)	
1434.1[@]	(13/2⁺)	
1511.9	(3/2⁺,5/2⁺)	Jπ: Adopted (3/2⁺).

[†] From 1987Pr10.
[‡] From comparison of experimental and theoretical level-population rates, band structure, and γ-ray decay systematics (1987Pr10).
[#] Kπ=3/2⁺ band.
[@] Kπ=1/2⁺ band.
[&] Second Kπ=1/2⁺ band.
[a] Kπ=7/2⁻ band.
[b] Kπ=3/2⁻ band.
[c] Kπ=11/2⁻ band.

γ(^{193}Ir)

Eγ	Iγ[†]	Ei(level)	Jπi	Ef	Jπf	Mult.	Comments
(73.040[‡] 12)		73.0	1/2⁺	0.0	3/2⁺		
(80.22[‡] 2)		80.2	11/2⁻	0.0	3/2⁺	M4	Mult.: From Adopted Gammas.
107.07 5	122 16	180.0	3/2⁺	73.0	1/2⁺		
139.23 4	480 50	138.9	5/2⁺	0.0	3/2⁺		
142.2 9	24 7	740.3	5/2⁻	598.1	3/2⁻		
154.67[e] 9	11[e] 5	516.4	7/2⁺	361.8	5/2⁺		Iγ: from adopted gammas Iγ(154γ)/Iγ(336γ)=0.40 13 which would indicate that all the observed intensity belongs to this location in level scheme.
154.67[e] 9	11[e] 5	712.1	3/2⁺	557.3	1/2⁺		Iγ: from adopted gammas Iγ(155γ)/Iγ(252γ)=0.14 2 which suggests Iγ(155γ)=4.7 7.
164.19 17	7.3 25	521.8	9/2⁺	357.7	7/2⁺		
177.97 4	28 3	918.3	7/2⁻	740.3	5/2⁻		
180.09 4	34 3	180.0	3/2⁺	0.0	3/2⁺		
181.79 2	81 6	361.8	5/2⁺	180.0	3/2⁺		
[x]211.70 5	7.2 20						
219.24[f] 3	850[f§] 70	299.3	7/2⁻	80.2	11/2⁻		
219.24[f] 3	150[f§] 12	357.7	7/2⁺	138.9	5/2⁺		
227.35 9	8.8 10	1145.7	9/2⁻	918.3	7/2⁻		
234.61 3	63 12	695.1	5/2⁺	460.5	3/2⁺		
[x]242.37 6	11.5 18						
[x]247.5 1	5.1 12						
251.64 3	33.9 13	712.1	3/2⁺	460.5	3/2⁺		
259.8 13	3.5 13	621.0	7/2⁺	361.8	5/2⁺		
264.00[f] 3	96[f@] 15	563.3	9/2⁻	299.3	7/2⁻		
264.00[f] 3	9.0[f@] 8	621.0	7/2⁺	357.7	7/2⁺		This placement suggested by evaluator on basis of Coulomb excitation and (n,γ) data.
[x]267.91 14	4.3 14						
269.50 4	31 3	833.2	11/2⁻	563.3	9/2⁻		
271.17 8	7.1 21	892.2	9/2⁺	621.0	7/2⁺		
280.46 3	45 4	460.5	3/2⁺	180.0	3/2⁺		

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^{193}Ir(n,n′γ) 1987Pr10 (continued)

γ(^{193}Ir) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
288.84 3	60 5	361.8	5/2$^+$	73.0	1/2$^+$	
298.82 3	196 16	598.1	3/2$^-$	299.3	7/2$^-$	
[x]308.73 5	6.1 13					
[x]314.30 7	3.1 6					
321.69 4	55 4	460.5	3/2$^+$	138.9	5/2$^+$	
[x]329.93 18	3.1 9					
333.1 5	2.8 9	695.1	5/2$^+$	361.8	5/2$^+$	
335.21[f] 19	6.3[f#] 17	857.2	11/2$^+$	521.8	9/2$^+$	
335.21[f] 19	2.7[f] 12	1168.2	13/2$^-$	833.2	11/2$^-$	
336.38 6	37 5	516.4	7/2$^+$	180.0	3/2$^+$	
337.8 2	3.3 10	1077.9	(3/2$^-$,5/2$^-$)	740.3	5/2$^-$	
340.1 9	2.2 16	1035.6	(3/2,5/2,7/2)$^+$	695.1	5/2$^+$	
[x]349.20 11	4.6 12					
355.1 4	2.7 16	918.3	7/2$^-$	563.3	9/2$^-$	
357.77 4	169 9	357.7	7/2$^+$	0.0	3/2$^+$	
361.87 4	113 9	361.8	5/2$^+$	0.0	3/2$^+$	
369.81 10	5.8 9	892.2	9/2$^+$	521.8	9/2$^+$	γ not placed by 1987Pr10; placement suggested by Coulomb excitation data.
[x]375.12 18	3.2 11					
377.50[f] 5	79[f&] 5	516.4	7/2$^+$	138.9	5/2$^+$	
377.50[f] 5	3[f&]	557.3	1/2$^+$	180.0	3/2$^+$	
383.01 5	97 7	521.8	9/2$^+$	138.9	5/2$^+$	
387.54 5	45 3	460.5	3/2$^+$	73.0	1/2$^+$	
389.16 5	51 3	469.4	13/2$^-$	80.2	11/2$^-$	
[x]397.03 7	15.1 4					
398.76 6	26.1 23	479.0	15/2$^-$	80.2	11/2$^-$	
[x]405.7 2	4.4 9					
[x]406.9 2	4.4 9					
[x]409.10 11	5.8 11					
413.81 10	8.6 12	874.2		460.5	3/2$^+$	
418.21 7	1.8 4	557.3	1/2$^+$	138.9	5/2$^+$	
420.40 6	33 3	559.2	5/2$^+$	138.9	5/2$^+$	
[x]432.8 4	1.7 10					
440.99 6	37 3	740.3	5/2$^-$	299.3	7/2$^-$	
444.75[f] 12	2.1[fd] 4	806.9	5/2$^+$	361.8	5/2$^+$	
444.75[fg] 12	1.2[fd] 3	1065.9	($^+$)	621.0	7/2$^+$	
449.21 6	20 2	806.9	5/2$^+$	357.7	7/2$^+$	
451.39 14	2.6 6	930.4	17/2$^-$	479.0	15/2$^-$	
460.53 6	131 9	460.5	3/2$^+$	0.0	3/2$^+$	
[x]467.0 2	3.4 8					
(482.2 3)	≈64	621.0	7/2$^+$	138.9	5/2$^+$	Peak superimposed on impurity (^{7}Li, 477γ); Iγ calculated from relative branching in Coulomb excitation (1987Pr10).
(484.3[‡])	6.3	557.3	1/2$^+$	73.0	1/2$^+$	I_γ: from branching ratio in adopted gammas; γ possibly masked by impurity (477γ of ^{7}Li) (evaluator).
[x]488.46 18	2.2 11					
492.93 7	8.5 8	1009.3	11/2$^+$	516.4	7/2$^+$	
499.5 3	19 4	857.2	11/2$^+$	357.7	7/2$^+$	
503.22 8	10.7 15	1019.6	11/2$^+$	516.4	7/2$^+$	
(512.3[‡])	2.9[a]	874.2		361.8	5/2$^+$	
515.06[‡]	≈15	695.1	5/2$^+$	180.0	3/2$^+$	γ not resolved from impurity (517γ in ^{34}Cl) contaminant; Iγ deduced from relative branching in ^{193}Os β^- decay (1987Pr10).

Continued on next page (footnotes at end of table)

^{193}Ir(n,n′γ) 1987Pr10 (continued)

γ(^{193}Ir) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Comments
(516.48[‡])	4.7[a]	874.2		357.7	7/2+	
x521.1 *2*	3 *1*					
525.31 *8*	21.1 *8*	598.1	3/2−	73.0	1/2+	
531.90 *9*	12.8 *13*	712.1	3/2+	180.0	3/2+	
533.89[e] *8*	22.7[eb] *14*	833.2	11/2−	299.3	7/2−	1987Pr10 places the γ from this level alone.
533.89[e] *8*	22.7[eb] *14*	892.2	9/2+	357.7	7/2+	
x545.85 *15*	3.1 *8*					
548.17 *11*	5.8 *13*	1169.2	11/2+	621.0	7/2+	
x552.8 *19*	5.6 *12*					
(556.18[‡])	6 *2*	695.1	5/2+	138.9	5/2+	γ not observed but expected from ^{193}Os β^- decay and ^{192}Ir(n,γ) data. Iγ calculated from relative branching from adopted gammas.
557.35 *8*	48 *4*	557.3	1/2+	0.0	3/2+	
559.31 *8*	98 *8*	559.2	5/2+	0.0	3/2+	
(573.24[‡])	3.1 *10*	712.1	3/2+	138.9	5/2+	γ not seen, but expected on the basis of ^{193}Os β^- and ^{192}Ir(n,γ) data. Iγ deduced from relative branching in Adopted Levels (evaluator).
582.55 *13*	1.1 *5*	1145.7	9/2−	563.3	9/2−	
x589.96 *23*	1.8 *6*					
599.4[cg] *3*	1.8 *5*	1434.1	(13/2+)	834.7?	9/2+	
610.80[g] *15*	3.5 *8*	972.8	(5/2+)	361.8	5/2+	
619.02 *10*	12.8 *15*	918.3	7/2−	299.3	7/2−	
621.05 *9*	51 *3*	621.0	7/2+	0.0	3/2+	
627.34 *15*	2.8 *6*	806.9	5/2+	180.0	3/2+	
x636.76 *12*	4.7 *6*					
647.49 *11*	6.0 *12*	1169.2	11/2+	521.8	9/2+	
x651.64 *18*	1.8 *4*					
662.68 *14*	4.3 *10*	1511.9	(3/2+,5/2+)	848.9	5/2+	
668.04 *9*	38 *4*	806.9	5/2+	138.9	5/2+	
x672.99 *11*	6.1 *9*					
676.36 *18*	3.0 *6*	1038.2	(+)	361.8	5/2+	
677.98 *11*	7.0 *9*	1035.6	(3/2,5/2,7/2)+	357.7	7/2+	
695.27 *14*	4.0 *10*	695.1	5/2+	0.0	3/2+	
698.64 *17*	1.8 *7*	1168.2	13/2−	469.4	13/2−	
704.01 *11*	5.5 *9*	1065.9	(+)	361.8	5/2+	
710.01 *10*	14.4 *15*	848.9	5/2+	138.9	5/2+	
712.47 *26*	2.1 *7*	712.1	3/2+	0.0	3/2+	
718.72 *10*	41 *4*	1076.4	(3/2+)	357.7	7/2+	
733.93 *15*	3.0 *6*	806.9	5/2+	73.0	1/2+	
735.59 *18*	2.0 *4*	874.2		138.9	5/2+	
748.68 *9*	66 *5*	828.9	(9/2−)	80.2	11/2−	
x750.97 *19*	6.9 *12*					
752.73[e] *15*	9.2[eb] *14*	833.2	11/2−	80.2	11/2−	1987Pr10 places the γ from this level alone.
752.73[e] *15*	9.2[eb] *14*	892.2	9/2+	138.9	5/2+	
x760.4 *7*	1.4 *14*					
x761.5 *4*	2.8 *14*					
x764.1 *5*	0.9 *6*					
x769.50 *18*	2.8 *9*					
x774.02 *24*	2.3 *14*					
x776.50 *19*	3.8 *8*					
778.60 *9*	40 *4*	1077.9	(3/2−,5/2−)	299.3	7/2−	
x781.88 *10*	14.5 *14*					

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^{193}Ir(n,n′γ) 1987Pr10 (continued)

γ(^{193}Ir) (continued)

E_γ	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π
784.58 *15*	5.1 *8*	964.4	(1/2$^+$,3/2$^+$)	180.0	3/2$^+$
[x]795.00 *13*	4.7 *8*				
[x]797.00 *15*	4.3 *9*				
[x]802.93 *9*	8.8 *9*				
[x]829.8 *4*	2.2 *13*				
848.95 *8*	35 *4*	848.9	5/2$^+$	0.0	3/2$^+$
856.5 *6*	1.1 *7*	1035.6	(3/2,5/2,7/2)$^+$	180.0	3/2$^+$
858.2 *3*	2.0 *8*	1038.2	($^+$)	180.0	3/2$^+$
[x]862.10 *12*	5.7 *11*				
874.26 *9*	36 *4*	874.2		0.0	3/2$^+$
[x]875.9 *4*	4.0 *14*				
885.91 *8*	15.5 *21*	1065.9	($^+$)	180.0	3/2$^+$
888.42 *10*	9.1 *8*	1250.5	(3/2$^+$,5/2$^+$)	361.8	5/2$^+$
891.41 *9*	22.5 *23*	964.4	(1/2$^+$,3/2$^+$)	73.0	1/2$^+$
892.89 *13*	8.4 *11*	1250.5	(3/2$^+$,5/2$^+$)	357.7	7/2$^+$
899.98 *13*	4.9 *7*	972.8	(5/2$^+$)	73.0	1/2$^+$
[x]910.8 *3*	2.5 *6*				
[x]914.7 *5*	2.0 *10*				
[x]916.0 *3*	3.1 *12*				
[x]920.14 *17*	2.8 *9*				
[x]927.17 *12*	4.3 *7*				
[x]930.29 *11*	5.0 *7*				
937.49 *13*	12.3 *20*	1076.4	(3/2$^+$)	138.9	5/2$^+$
[x]943.33 *22*	2.5 *8*				
[x]947.44 *20*	2.7 *11*				
951.10 *11*	7.6 *13*	1131.1		180.0	3/2$^+$
954.37 *15*	5.1 *10*	1511.9	(3/2$^+$,5/2$^+$)	557.3	1/2$^+$
[x]956.49 *17*	4.4 *10*				
[x]959.5 *3*	3.0 *10*				
[x]964.06 *10*	18.7 *18*				
[x]966.17 *21*	3.1 *6*				
972.08 *24*	2.4 *8*	972.8	(5/2$^+$)	0.0	3/2$^+$
[x]976.8 *3*	3.9 *11*				
[x]981.35 *11*	15.9 *15*				
992.2[e] *5*	2.8[e] *17*	1065.9	($^+$)	73.0	1/2$^+$
992.2[e] *5*	2.8[e] *17*	1131.1		138.9	5/2$^+$
[x]993.4 *5*	2.5 *14*				

[†] Relative Iγ at θ=90°.
[‡] From adopted gammas.
[§] Deduced from Iγ(complex peak)=1000 *70* and relative branching from 357.7 level from other sources (1987Pr10).
[&] Deduced from Iγ(complex peak)=82 *5* and relative branching from 557.3 level from other sources (1987Pr10).
[@] Deduced from Iγ(complex peak)=105 *13* and relative branching from 621.0 level from adopted gammas (evaluator).
[#] Deduced from Iγ(complex peak)=9 *3* and relative branching from 857.2 level from adopted gammas (evaluator).
[a] γ expected on the basis of ^{193}Os β^- decay data. γ probably masked by annihilation radiation and/or impurity (^{36}Cl 517 line). Iγ from relative branching in adopted gammas (evaluator).
[b] Multiple placement by evaluator on the basis of Coulomb excitation and/or ^{192}Ir(n,γ) data.
[c] γ identified as the 13/2$^+$ to 9/2$^+$ transition in a rotational band. The 9/2$^+$ level was not seen, the transition from it was assumed to be masked by impurities. The energy of the 9/2$^+$ level was estimated to be 834.7 keV. From Adopted Levels E(9/2$^+$)=839.1 keV. Therefore, the adopted E(13/2$^+$)=1438.5 keV.
[d] Deduced from from Iγ(complex peak)=3.3 *6* and relative branching from 806.9 level from adopted gammas (evaluator).
[e] Multiply placed with undivided intensity.

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^{193}Ir(n,n′γ) 1987Pr10 (continued)

γ(^{193}Ir) (continued)

[f] Multiply placed with intensity suitably divided.
[g] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

Coulomb excitation 2000Be07,1987Mc01,1984Mu19

The level scheme combines data from the following major sources:

2000Be07: E(^{58}Ni)=155, 180 MeV; E(^{65}Cu)=130 MeV; E(^{32}S)=100 MeV; E(^{16}O)=40 MeV. Natural Ir targets. Measured $\gamma(\theta$,H,t), recoil distance, particle-$\gamma(\theta)$, and g-factor (transient field IMPAC technique). Used particle-triaxial-rotor-model, U(6/4), and U(6/20) supersymmetry models to interpret level structure.

1987Mc01: E(^{40}Ar)=160 MeV; E(^{136}Xe)=617 MeV. Enriched ^{193}Ir targets (99.45%); measured γ-ray yields, particle-γ coin (annular solid-state surface-barrier detector, Ge(Li)); used triaxial rotor model to interpret level structure.

1986Ko20: E(^{32}S)=89, 118 MeV; measured $\gamma(\theta$,H), $\gamma(\theta$,H,t), recoil-distance.

1984Mu19: E(p),E(α)=5.0-6.0 MeV. Natural Ir targets; measured γ-ray yields, $\gamma(\theta)$ (large-volume Compton-suppressed Ge(Li) detector).

1972Pr04: E(^{16}O)=25 MeV, 40 MeV, 65 MeV. Enriched ^{193}Ir targets (98.0%); measured Eγ, Iγ (Ge(Li)), γ-ray yields.

Some data are from the following:

1971No01: E(d)=7.0 MeV; Eα=16.6 MeV.

1970Av02: E(^{16}O)≈40 MeV.

1969Av03: E(^{16}O)=9-30 MeV.

1958Mc02: E(p)=3.0-4.0 MeV.

Others: 1971Ow01, 1957Be56, 1957Mc34, 1956Da40, 1956Hu49.

^{193}Ir Levels

B(E2)↑: The values of 1972Pr04 have been renormalized to B(E2)↑(138.9 level)=0.75 *3*. The values of 1984Mu19 were obtained using B(E2)↑(^{194}Pt 0$^+$ to 2$^+$)=1.620 *15* (1978Ba38) for calibration and were renormalized to the currently adopted value 1.649 *15* (2007Si17).

g-factors: In the transient field IMPAC measurements of 1986Ko20 the value for g-factor(138.9 level)=+0.211 *12* was adopted for the calibration of the transient field; however, later measurements give g-factor(138.9 level)=+0.356 *16* ((Ni,Ni′) and (Cu,Cu′) 2000Be07, 1996St22).

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	Comments
0.0[b]	3/2$^+$		
73.0[c]	1/2$^+$	4.1 ns *3*	B(E2)↑=0.110 *8* B(E2)↑: Weighted average of 0.11 *1* (1971No01), 0.111 *12* (1969Av03). $T_{1/2}$: In Adopted Levels: 6.09 ns *15* (from ^{193}Os β^- decay).
80.2	11/2$^-$	10.53[@] d *4*	
138.9[b]	5/2$^+$	69.7[&] ps *10*	B(E2)↑=0.75 *3* B(E2)↑: Limited weight method average of 0.81 *3* (2000Be07), 0.71 *7* (1971No01), 0.64 *6* (1969Av03), 0.74 *7* (1958Mc02). g-factor=+0.356 *16* transient field IMPAC measurements (2000Be07). Other: 0.211 *12* (static field), +0.215 *13* (transient field) IMPAC measurements (1986Ko20); 1970Av02. $T_{1/2}$: 2000Be07 (recoil-distance method). Others: 92 *4* ps (recoil-distance method, 1986Ko20); 78 *4* ps (from B(E2)).
180.1[c]	3/2$^+$	28 ps *4*	B(E2)↑=0.087 *8* B(E2)↑: Weighted average of 0.095 *14* (1972Pr04), 0.085 *10* (1971No01). Other: 0.25 *15* (1969Av01). $T_{1/2}$: Adopted value: 43 ps *16*.
299.4	7/2$^-$		
357.8[b]	7/2$^+$	18.7[&] ps *7*	B(E2)↑=0.518 *9* B(E2)↑: Weighted average of 0.50 *2* (2000Be07), 0.525 *10* (1984Mu19), 0.54 *8* (1972Pr04), 0.49 *7* (1971No01), 0.47 *5* (1969Av03), 0.61 *7* (1958Mc02). g-factor=+0.441 *16* transient field IMPAC measurements (2000Be07). Other: +0.41 *8* (static field), +0.62 *13* (transient field) IMPAC measurements, (1986Ko20). $T_{1/2}$: weighted average of 18.6 ps *7* (2000Be07) and 20.4 ps *24* (1986Ko20) (recoil-distance).

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Coulomb excitation 2000Be07,1987Mc01,1984Mu19 (continued)

^{193}Ir Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	Comments
			Other: 14.9 ps *7* from B(E2), not included in the average because depends on Iγ(219) from 357.8 level seen as an unresolved doublet.
361.9[c]	$5/2^+$	25 ps *3*	B(E2)↑=0.0162 *4* B(E2)↑: Weighted average of 0.0159 *5* (1984Mu19), 0.018 *3* (1972Pr04).
460.5	$3/2^+$	13.8 ps *10*	B(E2)↑=0.0253 *5* B(E2)↑: Weighted average of 0.0252 *5* (1984Mu19), 0.030 *5* (1972Pr04).
516.4[c]	$(7/2)^+$		
521.9[b]	$(9/2)^+$	13.2[&] ps *19*	B(E2)=0.827 *30* (138.9 level to 521.9 level) (1987Mc01). g-factor=+0.54 *15* (transient field IMPAC measurement), 2000Be07 – unweighted average of ^{58}Ni runs at 155 and 180 MeV. Other: +0.84 *25* (transient field IMPAC measurement, 1986Ko20). $T_{1/2}$: weighted average of 13.9 ps *22* (2000Be07) and 11 ps *4* (1986Ko20) (recoil-distance); 10.4 ps *6* from B(E2) was not included because J is uncertain.
557.4	$(1/2)^+$	34[@] ps *8*	1984Mu19 report B(E2)=0.046 *15*; however, assuming 557γ pure E2 to determine an upper limit, this B(E2) gives $T_{1/2}$ = 6 *2* ps, much smaller than the measured $T_{1/2}$.
559.3	$5/2^+$	1.08[@] ps *16*	B(E2)↑=0.012 *6* (1984Mu19)
563.4	$(9/2^-)$		
598.2	$3/2^-$	2.8[@] ps *+28−9*	
621.0[d]	$7/2^+$	4.3[a] ps *3*	B(E2)↑=0.106 *5* B(E2)↑: Weighted average of 0.110 *6* (1984Mu19), 0.121 *18* (1972Pr04), 0.090 *11* (1971No01). g-factor=+0.33 *4* (transient field IMPAC measurement, 2000Be07). Other:+0.15 *11* (transient field IMPAC measurement, 1986Ko20). $T_{1/2}$: weighted average of 4.4 ps *5* (2000Be07) and 6.1 ps *17* (1986Ko20) (recoil-distance method), and 4.2 ps *4* (from adopted B(E2)).
695.1	$5/2^+$		B(E2)↑=0.0066 *22* (1987Mc01)
712.2	$3/2^+$	15[@] ps *14*	
740.4	$5/2^-$		
806.9	$(5/2)^+$		B(E2)=0.013 *4* (1987Mc01). J^{π}: $(7/2^+)$ assignment from 1987Mc01 not consistent with observation of 733.9γ (to $1/2^+$) in ^{193}Ir(n,n′γ).
838.9[c]	$(9/2^+)$		
857.0[b]	$(11/2)^+$	4.2 ps *4*	B(E2)=0.50 *3* (357.7 level to 857 level) (1987Mc01). g-factor=+0.49 *13* (transient field IMPAC measurement, 2000Be07).
892.3[d]	$(9/2^+)$		
1035.5[b]	$(13/2)^+$		
1169.2[d]	$(11/2^+)$		
1460.0[b]	$(15/2)^+$		
1651[b]	$(17/2^+)$		
2179[b]	$(19/2^+)$		
2404?[b]	$(21/2^+)$		

† Rounded-off values from Adopted Levels.
‡ From 1987Mc01. The J^{π} assignments for J≥7/2 are based on band structure and similarities to ^{191}Ir.
# Calculated from adopted B(E2)↑ using the adopted δ, α, and branching ratios for the relevant γ's, unless otherwise noted.
@ From Adopted Levels.
& From recoil-distance method, see comment.
a From recoil-distance method and B(E2), see comment.

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Coulomb excitation 2000Be07,1987Mc01,1984Mu19 (continued)

^{193}Ir Levels (continued)

[b] Band(A): $K^{\pi}=3/2^{+}$ band.
[c] Band(B): $K^{\pi}=1/2^{+}$ band.
[d] Band(C): $K^{\pi}=7/2^{+}$ band.

$\gamma(^{193}Ir)$

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[§]	δ[§][b]	α[c]	Comments
73		73.0	1/2$^+$	0.0	3/2$^+$	M1+E2	−0.558 *5*	6.11 *10*	E_γ: from 1969Av03. Masked by x-rays (1972Pr04); observation confirmed from analysis of x-ray spectrum (1969Av03).
(80.236[&] *7*)		80.2	11/2$^-$	0.0	3/2$^+$	M4		2.11×10^4	
[x]105.9[@] *2*									
107.0[@] *2*	6.5 *9*	180.1	3/2$^+$	73.0	1/2$^+$	M1+E2	+0.16 *1*	5.01 *8*	I_γ: subject to absorber and detector-efficiency corrections (priv. comm. from authors of 1987Mc01).
138.9[@] *2*	111 *3*	138.9	5/2$^+$	0.0	3/2$^+$	M1+E2	−0.362 *6*	2.26	δ: 2000Be07 (particle-$\gamma(\theta)$). Others: −0.44 *+2−4* (1970Av02); −0.75 *25* (1958Mc02); 0.329 *12* (β^- decay).
154	3.6 *5*	516.4	(7/2)$^+$	361.9	5/2$^+$	(M1)		1.79	
164.2[@] *2*	10.0 *7*	521.9	(9/2)$^+$	357.8	7/2$^+$	(M1)		1.492	I_γ: Iγ(164.2γ)/Iγ(382.9γ)=0.109 *20* (1972Pr04).
[x]168.4[@] *2*									
180.0[@] *2*	4.6 *5*	180.1	3/2$^+$	0.0	3/2$^+$	M1+E2	−0.48 *2*	1.029 *17*	I_γ: Iγ(180.0γ)/Iγ(107.0γ)=0.288 *19* (1972Pr04).
181.7[@] *2*	10.0 *7*	361.9	5/2$^+$	180.1	3/2$^+$	M1+E2	+0.149 *11*	1.108	I_γ: Iγ(181.7γ)/Iγ(361.8γ)=0.80 *25* (1972Pr04).
218.8[@] *2*	65.6 *22*	357.8	7/2$^+$	138.9	5/2$^+$	M1+E2	−0.280 *9*	0.639 *10*	I_γ: Iγ(218.8γ)/Iγ(357.7γ)=0.63 *4* (1972Pr04). I_γ: 219γ is also placed from the 7/2$^-$ 299.4 keV level by 1987Mc01; however, all Iγ is shown here. Mult.,δ: 2000Be07 (particle-$\gamma(\theta)$). Others: −0.34 *4* ($\gamma(\theta)$, 1984Mu19); −0.22 *3* (1958Mc02); −0.42 *+8−14* (1970Av02).
(219)		299.4	7/2$^-$	80.2	11/2$^-$	E2		0.255	
234	1.2 *4*	695.1	5/2$^+$	460.5	3/2$^+$	(M1)		0.555	
263		563.4	(9/2$^-$)	299.4	7/2$^-$	(M1)		0.403	
263.2[@] *2*	3.9 *5*	621.0	7/2$^+$	357.8	7/2$^+$	M1+E2	−0.26[#] *11*	0.385 *16*	I_γ: Iγ(263.2γ)/Iγ(482.1γ)=0.122 *12* (1972Pr04), 0.17 (1984Mu19).
271	1.4 *5*	892.3	(9/2$^+$)	621.0	7/2$^+$				
280.4[@] *2*	1.3 *4*	460.5	3/2$^+$	180.1	3/2$^+$	M1+E2	−0.049 *12*	0.337	I_γ: Iγ(280.4γ)/Iγ(460.5γ)=0.194 *18* (1972Pr04).
288.7[@] *2*	5.5 *5*	361.9	5/2$^+$	73.0	1/2$^+$	(E2)		0.1064	I_γ: Iγ(288.7γ)/Iγ(361.8γ)=0.52 *17* (1972Pr04).
299	2.0 *4*	598.2	3/2$^-$	299.4	7/2$^-$	(E2)		0.0958	
312[a]		1169.2	(11/2$^+$)	857.0	(11/2)$^+$				I_γ: Iγ(312γ)/(Iγ(548γ)+Iγ(647γ))=0.19 *7* (from 617-MeV ^{136}Xe data, 1987Mc01).
321.6[@] *2*	1.1 *3*	460.5	3/2$^+$	138.9	5/2$^+$	M1+E2	+0.234 *10*	0.225	I_γ: Iγ(321.6γ)/Iγ(460.5γ)=0.24 *4* (1972Pr04).
323	1.7 *4*	838.9	(9/2$^+$)	516.4	(7/2)$^+$	(M1)		0.230	
[x]328.4[@] *2*									
335	8.6 *18*	857.0	(11/2)$^+$	521.9	(9/2)$^+$	[M1,E2]		0.14 *7*	
336	6.9 *14*	516.4	(7/2)$^+$	180.1	3/2$^+$	(E2)		0.0681	
[x]346.7[@] *2*									
357.7[@] *2*	100	357.8	7/2$^+$	0.0	3/2$^+$	E2		0.0571	Mult.: Q from $\gamma(\theta)$ (1958Mc02).

$\gamma(^{193}Ir)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[§]	δ[§][b]	α[c]	Comments
361.8[@] 2	12.0 8	361.9	5/2+	0.0	3/2+	M1+E2	−0.33 3	0.158 3	
370	1.5 4	892.3	(9/2+)	521.9	(9/2)+				
377	12.1 8	516.4	(7/2)+	138.9	5/2+	(M1)		0.1518	
377.4[#]		557.4	(1/2)+	180.1	3/2+	(M1+E2)	1.0 5	0.10 3	Iγ(377.4γ)/Iγ(557.4γ)=0.059 (1984Mu19).
382.9[@] 2	89 3	521.9	(9/2)+	138.9	5/2+	(E2)		0.0473	
387.5[@] 2	1.2 4	460.5	3/2+	73.0	1/2+	M1+E2	−0.24 4	0.136 3	I_γ: Iγ(387.5γ)/Iγ(460.5γ)=0.16 3 (1972Pr04).
420	2.1 4	559.3	5/2+	138.9	5/2+	M1		0.1139	
425[a]		1460.0	(15/2)+	1035.5	(13/2)+				I_γ: Iγ(425γ)/Iγ(603γ)=0.11 4 (from 617-MeV ^{136}Xe data, 1987Mc01).
441 1		740.4	5/2−	299.4	7/2−	M1+E2	−0.37 4	0.0919 22	
449	1.0 3	806.9	(5/2)+	357.8	7/2+	(M1)		0.0954	
[x]450.8[@] 2									
460.5[@] 2	3.3 4	460.5	3/2+	0.0	3/2+	M1+E2	−0.64 3	0.0718 16	
477	4.3 5	838.9	(9/2+)	361.9	5/2+	(E2)		0.0267	
482.1[@] 2	33.5 13	621.0	7/2+	138.9	5/2+	M1+E2	−0.93 11	0.054 4	δ: average of −0.89 13 (particle-γ(θ), 2000Be07) and -1.02 19 (γ(θ), 1984Mu19).
499	33.5 13	857.0	(11/2)+	357.8	7/2+	[E2]		0.0239	
513.6	15.3 8	1035.5	(13/2)+	521.9	(9/2)+	(E2)		0.0222	
514.9		695.1	5/2+	180.1	3/2+	(M1,E2)		0.044 23	E_γ: from 1984Mu19.
532.1		712.2	3/2+	180.1	3/2+	M1+E2	+0.48 +32−16	0.053 9	E_γ: from 1984Mu19.
534	2.3 4	892.3	(9/2+)	357.8	7/2+				
548	2.1 4	1169.2	(11/2+)	621.0	7/2+	(E2)		0.0190	
557.4[#]		557.4	(1/2)+	0.0	3/2+	(M1)		0.0541	
559	4.4 6	559.3	5/2+	0.0	3/2+	(M1)		0.0537	
603	3.3 4	1460.0	(15/2)+	857.0	(11/2)+				
615[a]		1651	(17/2+)	1035.5	(13/2)+				
621.0[@] 2	25.0 11	621.0	7/2+	0.0	3/2+	[E2]		0.01425	I_γ: Iγ(621.0γ)/Iγ(482.1γ)=0.76 6 (1972Pr04), 0.79 (1984Mu19).
647	3.0 5	1169.2	(11/2+)	521.9	(9/2)+				
654[a]		1169.2	(11/2+)	516.4	(7/2)+				I_γ: Iγ(654γ)/(Iγ(548γ)+Iγ(647γ))=0.15 5 (from 617-MeV ^{136}Xe data, 1987Mc01).
668	2.0 6	806.9	(5/2)+	138.9	5/2+				
695		695.1	5/2+	0.0	3/2+				
719[a]		2179	(19/2+)	1460.0	(15/2)+				
753	1.3 4	892.3	(9/2+)	138.9	5/2+				
753		2404?	(21/2+)	1651	(17/2+)				Possible second placement of γ in ^{136}Xe data of 1987Mc01.
807		806.9	(5/2)+	0.0	3/2+				

$\gamma(^{193}Ir)$ (continued)

E_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Comments
812[a]	1169.2	(11/2$^+$)	357.8	7/2$^+$	I_γ: Iγ(812γ)/(Iγ(548γ)+Iγ(647γ))=0.20 8 (from 617-MeV ^{136}Xe data, 1987Mc01).

[†] From 1987Mc01, unless otherwise noted.
[‡] Arbitrary units for E(^{40}Ar)=160 MeV (1987Mc01).
[§] From Adopted Gammas, unless otherwise noted.
[&] From Adopted Gammas.
[@] From 1972Pr04.
[#] From 1984Mu19.
[a] γ seen only with ^{136}Xe E=617 MeV reaction (1987Mc01).
[b] If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
[c] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[x] γ ray not placed in level scheme.

^{194}Pt(d,^{3}He) 1981Iw01

E(d)=50 MeV, θ=15°; enriched ^{194}Pt targets; measured E(level) (mag spect, resolution≈30 keV), differential cross sections, angular distributions; compared results with predictions of supersymmetry model.

^{193}Ir Levels

E(level)	J$^{\pi}$ †	L ‡	C^{2}S #	Comments
0.0	3/2$^+$	2	1.17	
73	1/2$^+$	0	0.43	Includes minor component from 80 level (J$^{\pi}$=11/2$^-$).
139	5/2$^+$	2	0.09	
180	3/2$^+$	2	0.09	
299	7/2$^-$	3	0.03	
362	5/2$^+$	2	0.25	Includes minor component from 358 level (J$^{\pi}$=7/2$^+$).
460	3/2$^+$	2	0.87	
559	5/2$^+$	2	1.15	Includes minor component from 557 level (J$^{\pi}$=(1/2)$^+$).
621	7/2$^+$	4	0.24	
695	5/2$^+$	2	0.31 @	695 and 712 levels not resolved. L: for 695 and 712 levels combined. C^{2}S=0.52 if entire cross section is assumed to be for 695 level.
712	3/2$^+$	2	0.30 @	695 and 712 levels not resolved. L: for 695 and 712 levels combined. C^{2}S=0.73 if entire cross section is assumed to be for 712 level.
849	5/2$^+$	2	0.56	849 and 874 levels not resolved. L,C^{2}S: for 849 and 874 levels combined.
874	3/2$^+$,5/2$^+$	2	0.56	See comments with 849 level.
964	1/2$^+$	0	0.41	

† From Adopted Levels.
‡ From DWBA analysis of angular distributions.
# From DWBA analysis, with C^{2}S=(2J+1) × (dσ/dΩ)exp/(N (dσ/dΩ)(DWBA)) where N=2.95; uncertainties are large, except for the ±5% attributed to relative values for states corresponding to the same proton single-particle orbital.
@ If σ(695)/σ(712) is assumed to be same as in (t,α).

^{194}Pt(pol t,α), (t,α) 1983Ci01,1978Ya03

1983Ci01: E(t)=17 MeV (typical polarization of≈0.77), θ=10° to 45° (5° intervals); measured E(α) (Q3D mag spect, FWHM=18 keV), differential cross sections, angular distributions, analyzing powers. Compared results with predictions of the supersymmetry scheme in Ir-Pt nuclei.

1981Ci02: preliminary report by 1983Ci01.

1978Ya03: E(t)=15 MeV; measured E(α), σ; DWBA analysis.

^{193}Ir Levels

E(level)[†]	J$^{\pi}$[‡]	S_{lj}[#]	Comments
0.0	3/2$^+$	1.6	Ay(30°)=−0.69 *3*.
73.0[@&]	1/2^{+}[c]	0.5[e] *3*	
80.2[@&]	11/2$^-$	4.0[e]	
137.5 *30*	5/2^{+}[c]	0.12	Ay(30°)=−0.02 *11* (1983Ci01).
178 *3*	3/2$^+$	0.11	Ay(30°)=−0.26 *14* (1983Ci01).
298 *3*	7/2^{-}[c]	≈0.16	J$^{\pi}$: J=L+1/2; Ay=+0.39 *9* (1983Ci01).
357.8[@a]	7/2^{+}[c]	0.22[e]	
361.9[@a]	5/2$^+$	0.27[e]	
459 *3*	3/2$^+$	1.1	Ay(30°)=−0.52 *4* (1983Ci01).
558 *3*	5/2$^+$	1.8	Possibly includes unresolved 557.3 level. Ay(30°)=+0.31 *3*.
621 *3*	7/2^{+}[c]	0.45	J$^{\pi}$: J=L-1/2; Ay(30°)=−0.61 *9* (1983Ci01).
694 *3*	5/2$^+$	0.55	Ay(30°)=+0.30 *6* (1983Ci01).
712 *3*	3/2$^+$	0.33	Ay(30°)=−0.88 *5* (1983Ci01).
830 *3*			Ay(30°)=+0.12 *14* (1983Ci01).
849 *3*	5/2$^+$	0.91	Ay(30°)=+0.35 *4* (1983Ci01).
873 *3*			Ay(30°)=−0.14 *14* (1983Ci01).
970 *3*	(5/2$^+$)[d]		
975[b]	11/2$^-$	6.9	Ay(30°)=+0.31 *3* (1983Ci01).
1032 *10*			Ay(30°)=+0.21 *17* (1983Ci01).
1063 *10*			Ay(30°)≤−0.32 (1983Ci01).
1080 *5*			Ay(30°)=+0.18 *7* (1983Ci01).
1146 *10*			Complex peak; probably includes 1131.2, 1145.7, and 1163 levels seen in ^{193}Os decay (1978Ya03).
1202 *10*			
1250 *10*			
1285 *10*			
1344 *10*			
1398 *10*			
1504 *5*	(3/2$^+$)	0.22[f]	Ay(30°)=−0.16 *9* (1983Ci01).
1552 *10*			
1583 *10*			
1609 *5*			
1639 *5*			
1690 *5*			
1744 *5*			
1826 *5*			J$^{\pi}$: J=L+1/2; Ay(30°)=+0.06 *4* (1983Ci01).
1866 *5*			Ay(30°)=+0.18 *7* (1983Ci01).
1898 *5*			Ay(30°)=+0.25 *6* (1983Ci01).
1935 *5*	(5/2$^+$)	0.35[f]	Ay(30°)=+0.13 *7* (1983Ci01).

† From 1978Ya03, unless otherwise noted. Uncertainties are 3 keV for E(level)<1 MeV (5 keV for E(level)>1 MeV) for strongly populated levels (estimated by evaluator to be those with dσ/dΩ>10).

‡ From 1983Ci01, based on angular distribution and analyzing power, unless otherwise noted.

From DWBA analysis, with S_{lj}=(dσ/dΩ)exp/(N (dσ/dΩ)(DWBA)) where N=23 (1983Ci01); typical uncertainties are less than 20%.

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^{194}Pt(pol t,α), (t,α) 1983Ci01,1978Ya03 (continued)

^{193}Ir Levels (continued)

[@] Rounded-off value from Adopted Levels.
[&] E(level)=79 for unresolved 73.0 and 80.2 levels. Ay(30°)=+0.34 *3* for the doublet.
[a] E(level)=362 for unresolved 357.7 and 361.9 levels. Ay(30°)=+0.07 *7* for the doublet.
[b] From 1983Ci01.
[c] From Adopted Levels.
[d] From 1978Ya03.
[e] Strength extracted by determining individual values consistent with the analyzing powers and cross sections for complex peak.
[f] Strength obtained assuming the J^π value indicated.

(HI,xnγ) 2012Dr02

Beam=^{136}Xe, targets=^{186}W, ^{187}Re, ^{192}Os.

6.0 MeV/u ^{136}Xe pulsed beams, provided by the ATLAS facility at ANL, bombarded three different targets: enriched, metallic ^{186}W and ^{187}Re foils, ≈6 mg/cm^2 thick with 25 mg/cm^2 gold foil directly behind them and a pressed 44 mg/cm^2 enriched ^{192}Os target with a 10 mg/cm^2 gold foil behind it. Gamma rays detected by Gammasphere array (100 HPGe Compton-suppressed Ge detectors). Measured Eγ, Iγ, γγγ coin, γγ(t), γγ(θ). Deduced level scheme, Jπ, $T_{1/2}$, total conversion coefficients and multipolarity.

^{193}Ir Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	3/2+		Jπ: From Adopted Levels. configuration: π(3/2+[402]).
80.238# *6*	11/2−	10.53 d *4*	%IT=100 E(level),$T_{1/2}$: from Adopted Levels. configuration: π(11/2−[505]).
469.4@ *5*	13/2−		
479.1# *5*	15/2−		
928.4@ *5*	17/2−		
1024.6# *5*	19/2−		
1526.1 *6*	21/2−		
1590.9@ *6*	21/2−		
1713.5# *6*	23/2−		
1727.0 *6*	23/2−,25/2−		
1822.1 *6*	(23/2)		
1843.8 *7*	(23/2)		
1892.5 *6*	25/2−		
1942.8 *7*	25/2−,27/2−		
2050.8 *7*	27/2−		
2230.3 *7*	(29/2+)		
2277.4 *7*	31/2+	124.8 μs *21*	%IT=100 $T_{1/2}$: from γ(t) (2012Dr02). configuration: possible ν(9/2−[505],11/2+[615])⊗π(11/2−[505]).

† From a least-squares fit to Eγ.
‡ From 2012Dr02, unless otherwise stated.
# Band(A): Member of the π$h_{11/2}$ band, α=−1/2.
@ Band(B): Member of the π$h_{11/2}$ band, α=+1/2.

γ(^{193}Ir)

Eγ†	Iγ†	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.‡	α@	Comments
(10§ *1*)		479.1	15/2−	469.4	13/2−			
(47.2§ *10*)	406 *12*	2277.4	31/2+	2230.3	(29/2+)	[M1]	9.8 *4*	Iγ: inferred in 2012Dr02, from total intensity balance and total electron conversion coefficient.
(49§ *1*)		1892.5	25/2−	1843.8	(23/2)			
(50§ *1*)		1942.8	25/2−,27/2−	1892.5	25/2−			
(71§ *1*)		1892.5	25/2−	1822.1	(23/2)			
96.0 *5*		1024.6	19/2−	928.4	17/2−			
120.7 *5*		1942.8	25/2−,27/2−	1822.1	(23/2)			

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(HI,xnγ) 2012Dr02 (continued)

γ(^{193}Ir) (continued)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	α@	Comments
136.0 *5*		1727.0	23/2⁻,25/2⁻	1590.9	21/2⁻	M1+E2		Mult.: α(exp)=1.79 *11* gives δ=1.35 *25*.
158.3 *5*		2050.8	27/2⁻	1892.5	25/2⁻	M1		Mult.: α(exp)=1.60 *30*.
165.3 *5*		1892.5	25/2⁻	1727.0	23/2⁻,25/2⁻	M1		Mult.: α(exp)=1.96 *32*.
178.9 *5*		1892.5	25/2⁻	1713.5	23/2⁻	E2		Mult.: α(exp)=0.48 *19*.
187.3 *5*		1713.5	23/2⁻	1526.1	21/2⁻			
200.9 *5*		1727.0	23/2⁻,25/2⁻	1526.1	21/2⁻	(E2)		Mult.: α(exp)=0.24 *6*.
215.8 *5*		1942.8	25/2⁻,27/2⁻	1727.0	23/2⁻,25/2⁻	M1+E2		Mult.: α(exp)=0.44 *12* gives δ=1.2 *5*.
226.7 *5*	1715 *51*	2277.4	31/2⁺	2050.8	27/2⁻	M2	2.81 *5*	Mult.: α(exp)=3.30 *20*.
231.3 *5*		1822.1	(23/2)	1590.9	21/2⁻			
323.9 *5*		2050.8	27/2⁻	1727.0	23/2⁻,25/2⁻	(E2)		Mult.: α(exp)=0.02 *12*.
334.5 *5*	4153 *57*	2277.4	31/2⁺	1942.8	25/2⁻,27/2⁻	(E3)	0.303	Mult.: α(exp)=0.31 *7*.
337.8 *5*		2230.3	(29/2⁺)	1892.5	25/2⁻	M2		Mult.: α(exp)=0.68 *16*.
385.0 *5*	389 *44*	2277.4	31/2⁺	1892.5	25/2⁻	[E3]	0.179	
389.1 *5*		469.4	13/2⁻	80.238	11/2⁻			
398.9 *5*		479.1	15/2⁻	80.238	11/2⁻			
449.3 *5*		928.4	17/2⁻	479.1	15/2⁻	D+Q&		
458.8 *5*		928.4	17/2⁻	469.4	13/2⁻			
501.3 *5*		1526.1	21/2⁻	1024.6	19/2⁻	D+Q&		
503.3 *5*		2230.3	(29/2⁺)	1727.0	23/2⁻,25/2⁻			
545.7 *5*		1024.6	19/2⁻	479.1	15/2⁻	Q&		
566.3 *5*		1590.9	21/2⁻	1024.6	19/2⁻	D+Q&		
597.7 *5*		1526.1	21/2⁻	928.4	17/2⁻			
662.7 *5*		1590.9	21/2⁻	928.4	17/2⁻			
688.8 *5*		1713.5	23/2⁻	1024.6	19/2⁻	Q&		
797.4 *5*		1822.1	(23/2)	1024.6	19/2⁻			
819.2 *5*		1843.8	(23/2)	1024.6	19/2⁻			

† From 2012Dr02. ΔEγ were estimated by the evaluator.

‡ From total electron conversion coefficients, unless otherwise stated. A list of numerical values of the total electron conversion coefficients corresponding to those presented in figure 3 of 2012Dr02 was received from the first author (G.D. Dracoulis) on Feb. 28, 2012. These values are listed under comments.

§ Implied by γγ coincidences, but not observed directly.

& From γγ(θ) in 2012Dr02.

@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

Q(β^-)=−1075 *9*; S(n)=6262.5 *23*; S(p)=6933.0 *4*; Q(α)=2082.2 *12* 2017Wa10
Effect of chemical composition of source on half-life: 1977Do07, theory; 1968Ma51 observed 4 *2* % variation from Au to $AuCl_3$ matrix in 1.64 keV level half-life (effect surprisingly large according to 1972Ra38).
Other reactions:
^{196}Pt(n,xnypγ) (2001Ta31): E(n)=1-250 MeV. White spectrum spallation neutron source; prompt γ-rays measured with Compton-suppressed HPGe detectors.
^{194}Pt(^{12}C,^{13}C) (2001Sh20): E=55-73 MeV. Measured fusion and transfer cross-sections.

^{193}Pt Levels

Cross Reference (XREF) Flags

A	^{193}Pt IT decay (4.33 d)	F	^{194}Pt(p,d), (d,t)
B	^{193}Au ε decay (17.65 h)	G	^{194}Pt(^{3}He,α)
C	^{193}Au ε decay (3.9 s)	H	^{195}Pt(p,t)
D	^{192}Os(α,3nγ)		
E	^{192}Pt(n,γ) E=res		

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0	1/2⁻	50[@] y *6*	ABCDEF H	%ε=100 μ=+0.603 *8* J$^\pi$: L=0 in ^{195}Pt(p,t). $T_{1/2}$: weighted average of 49 y *6* (1971Ra18) and 64 y *20* (1971Ho17) others: 1953Sw20 (no value reported), 1969Ho14 – partial half-life for L capture: 620 y *250*, μ: Resonance ionization mass spectroscopy (1992Hi07). Isotope shift: $\Delta<r^2>=-0.047$ fm^2 7 (relative to ^{194}Pt) (1992Hi07). $\sqrt{<r^2>}$=5.420 fm *3* (2004An14).
1.642 *2*	3/2⁻	9.7 ns *3*	ABCD F H	J$^\pi$: M1+E2 γ from 5/2⁻ 14.3 level, M1 γ to 1/2⁻. $T_{1/2}$: from ^{193}Au ε decay (17.65 h).
14.276 *8*	5/2⁻	2.52 ns *5*	ABCD FGH	J$^\pi$: M1+E2 γ from 3/2⁻; L=3,4 in ^{194}Pt(^{3}He,α). $T_{1/2}$: from ^{193}Au ε decay (17.65 h) (1968Ma51).
114.158 *8*	3/2⁻		B F h	J$^\pi$: M1+E2 γ to 1/2⁻.
121.29 *3*	1/2⁻,3/2⁻,5/2⁻		B F h	J$^\pi$: M1 γ to 3/2⁻ 1.64 level.
149.78[&] *4*	13/2⁺	4.33 d *3*	A CD FGH	%IT=100 μ=(−)0.753 *15* (2014StZZ,1986Sc04) μ: x-ray detection of nuclear magnetic resonance (1985Sc15,1986Sc04); negative sign suggested by systematics. J$^\pi$: M4 γ to 5/2⁻ 14.3 level. $T_{1/2}$: from IT decay (1949Wi08).
187.81 *2*	3/2⁻		B EF H	J$^\pi$: primary E1 γ from 1/2⁺ in ^{192}Pt(n,γ) E=res; L=2 in ^{195}Pt(p,t).
199.0[a] *2*	(11/2⁺)		D	J$^\pi$: 49.2γ to 13/2⁺ level, 320 Q from (15/2⁺).
232.16 *2*	(5/2)⁻		B F H	J$^\pi$: M1 γ's to 3/2⁻ 114.2 and 187.8 levels; L=(3) in ^{194}Pt(p,d), (d,t); L=2 from ^{195}Pt(p,t).
269.83 *2*	3/2⁻		B F H	J$^\pi$: M1+E2 γ to 5/2⁻ 14.3 level; L=1 in (p,d).
308 *3*			F	J$^\pi$: L=(4,5) in ^{194}Pt(p,d), (d,t).
331 *10*			G	J$^\pi$: L=5,6 in ^{194}Pt(^{3}He,α).
340 *3*			F H	J$^\pi$: L=(4,5) in ^{194}Pt(p,d), (d,t).
415 *3*	5/2⁻,7/2⁻		Fg	XREF: g(420). J$^\pi$: L=3 in ^{194}Pt(p,d), (d,t).
425 *3*	5/2⁻,7/2⁻		FgH	XREF: g(420). J$^\pi$: L=3 in ^{194}Pt(p,d), (d,t).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Pt Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
434 *3*	(5/2⁻,7/2⁻)	F	J^{π}: L=3 in ^{194}Pt(p,d), (d,t).
439.05 *3*	(3/2)⁻	B F	J^{π}: M1 γ to 1/2⁻ g.s., (M1) γ to 5/2⁻ 14.3 level.
459 *3*	(5/2⁻,7/2⁻)	F H	XREF: H(462). J^{π}: L=(3) in ^{194}Pt(p,d), (d,t).
491.0[&] *2*	(17/2⁺)	D g	XREF: g(484). J^{π}: Q γ to 13/2⁺ level; band structure.
491.24 *2*	(5/2)⁻	B FgH	XREF: g(484). J^{π}: M1+E2 γ to 3/2⁻ 114.2 levels; L=(3) in ^{194}Pt(p,d), (d,t).
519.6[a] *1*	(15/2⁺)	D	J^{π}: Q γ to (11/2⁺) level, D+Q γ to 13/2⁺ level; band structure.
522.53 *8*	(3/2⁻,5/2⁻)	B	J^{π}: (M1) γ to (5/2)⁻ level; (E2) γ to g.s..
530 *3*	1/2⁻,3/2⁻	EF H	XREF: E(544). J^{π}: L=1 in ^{194}Pt(p,d), (d,t). Possibly same as the 522.5 level seen in ^{193}Au ε decay (17.65 h).
544 *3*	(5/2⁻,7/2⁻)	F	L=(3) in ^{194}Pt(p,d), (d,t).
563 *3*	1/2⁻,3/2⁻	F	J^{π}: L=1 in ^{194}Pt(p,d), (d,t).
599 *3*	5/2⁻,7/2⁻	FGH	J^{π}: L=3 in ^{194}Pt(p,d), (d,t) and ^{194}Pt(^{3}He,α).
603.3 *1*	(15/2⁺)	D	J^{π}: D+Q γ γ to 13/2⁺ level.
622 *4*		H	
630 *5*	5/2⁻,7/2⁻	F	J^{π}: L=3 in ^{194}Pt(p,d), (d,t).
642 *4*		H	
665 *3*	11/2⁺,13/2⁺	FG	XREF: F(675). J^{π}: L=6 in ^{194}Pt(p,d), (d,t).
692 *3*	(11/2⁺,13/2⁺)	F	J^{π}: L=(6) in ^{194}Pt(p,d), (d,t).
700	1/2⁻,3/2⁻	E h	J^{π}: primary E1 γ from 1/2⁺ in ^{192}Pt(n,γ) E=res.
701 *5*	(5/2⁻,7/2⁻)	F h	J^{π}: L=(3) in ^{194}Pt(p,d), (d,t).
718 *4*	(1/2⁺)	F	J^{π}: L=(0) in ^{194}Pt(p,d), (d,t).
728 *5*	5/2⁻,7/2⁻	FGH	J^{π}: L=3 in ^{194}Pt(p,d), (d,t).
755 *5*	5/2⁻,7/2⁻	F H	J^{π}: L=3 in ^{194}Pt(p,d), (d,t).
828 *4*	(5/2⁻,7/2⁻)	FGH	XREF: F(830)G(819). J^{π}: L=(3) in ^{194}Pt(p,d), (d,t).
846 *5*	3/2⁻	F H	J^{π}: L=1 in ^{194}Pt(p,d), (d,t); L=2 in ^{195}Pt(p,t).
907.4 *2*	(17/2⁺)[#]	D	J^{π}: D+Q γ's to (15/2⁺) levels, γ to (17/2⁺) level.
923 *5*	3/2⁻	F H	J^{π}: L=1 in ^{194}Pt(p,d), (d,t); L=2 in ^{195}Pt(p,t).
969 *10*		F	
980.5[a] *2*	(19/2⁺)	D	J^{π}: Q γ to (15/2⁺) level; band structure.
984 *4*		H	
1003.4[&] *4*	(21/2⁺)	D	J^{π}: cascading γ to (17/2⁺) level; band structure.
1014 *5*		F	J^{π}: L=(4,5) in ^{194}Pt(p,d), (d,t).
1021 *10*		G	J^{π}: L=5,6 in ^{194}Pt(^{3}He,α).
1042 *5*	11/2⁺,13/2⁺	F	J^{π}: L=6 in ^{194}Pt(p,d), (d,t).
1053 *8*		H	
1069 *10*	(5/2⁻,7/2⁻)	F	J^{π}: L=(3) in ^{194}Pt(p,d), (d,t).
1099 *5*	(5/2⁻,7/2⁻)	FGH	J^{π}: L=(3) in ^{194}Pt(p,d), (d,t).
1103.5 *4*	(⁺)	D	J^{π}: D+Q γ to (15/2⁺) level.
1130 *10*	(5/2⁻,7/2⁻)	F	J^{π}: L=(3) in ^{194}Pt(p,d), (d,t).
1159.9 *2*	(19/2⁺)[#]	D	J^{π}: (Q) γ's to (15/2⁺) levels, D+Q γ to (17/2⁺) level.
1168 *10*	(1/2⁻,3/2⁻)	F	J^{π}: L=(1) in ^{194}Pt(p,d), (d,t).
1182 *8*	(3/2)⁻	f h	E(level): from ^{195}Pt(p,t). J^{π}: L=2 in ^{195}Pt(p,t); the level at 1188 seen in ^{194}Pt(p,d) is a doublet with L=1 for at least one member of doublet.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Pt Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
1188 *5*			f h	E(level): from ^{195}Pt(p,t). Member of unresolved doublet.
1219 *10*			Gh	J^{π}: L=3,4 in ^{194}Pt(^{3}He,α).
1222 *5*	1/2$^-$,3/2$^-$		F h	J^{π}: unresolved doublet; L=1 for one member of doublet in ^{194}Pt(p,d).
1245 *5*	(5/2$^-$,7/2$^-$)		F H	J^{π}: L=(3) in ^{194}Pt(p,d), (d,t).
1259 *10*			F H	XREF: H(1265).
1320 *5*	5/2$^-$,7/2$^-$		F	J^{π}: unresolved doublet; L=3 for one member of doublet in ^{194}Pt(p,d).
1320 *5*	1/2$^-$,3/2$^-$		F	J^{π}: unresolved doublet; L=1 for one member of doublet in ^{194}Pt(p,d).
1320.9[b] *2*	(21/2$^-$)		D	J^{π}: γ's to (19/2$^+$) levels; band structure.
1333 *8*			H	
1359 *4*	11/2$^+$,13/2$^+$		FG	XREF: G(1337). E(level): From (p,d). J^{π}: L=6 in ^{194}Pt(p,d) and ^{194}Pt(^{3}He,α).
1364 *8*			H	
1425 *8*			H	
1442 *10*			G	
1454.8[b] *3*	(25/2$^-$)	3.2 ns *3*	D	J^{π}: (E2) γ to (21/2$^-$) level; band structure. $T_{1/2}$: from ^{192}Os(α,3nγ).
1457 *8*	1/2$^-$		H	J^{π}: L=0 in ^{195}Pt(p,t).
1510.4 *3*			D	J^{π}: γ to (21/2$^-$) level.
1534 *8*	1/2$^-$		H	J^{π}: L=0 in ^{195}Pt(p,t).
1557 *8*	1/2$^-$		H	J^{π}: L=0 in ^{195}Pt(p,t).
1561 *10*			G	J^{π}: L=3,4 in ^{194}Pt(^{3}He,α).
1585 *8*	1/2$^-$,3/2$^-$		E H	XREF: E(1591). J^{π}: primary E1 γ from 1/2$^+$ in ^{192}Pt(n,γ) E=res.
1610 *8*			H	
1631.8[&] *4*	(25/2$^+$)		D	J^{π}: Q γ to (21/2$^+$) level; band structure.
1668 *10*			G	J^{π}: L=4,5 in ^{194}Pt(^{3}He,α).
1689.9[b] *3*	(27/2$^-$)		D	J^{π}: D γ to (25/2$^-$) level; band structure.
1744 *10*	5/2$^-$,7/2$^-$		G	J^{π}: L=3 in ^{194}Pt(p,d).
1776.9 *4*			D	
1913 *10*			G	
1986.7? *4*			D	
1992.2[b] *3*	(29/2$^-$)		D	J^{π}: Q γ to (25/2$^-$), γ to (27/2$^-$); band structure.
2335.2[&] *5*	(29/2$^+$)		D	J^{π}: Q γ to (25/2$^+$) level; band structure.
2337 *10*			G	
2696.2[&] *6*	(33/2$^+$)		D	J^{π}: Q γ to (29/2$^+$) level: band structure.
3129.2[&] *6*	(37/2$^+$)		D	J^{π}: γ to (33/2$^+$) level; band structure.

[†] From least-squares fit to Eγ for levels seen in ^{193}Au ε decays, ^{193}Pt IT decay or ^{193}Os(α,3nγ) reaction. From ^{194}Pt(p,d), (d,t) for levels seen in particle reaction, unless otherwise noted, or where XREF clearly indicates other source.

[‡] Band assignments and descriptions are from 1977Sa01.

[#] Monotonically-increasing J^{π} sequence is suggested by cascades of coincident E2 and M1+E2 γ's in ^{192}Os(α,3nγ), decaying to the 13/2$^+$ 149.8 level.

[@] Both measurements are specific activity measurements and are based on $T_{1/2}(\varepsilon L)$ deduced from I(L x ray). $T_{1/2}(\varepsilon L)$=73 y *9* (1971Ra18) and 94 y *30* (1971Ho17), remeasurement by authors of 1969Ho14. The evaluator has calculated $T_{1/2}$ using $\varepsilon L/\varepsilon$=0.6761, the value for adopted Q+=56.6 keV.

[&] Band(A): i13/2 favored decoupled band. Configuration=(ν $i_{13/2}$1).

[a] Band(B): (J-1) unfavored decoupled band. Configuration=(ν $i_{13/2}$1).

[b] Band(C): 21/2$^-$ semidecoupled band. Position and spacing are similar to corresponding band structure in other odd-mass Pt and Hg nuclei. These bands are related to the 5$^-$ bands in neighboring even-mass nuclei.

$\gamma(^{193}Pt)$

All γ data are from ^{193}Au ε decay (17.65 h), unless otherwise noted.
1990Pi08: measured relative K x ray intensities.

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.	δ[§]	α[&]	Comments
1.642	3/2⁻	1.642 *2*	100	0.0	1/2⁻	M1		3116	B(M1)(W.u.)=0.165 *6* α: From Bricc. Note 1.642 keV *2* γ energy is within 1 keV to the N1-shell binding energy of 0.723 keV. Others: 12000 (1991Ba63), 4010 (1978Ro21).
14.276	5/2⁻	12.634 *8*	100	1.642	3/2⁻	M1+E2	0.015 *+3−4*	142 *8*	B(M1)(W.u.)=0.0303 *18*; B(E2)(W.u.)=17 *7*
114.158	3/2⁻	99.88 *4*	6.9 *5*	14.276	5/2⁻	M1+E2	0.87 *3*	5.93	
		112.515 *10*	100 *4*	1.642	3/2⁻	M1+E2	0.36 *2*	4.56	
		114.155 *13*	32 *6*	0.0	1/2⁻	M1+E2	0.48 *4*	4.24 *8*	
121.29	1/2⁻,3/2⁻,5/2⁻	119.64 *3*	100	1.642	3/2⁻	M1		3.99	
149.78	13/2⁺	135.50 *3*	100	14.276	5/2⁻	M4		872	B(M4)(W.u.)=1.130 *18* E_γ,Mult.: From ^{193}Pt IT decay.
187.81	3/2⁻	73.62 *3*	1.1 *2*	114.158	3/2⁻	(M1)		2.88	
		173.52 *5*	29	14.276	5/2⁻	M1+E2	0.355 *21*	1.300 *21*	
		186.17 *3*	100 *6*	1.642	3/2⁻	M1+E2	0.32 *4*	1.078 *22*	
		187.83 *4*	9 *4*	0.0	1/2⁻	(M1+E2)		0.8 *4*	
199.0	(11/2⁺)	49.2[‡]	100	149.78	13/2⁺				
232.16	(5/2)⁻	44.33 *3*	11.6 *9*	187.81	3/2⁻	M1		12.76	
		117.99 *2*	100 *16*	114.158	3/2⁻	M1		4.15	
		230.50 *7*	96 *10*	1.642	3/2⁻	(E2)		0.224	
		232.18 *6*	96 *10*	0.0	1/2⁻	E2		0.219	
269.83	3/2⁻	37.65 *3*	0.33 *2*	232.16	(5/2)⁻	M1+E2	0.042 *+12−13*	21.4 *6*	
		155.68 *4*	5.2 *13*	114.158	3/2⁻	M1		1.89	
		255.57 *4*	100 *9*	14.276	5/2⁻	M1+E2	0.41 *7*	0.428 *15*	Measured prompt production in ^{196}Pt reaction with 1-250 MeV spallation neutrons (2001Ta31).
		268.22 *5*	58 *5*	1.642	3/2⁻	M1+E2	1.3 *3*	0.24 *4*	
		269.84 *5*	13 *3*	0.0	1/2⁻	E2		0.1358	
439.05	(3/2)⁻	206.85 *6*	4.7 *11*	232.16	(5/2)⁻	(M1)		0.850	
		251.4 *5*	14 *6*	187.81	3/2⁻				
		317.73 *7*	12 *3*	121.29	1/2⁻,3/2⁻,5/2⁻	(M1)		0.261	
		324.89 *5*	18 *3*	114.158	3/2⁻	M1		0.246	
		424.76 *12*	7.9 *15*	14.276	5/2⁻	(M1)		0.1199	
		437.41 *8*	26 *5*	1.642	3/2⁻	M1		0.1109	
		439.04 *8*	100 *8*	0.0	1/2⁻	M1		0.1099	
491.0	(17/2⁺)	341.2[‡] *2*	100	149.78	13/2⁺	Q[‡]			

Adopted Levels, Gammas (continued)

$\gamma(^{193}Pt)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ†	E_f	J_f^π	Mult.	δ§	α&	Comments
491.24	(5/2)⁻	52.18 2	2.3 4	439.05	(3/2)⁻	M1		7.90	
		221.40 6	11 3	269.83	3/2⁻	M1+E2	1.7 +12−5	0.37 7	
		259.05 6	29 13	232.16	(5/2)⁻	M1		0.456	
		303.41 7	39 11	187.81	3/2⁻	(M1+E2)		0.20 10	
		377.10 3	73 10	114.158	3/2⁻	M1+E2	1.2 3	0.098 17	
		476.98 9	67 13	14.276	5/2⁻	(E2)		0.0278	
		489.61 12	33 7	1.642	3/2⁻	(M1)		0.0824	
		491.28 12	100 17	0.0	1/2⁻				
519.6	(15/2⁺)	320.6‡ 1	100‡ 7	199.0	(11/2⁺)	Q‡			
		369.8‡ 1	27.7‡ 19	149.78	13/2⁺	D+Q‡			
522.53	(3/2⁻,5/2⁻)	290.33 10	67 27	232.16	(5/2)⁻	(M1)		0.334	
		334.7 3	49 29	187.81	3/2⁻				
		408.4 2	100 20	114.158	3/2⁻	(M1,E2)		0.09 5	
		508.26 20	42 11	14.276	5/2⁻	(M1+E2)		0.05 3	
		520.97 25	60 13	1.642	3/2⁻	(E2)		0.0224	
		522.66 25	56 11	0.0	1/2⁻	(E2)		0.0222	
603.3	(15/2⁺)	453.5‡ 1	100	149.78	13/2⁺	D+Q‡			
907.4	(17/2⁺)	304.0‡ 2	74‡ 10	603.3	(15/2⁺)	D+Q‡			
		387.9‡ 2	84‡ 12	519.6	(15/2⁺)	D+Q‡			
		416.5‡ 2	100‡ 14	491.0	(17/2⁺)				
980.5	(19/2⁺)	377.3‡ 2	11.6‡ 14	603.3	(15/2⁺)	Q‡			
		461.0‡ 1	100‡ 7	519.6	(15/2⁺)	Q‡			
		489.5‡ 1	69‡ 6	491.0	(17/2⁺)	D+Q‡			
1003.4	(21/2⁺)	512.4‡ 3	100	491.0	(17/2⁺)				
1103.5	(⁺)	500.2‡ 3	100	603.3	(15/2⁺)	D+Q‡			
1159.9	(19/2⁺)	556.5‡ 3	66‡ 9	603.3	(15/2⁺)	(Q)‡			
		640.2‡ 4	29‡ 6	519.6	(15/2⁺)	(Q)‡			
		669.1‡ 3	100‡ 15	491.0	(17/2⁺)	D+Q‡			
1320.9	(21/2⁻)	161.0‡ 2	12.8‡ 12	1159.9	(19/2⁺)				
		340.3‡ 2	100‡ 10	980.5	(19/2⁺)				
1454.8	(25/2⁻)	133.9‡ 2	100	1320.9	(21/2⁻)	(E2)		1.532	B(E2)(W.u.)=24.5 24 Mult.: From (HI,xnγ) and RUL.
1510.4		189.5‡ 2	100	1320.9	(21/2⁻)				
1631.8	(25/2⁺)	628.4‡ 2	100	1003.4	(21/2⁺)	Q‡			
1689.9	(27/2⁻)	235.2‡ 1	100	1454.8	(25/2⁻)	D‡			
1776.9		266.5‡ 3	100	1510.4		(Q)‡			
1986.7?		296.8‡@ 3	100	1689.9	(27/2⁻)				

$^{193}_{78}Pt_{115}$-5

$\gamma(^{193}Pt)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ †	E_f	J_f^π	Mult.
1992.2	(29/2⁻)	302.3‡ *2*	16‡ *3*	1689.9	(27/2⁻)	
		537.4‡ *2*	100‡ *12*	1454.8	(25/2⁻)	Q‡
2335.2	(29/2⁺)	703.4‡ *3*	100	1631.8	(25/2⁺)	Q‡
2696.2	(33/2⁺)	361.0‡ *3*	100	2335.2	(29/2⁺)	Q‡
3129.2	(37/2⁺)	433.0‡ *3*	100	2696.2	(33/2⁺)	

† Relative photon branching from level.

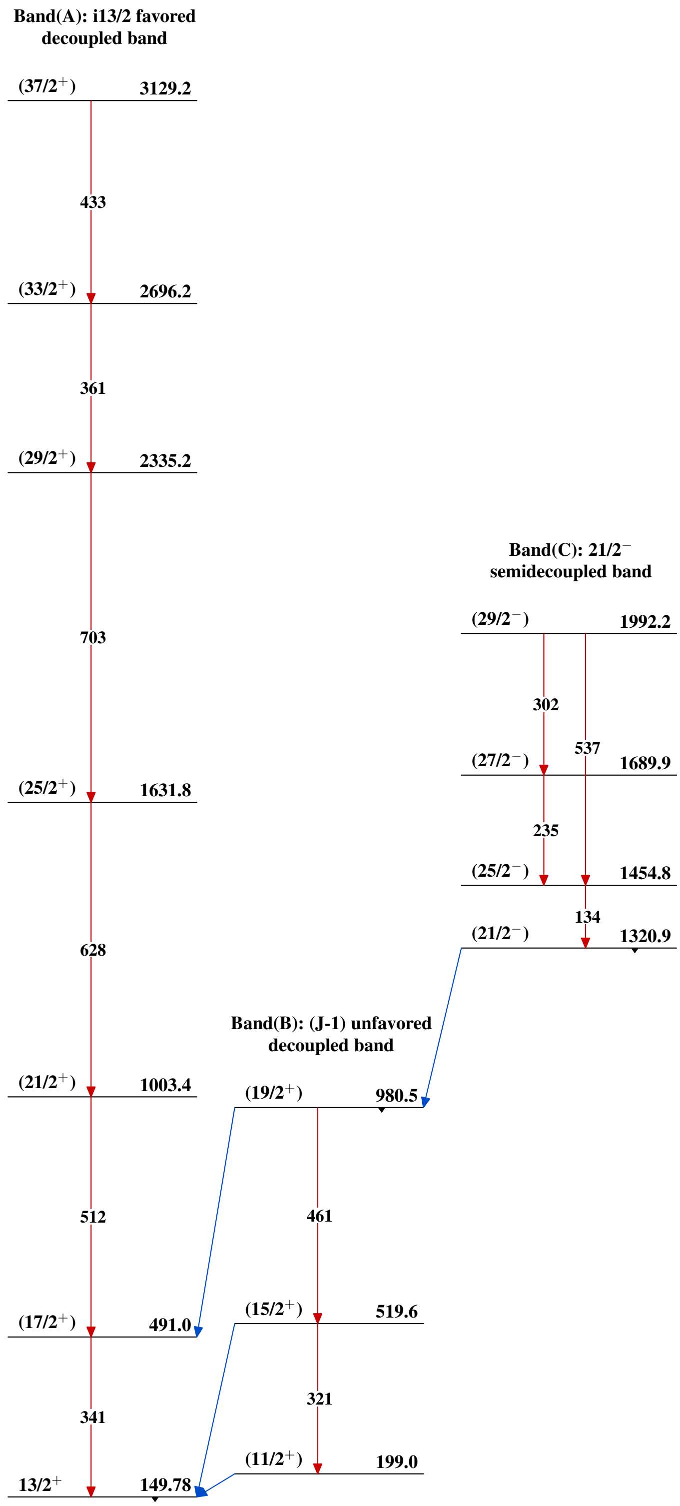
‡ From ^{192}Os(α,3nγ).

§ If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

& Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

@ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas



$^{193}_{78}Pt_{115}$

^{193}Pt IT decay (4.33 d) 1968Sv01

Parent: ^{193}Pt: E=149.78 *3*; J^π=13/2$^+$; $T_{1/2}$=4.33 d *3*; %IT decay=100
1968Sv01: sources from Pt(p,xn), E(p)=35 MeV, chem; measured E(ce), Ice (mag spect).
Others: 1953Sw20, 1954Co29, 1954Gi04, 1955Br41, 1957Ew34, 1960Ma28, 1961Kr02, 1989ViZT.

^{193}Pt Levels

E(level)	J^π †	$T_{1/2}$ ‡	Comments
0.0	1/2$^-$	50 y *6*	
1.642 *2*	3/2$^-$	9.7 ns *3*	
14.276 *8*	5/2$^-$	2.52 ns *5*	
149.78 *3*	13/2$^+$	4.33 d *3*	%IT=100 $T_{1/2}$: from 1949Wi08; however, they saw also a 170γ and an 1.5 MeV γ, obviously from some impurity. Other values: 4.5 d *2* (1953Sw20), 3.35 d *10* (1954Co29), 3.5 d *4* (1955Br41), 4.4 d *2* (1957Ew34).

† From Adopted Levels.
‡ From Adopted Levels, unless otherwise noted.

γ(^{193}Pt)

I(γ+ce) normalization: From I(γ+ce)(135.50γ)=100%.

E_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ	α @	$I_{(\gamma+ce)}$ ‡&	Comments
1.642§ *2*	1.642	3/2$^-$	0.0	1/2$^-$	M1§		3116	100	α: From Bricc. Note 1.642γ is within 1 keV to the N1-shell binding energy of 0.723 keV. Others: 12000 (1991Ba63), 4010 (1978Ro21).
12.634§ *8*	14.276	5/2$^-$	1.642	3/2$^-$	M1+E2§	0.015§ *+3−4*	142 *8*	100	
135.50 *3*	149.78	13/2$^+$	14.276	5/2$^-$	M4		872	100	E_γ: from 1968Sv01. Mult.: α(K)exp=135 *11* (measured I(x ray)/Iγ (1976Sa22)); K/L=0.198 *15*, L1/L2=4.6 *4*, L1/L3=0.46 *3* (1968Sv01); theory: α(K)(M4)=137, K/L=0.26, L1/L2=4.40, L1/L3=0.466. Others: K:L1:L2:L3=58:48:15:100 (1962Ha24); K:L1:L3:(M+n)=10:14:29:15 (1957Ew34). Competing crossover transition not seen (1957Ew34).

† Deduced from E(ce) measurements. Calibration: KL_1L_1 and KL_2L_3 Auger lines in Pt, E(ce(K)) 316γ in ^{192}Pt (E(ce(K))=238.087 *10*), ThC a line (E(ce)=24.509) and ThB f line (E(ce)=148.108).
‡ From intensity balance in level scheme.
§ From ^{193}Au ε decay (17.65 h).
& Absolute intensity per 100 decays.

Continued on next page (footnotes at end of table)

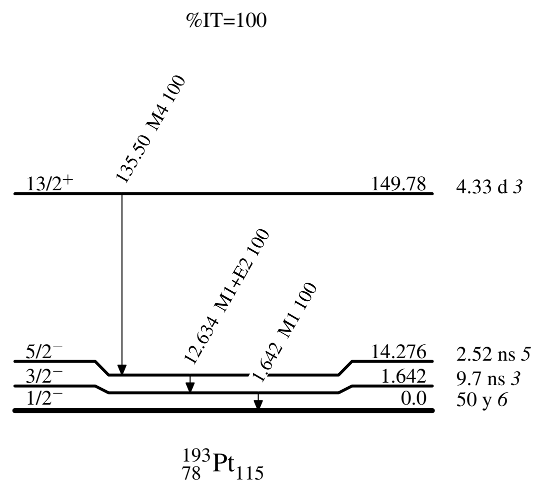
^{193}Pt IT decay (4.33 d) 1968Sv01 (continued)

$\gamma(^{193}Pt)$ (continued)

@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{193}Pt IT decay (4.33 d) 1968Sv01

Decay Scheme



^{193}Au ε decay (17.65 h) 1968Sv01,1970Pl02

Parent: ^{193}Au: E=0.0; J^π=3/2$^+$; $T_{1/2}$=17.65 h *15*; Q(ε)=1075 *9*; %ε+%β^+ decay=100
1970Pl02: sources from spallation of Pb by 680-MeV protons, chem; measured Eγ, Iγ (Ge(Li)).
1968Sv01: sources from Pt(p,xn), E(p)=35 MeV; measured E(ce), Ice (mag spect). (preliminary report 1967Jo14).
1957Ew34: measured $\gamma\gamma$, ceγ.
Others: 1954Gi04, 1962Ma18, 1976Di15, 1976ViZM.

^{193}Pt Levels

E(level)†	J^π†	$T_{1/2}$	Comments
0.0	1/2$^-$	50 y *6*	$T_{1/2}$: From Adopted Levels.
1.642 *2*	3/2$^-$	9.7 ns *3*	$T_{1/2}$: (ce)(ce)(t) with metallic gold source; $T_{1/2}$ is 4% longer when measured with a gold chloride source (1968Ma51). See 1977Do07 for a discussion of this and related phenomena.
14.276 *8*	5/2$^-$	2.52 ns *5*	$T_{1/2}$: (ce)(ce)(t) (1968Ma51). Other value: 2.2 ns *8* (1957Ew34).
114.158 *8*	3/2$^-$		
121.29 *3*	1/2$^-$,3/2$^-$,5/2$^-$		
187.81 *2*	3/2$^-$		
232.16 *2*	(5/2)$^-$		
269.83 *2*	(3/2)$^-$		
439.05 *3*	(3/2)$^-$		
491.24 *2*	(5/2)$^-$		
522.53 *7*	(3/2$^-$,5/2$^-$)		

† From Adopted Levels.

ε,β^+ radiations

1976Di15 report two β^+ groups with E(max.)=320 *30* and 150 *20*. The higher group gives Q+=1340 *30*, inconsistent with the adjusted Q+=1075 *9* from 2017Wa10. However, since the observed groups are inner groups in the FK plot in a combined β^+ spectrum from ^{193}Hg + ^{193}Au decay, it is possible that the energy and/or the nuclear assignment of these groups could be in error.
No $\gamma^\pm$ seen, Iβ^+<0.08% (1957Ew34).

E(decay)	E(level)	Iε#	Log *ft*	I($\varepsilon+\beta^+$)†#
(552 *9*)	522.53	0.51 *10*	7.89 *9*	0.51 *10*
(584 *9*)	491.24	2.7 *4*	7.22 *7*	2.7 *4*
(636 *9*)	439.05	3.7 *5*	7.17 *6*	3.7 *5*
(805 *9*)	269.83	15.7 *20*	6.77 *6*	15.7 *20*
(843 *9*)	232.16	3.8 *7*	7.43 *8*	3.8 *7*
(887 *9*)	187.81	26 *4*	6.64 *7*	26 *4*
(954 *9*)	121.29	0.6 *3*	8.34 *22*	0.6 *3*
(961 *9*)	114.158	12.4 *18*	7.03 *7*	12.4 *18*
(1061 *9*)	14.276	20 *4*	6.92 *9*	20 *4*
(1073 *9*)	1.642			‡
(1075 *9*)	0.0	15 *6*	7.06 *18*	15‡ *6*

† From intensity imbalance at each level.
‡ Iε given for 0.0 level is a combined value for the 0.0 and 1.6 levels.
# Absolute intensity per 100 decays.

γ(^{193}Pt)

Iγ normalization: 1957Ew34 report %TI for several γ rays based on K conversion electron measurements per disintegration. Using %TI(186.17γ)=21.3 and %TI(173.52γ)=6.1, the evaluator deduced the normalization factor as an average. Mean number of K conversions per disintegration of ^{193}Au, 0.29 *3* (assuming ε(K)/ε=0.80), measured by 1957Ew34 is also used to obtain intensity per disintegration for relative conversion electron intensity reported in 1968Sv01 (in comments section).
All ce data are from 1968Sv01.
Unassigned ce-line: E(ce)=137.54 *10* Ice=0.8 *2* % of the 268 K ce intensity (1968Sv01).

$E_γ$[†]	$I_γ$[‡#]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[§]	δ[§@]	α[a]	$I_{(γ+ce)}$[#]	Comments
1.642 *2*		1.642	3/2⁻	0.0	1/2⁻	M1		3116		Mult.: N1/N2=5.5 *15*, N2/N3>3, N1/O1=1.5 *5* (1968Sv01). α: From BRICC. Others: 12000 (1991Ba63), 4010 (1978Ro21).
12.634 *8*	8.9 *11*	14.276	5/2⁻	1.642	3/2⁻	M1+E2	0.015 *+3−4*	142 *8*		Iγ: Deduced from Ice(M1)=2550 *330* (1968Sv01)*0.29=740 *95* and α(M1)=83.5 *12* (Bricc). Mult.,δ: From M1/M2=7.0 *10*, M2/M3=3.8 *10* (1968Sv01).
37.65 *3*	0.80 *8*	269.83	(3/2)⁻	232.16	(5/2)⁻	M1+E2	0.042 *+12−13*	21.4 *6*		Iγ: From Ice(L)/α(L). Where Ice(L)=L1+L2+L3=45.5 *41**0.29=13.2 *12*. Mult.,δ: From L1/L2=8.4 *8*, L1/L3>27.
44.33 *3*	2.2 *2*	232.16	(5/2)⁻	187.81	3/2⁻	M1		12.76		Mult.: From L1/L2=10.5 *10*, L1/L3>25 (1968Sv01). Iγ: From Ice(L1)=69 *6* (1968Sv01)*0.29=20 *2* and α(L1)=8.83 *13* (Bricc).
ˣ49.14 *3*	0.46 *6*					M1+E2	0.42 *2*	26.9 *15*		Iγ: deduced from Ice(L3)=3.3 *3* and α(L3)=7.2 *6* (Bricc). Mult.,δ: L1/L3=0.83 *6*, M1/M2=0.62 *11* (1968Sv01).
52.18 *2*	0.59 *9*	491.24	(5/2)⁻	439.05	(3/2)⁻	M1		7.90	5.7 *7*	Iγ: From Ice(L1)/α(L1). Where Ice(L1)=11.0 *16* (1968Sv01)*0.29=3.2 *5* and α(L1)=5.47 *8*. Mult.: From L1/L2=8 *4*, L1/L3>10 (1968Sv01).
73.62 *3*	4.0 *4*	187.81	3/2⁻	114.158	3/2⁻	(M1)		2.88		Iγ: From Ice(L1)=27.9 *25* (1968Sv01)*0.29=8.1 *7* and α(L1)=2.0 (Bricc). Mult.: From L1/L2=8.7 *15* (1968Sv01).
99.88 *4*	5.0 *8*	114.158	3/2⁻	14.276	5/2⁻	M1+E2	0.87 *3*	5.93		Mult.,δ: From K/L=1.1 *4*, L1/L2=0.68 *4*, L1/L3=0.86 *7* (1968Sv01). Iγ: From Ice(K)/α(K)(Bricc). Ice(K)=59 *9* (1968Sv01)*0.29=17.1 2.6.
ˣ110.28 *5*	22 *11*					(E1)		0.318		Iγ: Obtained by subtraction of Iγ(112.5γ) from Iγ(110.3γ+112.5γ)=102 *10*. Mult.: From α(K)exp=Ice(K)/Iγ=0.25 *13*.

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γ(^{193}Pt) (continued)

E_γ †	I_γ ‡#	E_i(level)	J^π_i	E_f	J^π_f	Mult.§	δ§@	α[a]	Comments
									Ice(K)=21 *4**0.29=6.1 *12*. Also K/L1=9.5 *28* (1968Sv01).
112.515 *10*	80 *5*	114.158	3/2⁻	1.642	3/2⁻	M1+E2	0.36 *2*	4.56	Mult.,δ: From K/L12=3.9 *5*, L1/L2=3.34 *15*, L1/M1=3.6 *7* (1968Sv01). I_γ: From Ice(K)/α(K)(BrIcc). Ice(K)=980 *60* (1968Sv01)*0.29=284 *17*.
114.155 *13*	27 *5*	114.158	3/2⁻	0.0	1/2⁻	M1+E2	0.48 *4*	4.24 *8*	Mult.: From α(K)exp=Ice(K)/Iγ=3.3 *7*. Ice(K)=312 *20**0.29=90 *6*. Also K/(L1+L3)=5.1 *10*, L1/L3=3.4 *6*, M1/M2=2.1 *5* (1968Sv01).
117.99 *2*	19 *3*	232.16	(5/2)⁻	114.158	3/2⁻	M1		4.15	Mult.: From α(K)exp=Ice(K)/Iγ=3.1 *5*. Ice(K)=205 *15**0.29=59 *4*. Also K/L12=5.2 *11*, L1/L2=9.7 *15* (1968Sv01).
119.64 *3*	6.3 *15*	121.29	1/2⁻,3/2⁻,5/2⁻	1.642	3/2⁻	M1		3.99	Mult.: From α(K)exp=Ice(K)/Iγ=2.7 *7*. Ice(K)=57.9 *45**0.29=16.8 *13*. Also K/L1=5.6 *25*, L1/L2>3.1, L1/M1=4.9 *21* (1968Sv01).
155.68 *4*	12 *3*	269.83	(3/2)⁻	114.158	3/2⁻	M1		1.89	Mult.: From α(K)exp=Ice(K)/Iγ=1.4 *3*. Ice(K)=58.5 *40**0.29=17.0 *12*. Also K/L12=5.3 *9*, L1/L2=10.9 *20*, L1/L3>5 (1968Sv01).
173.52 *5*	100	187.81	3/2⁻	14.276	5/2⁻	M1+E2	0.355 *21*	1.300 *21*	Mult.,δ: From K/L=5.2 *6*, L1/L2=5.0 *4*, L1/L3=14.4 *20* (1968Sv01).
ˣ180.0& *2*	2.1 *13*								
186.17 *3*	347 *20*	187.81	3/2⁻	1.642	3/2⁻	M1+E2	0.32 *4*	1.078 *22*	Mult.,δ: From α(K)exp=0.97 *9*, K/L12=5.2 *6*, L1/L2=5.9 *5*, L1/L3>11 (1968Sv01).
187.83 *4*	31 *12*	187.81	3/2⁻	0.0	1/2⁻	(M1+E2)		0.78 *34*	Mult.: From α(K)exp=Ice(K)/Iγ=0.30 *13*. Ice(K)=33 *6* (1968Sv01) *0.29.
206.85 *6*	3.1 *7*	439.05	(3/2)⁻	232.16	(5/2)⁻	(M1)		0.850	Mult.: From α(K)exp=Ice(K)/Iγ=0.61 *15* (Ice(K)=6.4 *8* (1968Sv01)*0.29=1.9 *2*).
ˣ215.41 *10*	3.3 *9*					M1+E2	1.5 *5*	0.43 *10*	Photon observed by 1970Pl02; 1968Sv01 unassigned line with E(ce)=137.02 *10* (Ice=1.2 *3* % of the 268 ce(K)) attributed to corresponding K line. Mult.,δ: α(K)exp=Ice(K)/Iγ=0.28 *10*. Ice(K)=3.2 *8* (see note above)*0.29=0.93 *23*.
221.40 *6*	2.7 *6*	491.24	(5/2)⁻	269.83	(3/2)⁻	M1+E2	1.7 *+12−5*	0.37 *7*	Mult.,δ: From α(K)exp=Ice(K)/Iγ=0.37 *10* (Ice(K)=3.5 *5**0.29=1.01 *14*). Also L1/L2>1, L1/L3=1.25 *75* (1968Sv01).
230.50 *7*	18.5 *20*	232.16	(5/2)⁻	1.642	3/2⁻	(E2)		0.224	Mult.: From α(K)exp=Ice(K)/Iγ=0.11 *2*. Ice(K)=7.1 *7**0.29=2.1 *2*. Also K/M=7.1 *20* (1968Sv01).
232.18 *6*	18.5 *20*	232.16	(5/2)⁻	0.0	1/2⁻	E2		0.219	Mult.: From α(K)exp=Ice(K)/Iγ=0.15 *3*. Ice(K)=9.5 *11**0.29=2.8 *3*. Also K/L23=1.5 *5*, L2/L3=2.4 *11*, L1/L3<1.5 (1968Sv01).
251.4& *5*	9 *4*	439.05	(3/2)⁻	187.81	3/2⁻	[M1]		0.495	
255.57 *4*	231 *20*	269.83	(3/2)⁻	14.276	5/2⁻	M1+E2	0.41 *7*	0.428 *15*	Mult.,δ: From α(K)exp=Ice(K)/Iγ=0.35 *4*

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γ(^{193}Pt) (continued)

E_γ[†]	I_γ[‡#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[§]	δ[§@]	α[a]	Comments
									(Ice(K)=283 *15**0.29=82 *4*). Also Also K/L=4.8 *2*, L1/L2=6.6 *16*, L1/L3=20 *6* (1968Sv01).
259.05 *6*	7 *3*	491.24	(5/2)$^-$	232.16	(5/2)$^-$	M1		0.456	Mult.: From α(K)exp=Ice(K)/Iγ=0.36 *16* (Ice(K)=8.8 *10**0.29=2.55 *29*). Also K/L1=11 *6*, L1/L2>1 (1968Sv01).
268.22 *5*	134 *11*	269.83	(3/2)$^-$	1.642	3/2$^-$	M1+E2	1.3 *3*	0.24 *4*	Mult.,δ: From α(K)exp=Ice(K)/Iγ=0.216 *10* (Ice(K)=100*0.29=29). Also K/L=4.8 *22*, L1/L2=1.5 *7*, L1/L3=2.5 *13* (1968Sv01).
269.84 *5*	29 *6*	269.83	(3/2)$^-$	0.0	1/2$^-$	E2		0.1358	Mult.: From α(K)exp=Ice(K)/Iγ=0.093 *22* (Ice(K)=9.3 *9**0.29=2.7 *3*). Also K/L3=6.2 *14* (1968Sv01).
[x]281.76 *10*	5.4 *9*					M1		0.362	Mult.: From α(K)exp=Ice(K)/Iγ=0.35 *8*. Ice(K)=6.6 *10**0.29=1.9 *3*. Also K/L12>1.9 (1968Sv01).
290.33 *10*	3.0 *12*	522.53	(3/2$^-$,5/2$^-$)	232.16	(5/2)$^-$	(M1)		0.334	Mult.: From α(K)exp=Ice(K)/Iγ=0.44 *19* (Ice(K)=4.6 *8* (1968Sv01)*0.29=1.33 *23*).
303.41 *7*	9.3 *26*	491.24	(5/2)$^-$	187.81	3/2$^-$	(M1+E2)		0.20 *10*	Mult.: From α(K)exp=Ice(K)/Iγ=0.11 *3* (Ice(K)=3.4 *6* (1968Sv01)*0.29=0.99 *17*).
317.73	8.1 *17*	439.05	(3/2)$^-$	121.29	1/2$^-$,3/2$^-$,5/2$^-$	(M1)		0.261	Mult.: From α(K)exp=Ice(K)/Iγ=0.23 *6* (Ice(K)=6.4 *10* (1968Sv01)*0.29=1.9 *3*).
324.89 *5*	12.0 *21*	439.05	(3/2)$^-$	114.158	3/2$^-$	M1		0.246	Mult.: From α(K)exp=Ice(K)/Iγ=0.29 *9* (Ice(K)=12 *3* (1968Sv01)*0.29=3.5 *9*). Also K/L12=7.5 *38*.
334.7[&] *3*	2.2 *13*	522.53	(3/2$^-$,5/2$^-$)	187.81	3/2$^-$	[M1]		0.227	
[x]344.1[&] *9*	0.9 *4*								
[x]369.9[&] *2*	2.1 *5*								
377.10 *3*	17.5 *23*	491.24	(5/2)$^-$	114.158	3/2$^-$	M1+E2	1.2 *3*	0.098 *17*	Mult.,δ: From α(K)exp=Ice(K)/Iγ=0.112 *20* (Ice(K)=6.8 *8**0.29=1.97 *23*). Also K/L=3.8 *11*, L1/L2=2.4 *7*, L1/L3=11 *4* (1968Sv01).
[x]383.4[&] *4*	0.8 *4*								
[x]387.60 *9*	13.1 *16*					E2		0.0476	Mult.: From α(K)exp=Ice(K)/Iγ=0.053 *9*. Ice(K)=2.4 *3**0.29=0.70 *9*. Also K/L3=14 *7* (1968Sv01).
[x]401.3[&] *3*	3.9 *9*								
408.4 *2*	4.5 *9*	522.53	(3/2$^-$,5/2$^-$)	114.158	3/2$^-$	(M1,E2)		0.087 *46*	Mult.: From α(K)exp=Ice(K)/Iγ=0.08 *4* (Ice(K)=1.3 *5**0.29=0.38 *15*). Also K/L12=4.5 *19* (1968Sv01).
[x]421.3[&] *4*	1.8 *9*								
424.76 *12*	5.2 *10*	439.05	(3/2)$^-$	14.276	5/2$^-$	(M1)		0.1199	Mult.: From α(K)exp=Ice(K)/Iγ=0.100 *22* (Ice(K)=1.8 *2* (1968Sv01)*0.29=0.52 *6*).
[x]431.4[&] *3*	1.0 *3*								
437.41 *8*	17 *3*	439.05	(3/2)$^-$	1.642	3/2$^-$	M1		0.1109	Mult.: From α(K)exp=Ice(K)/Iγ=0.065 *13* (Ice(K)=3.9 *4* (1968Sv01)*0.29=1.1 *1*).
439.04 *8*	66 *5*	439.05	(3/2)$^-$	0.0	1/2$^-$	M1		0.1099	Mult.: From α(K)exp=Ice(K)/Iγ=0.107 *9*

γ(^{193}Pt) (continued)

Eγ[†]	Iγ[‡#]	Ei(level)	J^π_i	E_f	J^π_f	Mult.[§]	α[a]	Comments
								(Ice(K)=24.5 *10* (1968Sv01)*0.29=7.1 *3*). Also K/L12=5.7 *6*, K/L3>29 (1968Sv01).
^{x}445[&] *1*	0.4 *4*							
^{x}459.2 *2*	0.5 *3*							Photon observed by 1970Pl02; 1968Sv01 unassigned line with E(ce)=380.77 *15* (Ice=0.25 *5* % of 268 ce(K)) attributed to corresponding K line.
^{x}464.1[&] *5*	1.0 *5*							
476.98 *9*	16 *3*	491.24	(5/2)$^-$	14.276	5/2$^-$	(E2)	0.0278	Mult.: From α(K)exp=Ice(K)/Iγ=0.085 *20* (Ice(K)=4.7 *7**0.29=1.36 *20*). Also K/L=4.4 *15*, L12/L3=7 *4* (1968Sv01). From L12/L3 ratio, the γ is mainly E2; too high α(K)exp seems to indicate that perhaps the Iγ(477.0) and Iγ(478.4) were not correctly resolved.
^{x}478.40 *15*	4.1 *10*							α(K)exp=Ice(K)/Iγ=0.39 *14*. Ice(K)=0.55 *13**0.29=1.6 *4*. K/L12=2.3 *8*; K/L12=4.18; M1: α(K)=0.0750, K/L12=6.23 (1968Sv01). E2: α(K)=0.02, M1: α(K)=0.072 (Bricc).
^{x}483[&] *1*	0.5 *3*							
489.61 *12*	8.0 *16*	491.24	(5/2)$^-$	1.642	3/2$^-$	(M1)	0.0824	Mult.: From α(K)exp=Ice(K)/Iγ=0.072 *23* (Ice(K)=2.0 *5**0.29=0.58 *15*). Also K/L12=5.6 *25*, L12/L3>0.7 (1968Sv01).
491.28 *12*	24 *4*	491.24	(5/2)$^-$	0.0	1/2$^-$	[E2]	0.0258	Mult.: From α(K)exp=Ice(K)/Iγ=0.027 *8* (Ice(K)=2.3 *6**0.29=0.67 *17*). Also K/L12>4 (1968Sv01).
^{x}505.66 *20*	3.3 *6*							Mult.: K/L12<6, L12/L3>1.5 (1968Sv01).
508.26 *20*	1.9 *5*	522.53	(3/2$^-$,5/2$^-$)	14.276	5/2$^-$	(M1+E2)	0.049 *26*	Mult.: From α(K)exp=Ice(K)/Iγ=0.040 *14* (Ice(K)=0.27 *6* (1968Sv01)*0.29=0.078 *17*).
520.97 *25*	2.7 *6*	522.53	(3/2$^-$,5/2$^-$)	1.642	3/2$^-$	(E2)	0.0224	Mult.: From α(K)exp=Ice(K)/Iγ=0.022 *7* (Ice(K)=0.21 *5* (1968Sv01)*0.29=0.061 *15*).
522.66 *25*	2.5 *5*	522.53	(3/2$^-$,5/2$^-$)	0.0	1/2$^-$	(E2)	0.0222	Mult.: From α(K)exp=Ice(K)/Iγ=0.025 *8* (Ice(K)=0.22 *5* (1968Sv01)*0.29=0.064 *15*).
^{x}529.7[&] *4*	1.3 *3*							
^{x}577.60 *20*	1.50 *16*					(M1)	0.0535	Mult.: α(K)exp=Ice(K)/Iγ=0.042 *12*. Ice(K)=0.22 *6**0.29=0.064 *17*.
^{x}628.55 *25*	2.3 *3*					(M1)	0.0429	α(K)exp=Ice(K)/Iγ=0.039 *8*. Ice(K)=0.31 *5**0.29=0.090 *15*. Also K/L=5.2 *27*; K/L=6.25 (1968Sv01).
^{x}685[&] *1*	0.74 *21*							
^{x}698[&] *1*	2.2 *5*							
^{x}730[&] *1*	0.7 *2*							
^{x}743[&] *1*	1.2 *4*							
^{x}845[&] *2*	2.4 *8*							
^{x}1124[&] *4*	1.6 *8*							

[†] Deduced from E(ce) measurements of 1968Sv01, unless otherwise noted. Calibration: KL_1L_1 and KL_2L_3 Auger lines in Pt, E(ce(K)) 316γ in ^{192}Pt (E(ce(K))=238.087 *10*), ThC A (E(ce)=24.509) and ThB F (E(ce)=148.108) lines.

[‡] From 1970Pl02, unless otherwise noted.

γ(^{193}Pt) (continued)

§ From experimental internal conversion coefficients and ratios, based on Ice of 1968Sv01 and Iγ of 1970Pl02.
& From 1970Pl02.
@ If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
# For absolute intensity per 100 decays, multiply by ≈0.028.
a Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
x γ ray not placed in level scheme.

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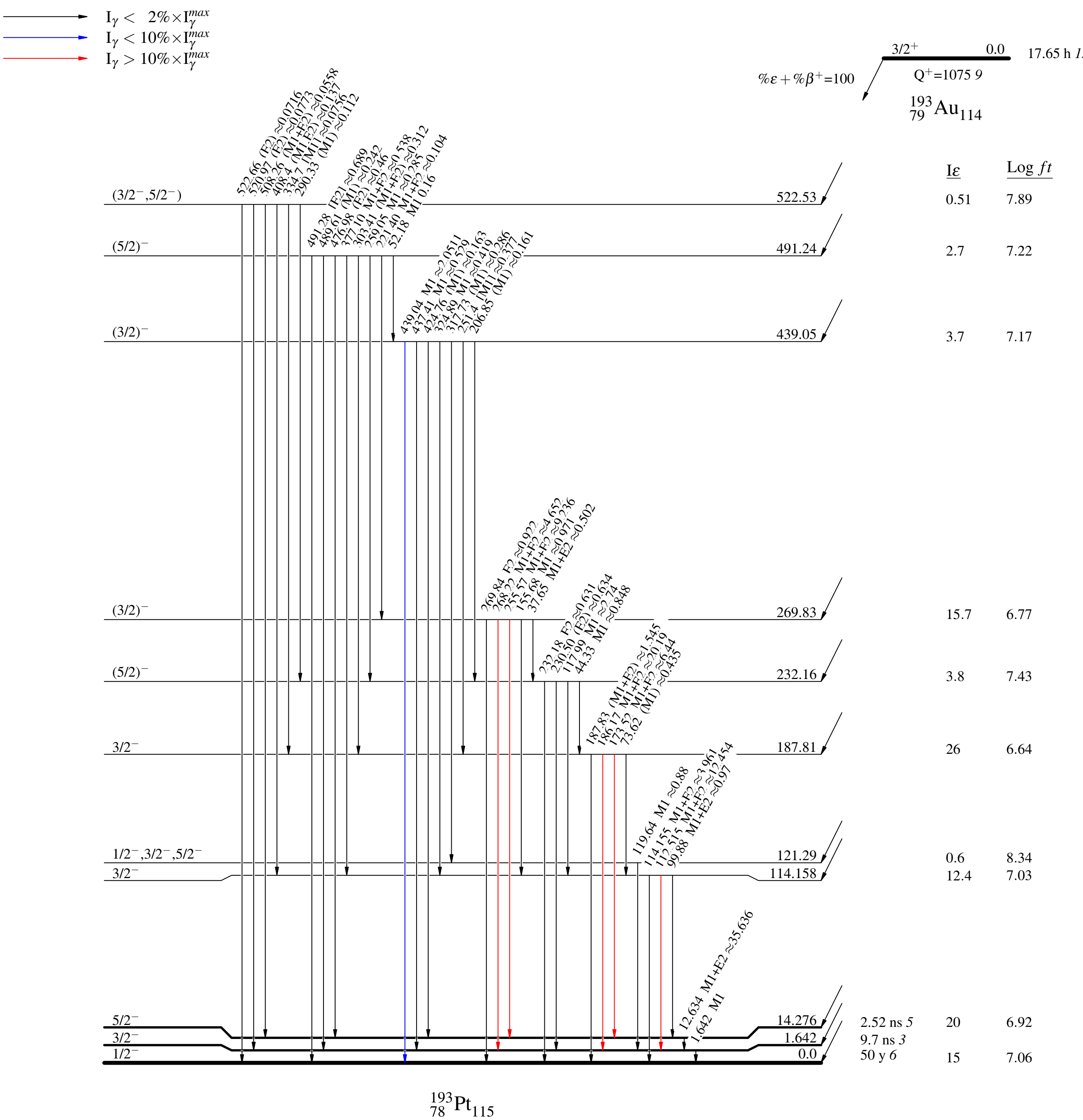
^{193}Au ε decay (17.65 h) 1968Sv01,1970Pl02

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{193}Au ε decay (3.9 s) 1955Br41

Parent: ^{193}Au: E=290.20 *3*; J^π=11/2$^-$; $T_{1/2}$=3.9 s *3*; Q(ε)=1075 *9*; %ε+%β^+ decay≈0.03
^{193}Au-%ε+%β^+ decay: 0.03% from I(γ+ce)(135.4γ M4 ^{193}Pt)/I(γ+ce)(258.0γ M1 ^{193}Au)≈0.0003; deduced from Ice and theoretical α by 1955Br41.
Sources from decay of ^{193}Hg parent activity; measured γ, ce, γ(ce).

^{193}Pt Levels

E(level)†	J^π†	$T_{1/2}$†	Comments
0.0	1/2$^-$		
1.642 *2*	3/2$^-$		
14.276 *8*	5/2$^-$		
149.78 *4*	13/2$^+$	4.33 d *3*	$T_{1/2}$: other: 3.5 d *4* (1955Br41).

† From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iε†	Log *ft*	I($\varepsilon+\beta^+$)†
(1215 *9*)	149.78	0.03	4.7	0.03

† For absolute intensity per 100 decays, multiply by ≈3×10^{-4}.

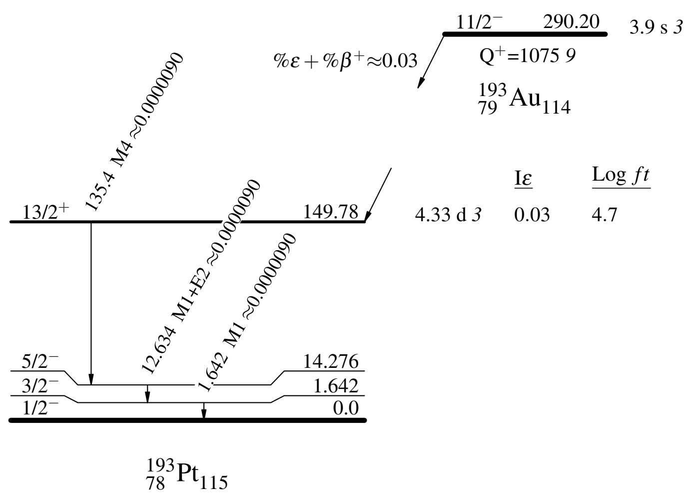
γ(^{193}Pt)

E_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	δ	α§	$I_{(\gamma+ce)}$‡	Comments
(1.642†)	1.642	3/2$^-$	0.0	1/2$^-$	M1		3116	≈0.03	α: From BRICC. Others: 12000 (1991Ba63), 4010 (1978Ro21).
(12.634†)	14.276	5/2$^-$	1.642	3/2$^-$	M1+E2	0.015 +*3*−*4*	142 *8*	≈0.03	δ: From Adopted Gammas.
135.4	149.78	13/2$^+$	14.276	5/2$^-$	M4		875	≈0.03	E_γ: from 1955Br41. Mult.: K:L1:L3:M=1:2:4:1 (1955Br41).

† From Adopted Gammas.
‡ For absolute intensity per 100 decays, multiply by ≈3×10^{-4}.
§ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{193}Au ε decay (3.9 s) 1955Br41

Decay Scheme



^{192}Os(α,3nγ) 1977Sa01

1977Sa01: E(α)=31-46 MeV, θ=90° to 140° (5 angles used); enriched (98%) ^{192}Os targets; measured Eγ, Iγ, γγ, γγ(t), excit; interpreted level structure in terms of the triaxial rotor plus hole model.

1976Pi03, 1975Pi02: E(α)=30-50 MeV, measured γ, γγ, γ(θ), γ(t). All high-spin states which are strongly populated in the (α,3n) reaction deexcited by γ cascades leading to the 4.3-day 13/2$^+$ isomer. No other isomeric states observed.

^{193}Pt Levels

E(level)	J$^\pi$†	T$_{1/2}$	Comments
0.0			
1.64‡			
14.28‡			
149.8‡#	13/2$^+$	4.33 d *3*	T$_{1/2}$: From Adopted Levels.
199.0@	11/2$^+$		
491.0#	17/2$^+$		
519.6@	15/2$^+$		
603.3	15/2$^+$		
907.4	(17/2$^+$)		
980.5@	19/2$^+$		
1003.4#	21/2$^+$		
1103.5			
1159.9	19/2$^+$		
1320.8&	21/2$^{(-)}$		
1454.7&	25/2$^{(-)}$	3.2 ns *3*	T$_{1/2}$: weighted average of 3.26 ns *34* (ce(t) (1978Ti02)) and 3.1 ns *5* (γ(t) (1977Sa01)).
1510.3			
1631.8#	25/2$^+$		
1689.9&	27/2$^{(-)}$		
1776.8			
1986.7?			
1992.2&	29/2$^{(-)}$		
2335.2#	29/2$^+$		
2696.2#	33/2$^+$		
3129.2#	(37/2$^+$)		

† From γ-ray multipolarities and fits of coincident γ rays into expected bands (1977Sa01).
‡ Rounded-off value from Adopted Levels.
\# Band(A): i13/2 favored decoupled band, Configuration=(ν $i_{13/2}$1).
@ Band(B): (J-1) unfavored, decoupled band from Configuration=(ν $i_{13/2}$1).
& Band(C): 21/2$^-$ semidecoupled band; Position and spacing are similar to corresponding band structure in other odd-mass Pt and Hg nuclei. These bands are related to the 5$^-$ bands in neighboring even-mass nuclei.

γ(^{193}Pt)

All data are from 1977Sa01, unless otherwise noted.

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.‡	Comments
(1.642§ *2*)		1.64		0.0			
(12.634§ *8*)		14.28		1.64			
49.2	14 *4*	199.0	11/2$^+$	149.8	13/2$^+$		
133.9 *2*	257 *15*	1454.7	25/2$^{(-)}$	1320.8	21/2$^{(-)}$	Q	A_2=+0.33 *6*; A_4=−0.09 *7*

Continued on next page (footnotes at end of table)

^{192}Os(α,3nγ) 1977Sa01 (continued)

γ(^{193}Pt) (continued)

E_γ	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	Comments
(135.50§ 3)		149.8	13/2+	14.28			
x159.7 3	19 3						A_2=−0.10 8
161.0 2	96 9	1320.8	21/2(−)	1159.9	19/2+	D,D+Q	A_2=−0.18 6; A_4=+0.02 7
x168.8 3	14 3						A_2=−0.62 16
189.5 2	55 7	1510.3		1320.8	21/2(−)		A_2=−0.04 6; A_4=+0.06 7
x216.1 3	17 3						
235.2 1	159 13	1689.9	27/2(−)	1454.7	25/2(−)	D,D+Q	A_2=−0.05 6; A_4=0.00 7
x255.4 3	19 4						
x264.1 2	85 9					(Q)	A_2=+0.35 7; A_4=+0.01 8
266.5 3	20 4	1776.8		1510.3		(Q)	A_2=+0.57 21
296.8& 3	32 5	1986.7?		1689.9	27/2(−)		
302.3 2	23 4	1992.2	29/2(−)	1689.9	27/2(−)		
304.0 2	37 5	907.4	(17/2+)	603.3	15/2+	D,D+Q	A_2=−0.75 11; A_4=+0.10 12
(317)		1320.8	21/2(−)	1003.4	21/2+		Transition, if present, obscured by 316.5γ in ^{192}Pt.
320.6 1	542 38	519.6	15/2+	199.0	11/2+	Q	A_2=+0.29 6; A_4=−0.07 7
x335.1 2	23 4						
340.3 2	747 75	1320.8	21/2(−)	980.5	19/2+	D,D+Q	A_2=−0.16 8; A_4=−0.01 9
341.2 2	1000	491.0	17/2+	149.8	13/2+	Q	A_2=+0.23 8; A_4=−0.04 9
361.0 3	41 6	2696.2	33/2+	2335.2	29/2+	Q	A_2=+0.31 7
369.8 1	150 12	519.6	15/2+	149.8	13/2+	D+Q	A_2=−0.73 6; A_4=+0.08 7
377.3 2	58 7	980.5	19/2+	603.3	15/2+	Q	A_2=+0.31 8; A_4=−0.06 9
387.9 2	42 6	907.4	(17/2+)	519.6	15/2+	D+Q	A_2=−0.36 13; A_4=+0.06 15
x413.1 3	20 4						A_2=+0.29 12
416.5 2	50 7	907.4	(17/2+)	491.0	17/2+		A_2=+0.28 9
x425.1 4	11 2						
433.0 3	23 4	3129.2	(37/2+)	2696.2	33/2+		
x447.3 2	60 7						A_2=+0.22 11
453.5 1	238 19	603.3	15/2+	149.8	13/2+	D+Q	A_2=−0.72 6; A_4=+0.09 7
461.0 1	501 35	980.5	19/2+	519.6	15/2+	Q	A_2=+0.30 6; A_4=−0.08 7
x474.1 2	92 9						A_2=−0.07 8; A_4=−0.01 9
x478.2 3	26 5						A_2=+0.46 23
489.5 1	346 28	980.5	19/2+	491.0	17/2+	D+Q	A_2=−0.74 8; A_4=+0.11 10
500.2 3	28 5	1103.5		603.3	15/2+	D,D+Q	A_2=−0.44 17
x503.6 3	33 6						
512.4 3	350 53	1003.4	21/2+	491.0	17/2+		
x518.4 4	16 4						
537.4 2	142 17	1992.2	29/2(−)	1454.7	25/2(−)	Q	A_2=+0.40 10; A_4=−0.12 11
x547.2 3	31 6					D,D+Q	A_2=−1.0 3
556.5 3	77 10	1159.9	19/2+	603.3	15/2+	(Q)	A_2=+0.23 13; A_4=−0.03 15
x595.7 3	49 8						A_2=+0.52 22
628.4 2	228 23	1631.8	25/2+	1003.4	21/2+	Q	A_2=+0.36 7; A_4=−0.11 8
640.2 4	34 7	1159.9	19/2+	519.6	15/2+	(Q)	A_2=+0.33 17
669.1 3	117 17	1159.9	19/2+	491.0	17/2+	D,D+Q	A_2=−0.60 9; A_4=+0.19 11
703.4 3	121 18	2335.2	29/2+	1631.8	25/2+	Q	A_2=+0.40 8; A_4=−0.13 10

† Relative intensities at E(α)=35.0 MeV and θ=125°.
‡ From $\gamma(\theta)$ in 1977Sa01; mult=Q assignments are based on positive A_2 and corresponds to ΔJ=2, stretched quadrupole (most likely E2); Mult= D or D+Q assignments are based on negative A_2 and corresponds to ΔJ=1 or 0.
§ From ^{193}Pt IT decay (4.33 d).
& Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{192}Pt(n,γ) E=res 1968Sa13

1968Sa13: E(n)=47 eV, 54 eV; natural Pt targets; measured Eγ, Iγ for primary γ's (Ge(Li), FWHM=5 keV at 1 MeV).
1969De09: from neutron time-of-flight measurements in transmission and absorption experiments, observed five resonances, whose energies and widths, in eV and meV respectively, are: 47, 47 *2*; 54, 17 *1*; 130, 225 *12*; 145, 170 *10*; 389, 308 *27*.

^{193}Pt Levels

E(level)	J^{π}†	Comments
0.0	$1/2^-,3/2^-$	J^{π}: adopted $1/2^-$.
186	$1/2^-,3/2^-$	J^{π}: adopted $3/2^-$.
440?		
461?		
544	$1/2^-,3/2^-$	
700	$1/2^-,3/2^-$	
1591	$1/2^-,3/2^-$	
S(n)+x‡	$1/2^+$	E(level): x =E(res)=47 eV and 54 eV. J^{π}: $1/2^+$ for both resonances (1969De09).

† From population by E1 γ from $J^{\pi}=1/2^+$ resonances.
‡ Adopted S(n)=6262.5 *23* (2017Wa10). From Eγ(to g.s.)=6247 (1968Sa13) it appears that there is a calibration error of≈−13 keV in the data of 1968Sa13.

γ(^{193}Pt)

Eγ	E_i(level)	J^{π}_i	Mult.†
4656	S(n)+x	$1/2^+$	E1
5547	S(n)+x	$1/2^+$	E1
5703	S(n)+x	$1/2^+$	E1
5786‡§	S(n)+x	$1/2^+$	
5807‡§	S(n)+x	$1/2^+$	
6061	S(n)+x	$1/2^+$	E1
6247	S(n)+x	$1/2^+$	E1

† Inferred from comparison of radiative widths with those for known E1 transitions in other Pt isotopes.
‡ Existence of γ uncertain.
§ Placement of transition in the level scheme is uncertain.

^{194}Pt(p,d), (d,t) 1978Be09

1978Be09: Pt and ^{194}Pt (97.4%) targets. ^{194}Pt(p,d): E=26 MeV; measured: E(d) (mag spect), differential cross sections, $\sigma(\theta)$ (θ=5°, 9°, 15°, 30°, 45°, 55°). ^{194}Pt(t,d): E=26 MeV; measured E(t) (mag spect), differential cross sections at 15°.
1977Sm03: ^{194}Pt(p,d): E=27 MeV; measured: E(d), σ, $\sigma(\theta)$. FWHM 30 keV and 13 keV for long and short runs, respectively.
1965Mu05: ^{194}Pt(d,t): E=15 MeV; measured E(t), σ.
1990Bu26: calculated parameters for fits to single-neutron-transfer strengths in the U(6/12) scheme.

^{193}Pt Levels

Data are from 1978Be09 unless otherwise noted.

E(level)[†]	J^π[‡]	L	S[#]	Comments
0.0	(1/2)$^-$	1	1.08[&]	C^2S=1.15 in (d,t).
1.6[@]	(3/2)$^-$	1	1.10[&]	C^2S=1.20 in (d,t).
14.3[@]	(5/2)$^-$		[&]	C^2S=1.70 in (d,t).
114.2[@]	3/2$^-$	1[a]	0.07[b]	C^2S=0.03 in (d,t).
121.3[@]	3/2$^-$	1[a]	0.07[b]	C^2S=0.03 in (d,t).
148 *3*	13/2$^+$	6	4.24	C^2S=5.83 in (d,t).
189 *6*				
233 *6*	5/2$^-$	(3)	0.03	
271 *3*	3/2$^-$	1	0.02	
308 *3*	(9/2)	(4,5)	0.14	
340 *3*	(9/2)	(4,5)	0.16	
415[c] *3*	5/2$^-$[c]	3[c]	1.06[cd]	
425[c] *3*	5/2$^-$[c]	3[c]	0.042[cd]	
439.0[@]	3/2$^-$	1	0.033	Not resolved from 459 level.
459 *3*	5/2$^-$	(3)	0.18	C^2S=0.16 in (d,t).
491 *3*	5/2$^-$	(3)	0.18	C^2S=0.16 in (d,t).
530 *3*	3/2$^-$	1	0.03	C^2S=0.07 in (d,t).
544 *3*	(5/2$^-$)	(3)	0.17	C^2S=0.13 in (d,t).
563 *3*	3/2$^-$	1	0.02	
599 *3*	7/2$^-$	3	1.035	C^2S=0.85 in (d,t).
630 *5*	7/2$^-$	3	0.22	C^2S=0.17 in (d,t).
665[c] *3*	13/2$^+$[c]	6[c]	0.39[ce]	
692[c] *3*	(13/2$^+$)[c]	(6)[c]	0.55[ce]	
701 *5*	(5/2$^-$)	(3)	0.075	
718[c] *4*	(1/2$^+$)[c]	(0)[c]	0.006[c]	Part of a unresolved doublet with a stronger L=3, C^2S=0.11 level (probably the 728 level seen by 1978Be09).
728 *5*	7/2$^-$	3	0.16	C^2S=0.12 in (d,t).
755 *5*	7/2$^-$	3	0.315	C^2S=0.23 in (d,t).
830 *10*	(7/2$^-$)	(3)	0.10	
846 *5*	3/2$^-$	1	0.44	
923 *5*	3/2$^-$	1	0.11	
969 *10*				
1014 *5*	(9/2$^+$)	(4,5)	0.05	
1042 *5*	13/2$^+$	6	1.65	
1069 *10*	(7/2$^-$)	(3)	0.05	
1099 *5*	(7/2$^-$)	(3)	0.09	
1130 *10*	(7/2$^-$)	(3)	0.04	
1168 *10*	(3/2$^-$)	(1)	0.02	
1188 *5*	3/2$^-$	1	0.13	Unresolved doublet.
1222[c] *5*	3/2$^-$ AND 5/2$^-$[c]	1 + 3[c]	0.044+0.13[c]	

Continued on next page (footnotes at end of table)

^{194}Pt(p,d), (d,t) 1978Be09 (continued)

^{193}Pt Levels (continued)

E(level)[†]	Jπ[‡]	L	S[#]
1245 *5*	(7/2⁻)	(3)	0.22
1259? *10*			
1320[c] *5*	5/2⁻ AND 3/2⁻[c]	3 + 1[c]	0.10+0.016[c]
1359[c] *4*	13/2⁺[c]	6[c]	0.30[c]

[†] The uncertainty is estimated to be 2.5 keV below≈600 keV and 5 keV above, except for the weak transitions (1978Be09) (the evaluator has doubled the uncertainty for transitions with ±σ>10%).

[‡] Jπ assumed for the calculation of C^2S. From 1978Be09, unless otherwise noted.

[#] (dσ/dΩ)(exp)/N(dσ/dΩ)(DWBA), N=2.29. C^2S values for (d,t) (N=3.33) are given in comments; these were obtained from only one angle, corresponding to the maximum angular distribution for L=3, and values for other L transfers may be imprecise.

[@] Rounded-off value from Adopted Levels; level not well resolved in ^{194}Pt(p,d), (d,t).

[&] To extract C^2S for the unresolved 0.0, 1.6, and 14.3 levels, σ was divided equally between the 0.0 and 1.6 states (good L=1 fit to the triplet suggests small σ for the 14.3-keV, 5/2⁻ state).

[a] L=1 for 114.2+121.3 doublet.

[b] Total for unresolved 114 and 121 levels (3/2⁻ assumed for each).

[c] From 1977Sm03.

[d] 1978Be09 report C^2S=1.71 in (p,d) and C^2S=1.46 in (d,t) (Jπ=5/2⁺) for single state with E(level)=423 *3*, L=3.

[e] 1978Be09 report C^2S=0.76 in (p,d) (Jπ=13/2⁺) for single state with E(level)=675 *5*, L=6.

^{194}Pt(^{3}He,α) 1985Th02

E(^{3}He)=50 MeV, θ=5° to 45° (2.5° intervals); enriched (>98%) ^{194}Pt targets; measured E(α) (mag spect with two-dimensional detector system, FWHM≈35 keV), differential cross sections, angular distributions (high-L transfers favored); interpreted levels in terms of quasiparticle-core coupling models.

^{193}Pt Levels

E(level)	J$^{\pi}$ †	$T_{1/2}$	L ‡	Slj #	Comments
15 *10*	5/2^{-}		3,4	1.31	
150 *10*	13/2^{+}	4.33 d *3*	6	6.37	$T_{1/2}$: From Adopted Levels.
331 *10*	(13/2^{+})		5,6	1.21	
420 *10*	5/2^{-}		3,4	0.92	
484 *10*					
592 *10*	7/2^{-}		3	0.95	
667 *10*	13/2^{+}		6	0.84	
732 *10*	7/2^{-}		3,4	0.38	
819 *10*	7/2^{-}		3,4	0.29	
1021 *10*	13/2^{+}		5,6	1.73	
1095 *10*	7/2^{-}		3,4,5	0.25	
1219 *10*	7/2^{-}		3,4	0.25	
1337 *10*	13/2^{+}		6	0.67	
1442 *10*					
1561 *10*			3,4		
1668 *10*	9/2^{-}		4,5	0.61	
1744 *10*	7/2^{-}		3	0.44	
1913 *10*					
2337 *10*					

† Jπ assumed to extract Slj.
‡ From DWBA analysis of angular distributions.
# (dσ/dΩ)(exp)/N (dσ/dΩ)(DWBA), N=34.

^{195}Pt(p,t) 1980Ro07

J$^{\pi}$(^{195}Pt)=1/2^{-}.
E(p)=25 MeV, θ=5° to 55°; Pt metal targets enriched to 97.28% in ^{195}Pt; measured E(level) (mag spect, FWHM=16-18 keV), differential cross sections, angular distributions.

^{193}Pt Levels

E(level)	J$^{\pi}$ †	T$_{1/2}$	L ‡	Σ σ(θ) #	Comments
0.0	1/2^{-}		0	100	
1.6 @				12 a	
14.3 @				6 a	
117 *4*				1.9	
149.8? @&	13/2^{+}	4.33 d *3*			J$^{\pi}$,T$_{1/2}$: From Adopted Levels.
188 *4*	3/2^{-}		2	2.7	
232 *4*	(5/2)$^{-}$		2	4.9	
271 *4*	3/2^{-}		2	1.9	
307? *4*				0.15	
340 *4*				2	
425 *4*				4.6	
462 *4*				2	
492 *4*	(5/2)$^{-}$		2	0.7	
531 *4*				1.8	
597 *4*				4.2	
622 *4*				0.9	
642 *4*				1.2	
701 *4*				0.5	
728 *4*				1.5	
753 *4*				3.3	
828 *4*				2.1	
841 *4*	3/2^{-}		2	4.3	
922 *4*	3/2^{-}		2	3	
984 *4*				1.1	
1053 *8*				2.5	
1091 *8*				1	
1182 *8*	3/2^{-}		2	1	
1217 *8*				1.9	
1243 *8*				0.8	
1265 *8*				2.9	
1333 *8*				2.8	
1364 *8*				1.9	
1425 *8*				2	
1457 *8*	1/2^{-}		0	3	
1534 *8*	1/2^{-}		0	1.4	
1557 *8*	1/2^{-}		0	3.5	
1585 *8*				0.6	
1610 *8*				0.9	

† From 1980Ro07; deduced from angular distributions and cross sections, relative to those for corresponding levels in ^{194}Pt(p,d), (d,t), except otherwise noted.
‡ Inferred from angular distributions.
# Relative summed cross-sections for the seven angles between 5° and 55° observed in the experiment.
@ Rounded off value from Adopted Levels; level not well resolved in ^{195}Pt(p,t).
& Population uncertain; peak overlaps that for ^{192}Pt g.s. from contaminant.
a Estimated from spectrum at θ=15° assuming the angular distribution observed for J$^{\pi}$=5/2^{-} states.

Adopted Levels, Gammas

Q(β^-)=−2343 *14*; S(n)=8704 *18*; S(p)=4405 *9*; Q(α)=2620 *15* 2017Wa10

Other studies:
1990Ka04: ^{197}Au(α,^{8}He); Eα=65 MeV. Reaction products analyzed at 8° with a solid angle of 5 msr by the quadrupole-dipole-dipole magnetic spectrometer.
1998Is08: ^{191}Ir(α,2n), ^{193}Ir(α,4n); Eα=16-48 MeV. Reaction cross-section measured and compared to Hauser-Feshbach with pre-equilibrium calculation.
2001Gl05: Pb(p,4pXn); E(p)=0.065-2.6 GeV. Measured excitation function.
2008Er03: ^{197}Au(γ,4n), E<67.7 MeV, measured ^{193}Au yield and integral cross section.
2015Ju02: Measured ^{193}Au production cross section, 30.3 mb *25*, bombarding Pb target with proton beam, E=250 MeV.
2015Ba20: ^{208}Pb(^{136}Xe, X), E=743 MeV (mid target), measured cumulative and independent production yields for ^{193}Au to be 1.39 mb *28* and 1.27 mb *21*, respectively.

2016Ka36: Measured cumulative production cross section of ^{193}Au, 9.61 mb *96*, bombarding ^{209}Bi target with ^{11}B beam, E=146.0 MeV.

^{193}Au Levels

Cross Reference (XREF) Flags

A	^{193}Au IT decay (3.9 s)	E	^{186}W(^{11}B,4nγ)
B	^{193}Hg ε decay (3.80 h)	F	Ir(α,xnγ)
C	^{193}Hg ε decay (11.8 h)	G	^{194}Pt(p,2nγ)
D	^{192}Os(^{7}Li,6nγ)		

E(level)[†]	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0[‡]	3/2$^+$	17.65 h *15*	ABCD FG	%ε+%β^+=100 μ=+0.1396 *5*; Q=+0.664 *20* Limit for possible α decay:<1E-5% (1963Ka17). Theory 1E-21% (2001Mo07). J$^\pi$: spin from atomic beam (1976Fu06); parity from Schmidt diagram, μ. T$_{1/2}$: from 1968Sv01. Other values: 15.8 h *3* (1948Wi01,1949Wi08), 17.5 h *2* (1957Ew34), 15.3 h *5* (1952Fi06). μ: Collinear LASER spectroscopy (1994Pa37); others: 0.1396 *6* NMR on oriented nuclei (1993Hi10), +0.140 *1* atomic beam (2014StZZ,1980Ek04), 0.139 atomic beam (1976Fu06). Q: Collinear LASER spectroscopy (2014StZZ,1994Pa37). Isotope shift: Δ<r^2>=−0.162 fm^2 2 (1994Pa37), relative to ^{197}Au. Other: -0.157 fm^2 4 (1989Wa11,1985St10). $\sqrt{<r^2>}$=5.421 fm *4* (2004An14).
38.234 *17*	(1/2)$^+$	3.81 ns *18*	ABC FG	J$^\pi$: M1+E2 γ to 3/2$^+$; 1/2$^+$ suggested by shell model, systematics. T$_{1/2}$: from ^{193}Hg ε decay (3.80 h) (1970Fo08).
224.80 *3*	(3/2)$^+$	<0.03 ns	B F	J$^\pi$: M1+E2 γ to (1/2)$^+$. T$_{1/2}$: from ^{193}Hg ε decay (3.80 h) (1970Fo08).
257.986[‡] *21*	5/2$^+$	45 ps *20*	ABCD FG	J$^\pi$: M1+E2 γ to 3/2$^+$, E2 γ to (1/2)$^+$; see J$^\pi$ assignment for the 290.18 level. T$_{1/2}$: from ^{193}Au IT decay (3.9 s) (1970Fo08).

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Adopted Levels, Gammas (continued)

^{193}Au Levels (continued)

E(level)[†]	J$^{\pi}$	T$_{1/2}$	XREF	Comments
290.20[#] *4*	11/2⁻	3.9 s *3*	ABCDEFG	%IT=99.97; %ε+%β⁺≈0.03 μ=6.18 *9*; Q=+1.98 *6* J$^{\pi}$: E3 – M1+E2 cascade to 3/2⁺ g.s., direct transition to g.s. very weak and no transition to (1/2)⁺ 38.23 level. This indicates J$^{\pi}$=11/2⁻ for the 290.18 level and J$^{\pi}$=5/2⁺ for the 257.97 level. Systematics of h11/2 levels in Au nuclei. T$_{1/2}$: from ^{193}Au IT decay (1955Fi30). %ε+%β⁺: deduced from I(γ+ce)(258.0γ in ^{193}Au) relative to I(γ+ce)(135.5γ in ^{193}Pt) (1955Br41). μ: Radiative detection of NMR (2014StZZ,1983Ha10); other: 6.17 *9* NMR (2014StZZ,1983Li21). Q: γ(θ,H,t) from ^{193}Hg decay (11.8 h), NMR (2014StZZ,1996Se06).
381.62 *3*	5/2⁺		BC G	J$^{\pi}$: D+Q γ to 3/2⁺ g.s., γ to (1/2)⁺; see J$^{\pi}$ assignment at 508-keV level.
508.27 *4*	7/2⁻	0.29 ns *2*	BC FG	J$^{\pi}$: E2 γ to 11/2⁻ level, (E1) – M1+E2 cascade to 3/2⁺ g.s.; this gives J$^{\pi}$=7/2⁻ for this level and J$^{\pi}$=5/2⁺ for 382-keV level. T$_{1/2}$: from ^{193}Hg ε decay (11.8 h) (1970Ba56).
538.99[‡] *4*	(7/2⁺)		BCD FG	J$^{\pi}$: (E2) γ to 3/2⁺ g.s.; band structure.
687.43 *4*	(7/2⁺)		C G	J$^{\pi}$: Q γ to (3/2)⁺; D+Q γ to 5/2⁺.
697.81[#] *5*	(15/2)⁻		CDEFG	J$^{\pi}$: E2 γ to 11/2⁻ level; band structure.
789.94[a] *5*	9/2⁻	1.2 ns *1*	C EFG	J$^{\pi}$: M1+E2 γ's to 7/2⁻ and 11/2⁻ levels; band structure. T$_{1/2}$: from ^{193}Hg ε decay (11.8 h) (1975Be29).
808.57[‡] *5*	(9/2)⁺		CD FG	J$^{\pi}$: Q γ to 5/2⁺ level; band structure.
828.00 *9*	3/2⁺		B G	J$^{\pi}$: (M1) γ to (1/2)⁺, D+Q γ to 5/2⁺. 1/2⁺ discarded based on correlation analysis of 446γ and 381γ cascade.
863.36[@] *5*	(13/2)⁻		C FG	J$^{\pi}$: M1 γ to (15/2)⁻ level, M1+E2 γ to 11/2⁻ level.
890.80 *5*	9/2⁻		CD FG	J$^{\pi}$: M1 γ to 7/2⁻, M1+E2 γ to 11/2⁻.
929.09 *5*	(9/2⁺)		C G	J$^{\pi}$: (E2) γ to 5/2⁺ level. See J$^{\pi}$ assignment for 2125 level.
983.59 *11*	(7/2⁺)		G	J$^{\pi}$: 758.8γ Q to (3/2)⁺, 725.6γ D+Q to 5/2⁺.
1085.35 *11*	(7/2⁺)		G	J$^{\pi}$: 860.5γ to (3/2)⁺, 827.5γ D+Q to 5/2⁺.
1089.34 *9*			B G	
1105.92 *12*	(7/2⁺)		G	J$^{\pi}$: γ D+Q to 5/2⁺, 277.9γ to (3/2⁺).
1106.4[b] *5*	(11/2⁻)		E	J$^{\pi}$: 316.5γ M1+E2 to 9/2⁻, band structure.
1118.97 *12*	(3/2)⁺		B G	J$^{\pi}$: M1+E2 γ to 5/2⁺ level, γ to (1/2)⁺ level.
1131.84 *6*	9/2⁻,11/2⁻		C FG	J$^{\pi}$: M1+E2 γ to 9/2⁻ level. 1007.8γ from (13/2⁻,15/2⁻).
1153.53[‡] *6*	(11/2⁺)		C FG	J$^{\pi}$: Q γ to (7/2⁺) level; log *ft*=8.2 from 13/2⁺ ^{193}Hg; band structure.
1194.31[a] *7*	(13/2⁻)		C EFG	J$^{\pi}$: (E2) γ to 9/2⁻; log *ft*=8.2, log $f^{1u}t$=8.9 from 13/2⁺ ^{193}Hg.
1284.81 *5*	9/2⁻,11/2⁻		C FG	J$^{\pi}$: M1+E2 γ to 9/2⁻; log *ft*=7.6, log $f^{1u}t$=8.3 from 13/2⁺ ^{193}Hg.
1297.41 *16*	(3/2⁻ to 11/2⁻)		G	J$^{\pi}$: 789γ to 7/2⁻.
1300.39 *22*	(3/2 to 11/2⁺)		G	J$^{\pi}$: 215γ to (7/2⁺).
1330.90 *14*	(9/2⁺)		G	J$^{\pi}$: 347.3γ D+Q to (7/2⁺), 949.3γ to 5/2⁺.
1343.69 *20*	(1/2⁺ to 9/2⁺)		G	J$^{\pi}$: γ to 5/2⁺.
1355.32 *8*	(11/2 to 15/2⁻)		C	J$^{\pi}$: (E2) γ to (15/2)⁻ level; (M1+E2) γ from 11/2⁻,13/2⁻ 1630 level.
1372.94[@] *10*	(17/2)⁻		C FG	J$^{\pi}$: M1+E2 γ to (15/2)⁻ level; band structure.
1379.93 *10*	(11/2⁺)		C G	J$^{\pi}$: (E2) γ to (7/2⁺,9/2⁺) level; 840.9γ to (7/2⁺); log *ft*=8.3 from 13/2⁺ ^{193}Hg.
1398.51 *6*	(13/2)⁻		C FG	J$^{\pi}$: M1+E2 γ to (13/2)⁻ level, (M1+E2) γ to (15/2)⁻ level, (E2) γ to 9/2⁻ level.
1400.39 *5*	11/2⁻		C G	J$^{\pi}$: M1+E2 γ to 9/2⁻; log $f^{1u}t$=7.8 from 13/2⁺.
1413.03 *16*	(9/2⁻)		C	J$^{\pi}$: log $f^{1u}t$=9.7, log *ft*=9.1 (if 11/2) from 13/2⁺ ^{193}Hg; γ to (7/2⁺) level.

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Adopted Levels, Gammas (continued)

^{193}Au Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
1417.99 *14*	$(5/2^+,7/2^+)$		G	J^π: 590γ to $(3/2^+)$ and 609.3γ to $(9/2)^+$.
1419.13[#] *25*	$(19/2)^-$		DEFG	J^π: E2 γ to $(15/2)^-$ level; band structure.
1433.49 *12*	$(11/2^+,13/2^+)$		C	J^π: (E2) γ to $(9/2)^+$ level; log *ft*=8.4 from $13/2^+$ ^{193}Hg.
1455.19 *9*	$(11/2$ to $15/2^-)$		C	J^π: (E2) γ's to $(13/2)^-$ and $(15/2)^-$ levels; γ from $(11/2^-)$ 2201 level.
1463.10 *22*			G	
1476.98[‡] *21*	$(13/2^+)$		D FG	J^π: γ to $(9/2)^+$ level; band structure.
1477.18 *12*	$(7/2,9/2,11/2)^-$		C	J^π: 668.48γ E1 to $(9/2)^+$.
1496.30 *7*	$(9/2)^-$		C FG	J^π: M1+E2 γ to $9/2^-,11/2^-$ level; (E1) γ to $(7/2^+)$ level.
1514.20 *16*	$(7/2^-)$		C	J^π: γ to $5/2^+$ level; γ from $11/2^-$ 2157 level. see J^π assignment for 2157 level.
1521.9[b] *11*	$(15/2^-)$		E	J^π: E2 γ to $(11/2^-)$, band structure.
1526.9 *3*	$(9/2,7/2^+)$		G	J^π: Suggested by 2014Th04 (p,2nγ) based on γγ(θ) results.
1572.29 *12*	$(9/2^-,11/2,13/2^+)$		C G	J^π: γ to $(9/2^+)$ level; log *ft*=9.0, log $f^{1u}t$=9.5 from $13/2^+$ ^{193}Hg.
1575.62 *6*	$11/2^-,13/2^-$		C G	J^π: M1 γ to $9/2^-,11/2^-$ level; 877.76γ E2 to $(15/2)^-$; log $f^{1u}t$=7.5 from $13/2^+$ ^{193}Hg.
1578.01 *17*	$(5/2,7/2)^+$		G	J^π: Suggested by 2014Th04 based on γγ(θ) results.
1598.6 *3*			G	
1603.15 *19*	$(3/2^-,5/2^+)$		B	J^π: γ's to $7/2^-$ and $(1/2)^+$ levels.
1630.25 *6*	$11/2^-,13/2^-$		C G	J^π: M1+E2 γ to $9/2^-$, $11/2^-$ level; log $f^{1u}t$=7.1 from $13/2^+$.
1654.69 *16*	$(9/2^-,11/2,13/2^+)$		C G	J^π: γ to $(9/2^+)$ level; log $f^{1u}t$=8.4 from $13/2^+$ ^{193}Hg.
1658.0 *3*	$1/2^{(+)}$ to $5/2^{(+)}$		B G	J^π: (E2) γ to $5/2^+$; log $f^{1u}t$=6.9 from $3/2^-$ ^{193}Hg.
1678.79 *19*			G	
1680.35 *17*	$(11/2^-,13/2^-)$		C	J^π: γ's to $9/2^-$ and $(15/2)^-$ levels; (E2) γ to $(13/2)^-$ level.
1684.74 *19*	$(9/2^-$ to $13/2^-)$		C	J^π: (E2) γ to $11/2^-$ level; γ to $9/2^-$ level; log *ft*=7.6, log $f^{1u}t$=8.0 from $13/2^+$ ^{193}Hg.
1708.8[a] *9*	$(17/2^-)$		E	J^π: E2 γ to $(13/2^-)$; band structure.
1733.44 *10*	$(15/2^-)$		C G	J^π: (M1+E2) γ to $(17/2)^-$; log $f^{1u}t$=7.4 from $13/2^+$ ^{193}Hg.
1745.1 *3*			G	
1776.04 *8*	$11/2^-$		C	J^π: E2 γ to $(13/2)^-$ level; γ to $7/2^-$ level; log *ft*=7.8, log $f^{1u}t$=7.0 from $13/2^+$ ^{193}Hg.
1794.92 *15*	$(13/2^-)$		C	J^π: γ's to $9/2^-$ and $(17/2^-)$.
1815.1 *3*	$(1/2,3/2,5/2^+)$		B	J^π: γ to $(1/2)^+$ level.
1815.41 *23*	$(9/2^-,11/2^-,13/2^-)$		C	J^π: γ's to $9/2^-$ and $(13/2)^-$ levels.
1829.91 *6*	$(11/2^-,13/2^-)$		C	J^π: (M1) γ to $(13/2)^-$ level; γ to $9/2^-$ level.
1861.91 *21*	$(1/2^+,3/2,5/2^+)$		B	J^π: γ's to $(1/2)^+$ and $5/2^+$ levels.
1869.28 *17*	$(11/2^-$ to $15/2^-)$		C	J^π: (E2) γ to $(15/2)^-$ level; γ to $11/2^-$ level.
1876.29 *17*	$(11/2^-,13/2^-)$		C	J^π: (E2) γ to $(15/2)^-$ level; γ to $9/2^-$ level.
1915.20 *17*	$(11/2^-$ to $15/2^-)$		C	J^π: (E2) γ to $(13/2)^-$ level; γ's to $11/2^-$ and $(15/2)^-$ levels.
1930.03 *6*	$11/2^-,13/2^-$		C	J^π: M1 γ to $11/2^-,13/2^-$ level; γ to $9/2^-$ level; log $f^{1u}t$=6.6 from $13/2^+$ ^{193}Hg.
1939.20 *11*	$(11/2,13/2)^-$		C	J^π: E2 γ to $(15/2)^-$ level; γ to $9/2^-$ level.
1947.10[d] *25*	$(21/2)^+$	10.4 ns *8*	DEF	μ=+6.48 *11* (2014StZZ) μ: From differential perturbed angular distribution of γ rays following nuclear reactions. J^π: E1 γ to $(19/2)^-$ level, (E3) γ to $(15/2)^-$ level. $T_{1/2}$: from Ir(α,xnγ) (1985Ko13).
2012.20 *17*	$(13/2^-,15/2^-)$		C	J^π: γ's to $11/2^-$ and $(17/2)^-$ levels.
2014.72 *25*	$(1/2^+,3/2,5/2^+)$		B	J^π: γ's to $(1/2)^+$ and $5/2^+$ levels.
2023.47 *10*	$(11/2$ to $15/2^-)$		C	J^π: M1+E2 and (E2) γ's to $11/2^-$ and $(15/2)^-$ levels.
2037.47 *7*	$(11/2,13/2)^-$		C	J^π: M1+E2 γ to $11/2^-,13/2^-$, (M1+E2) γ to $9/2^-,11/2^-$ level (E2) γ to $(15/2)^-$.
2043.4 *3*	1/2,3/2,5/2		B	J^π: log *ft*=6.1, log $f^{1u}t$=5.5 from $3/2^-$ ^{193}Hg.

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Adopted Levels, Gammas (continued)

^{193}Au Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
2063.05 *7*	11/2$^-$,13/2$^-$,15/2$^-$		C	J^π: M1+E2 γ to 11/2$^-$,13/2$^-$ level; log $f^{1u}t$=6.3 from 13/2$^+$ ^{193}Hg.
2080.0[d] *4*	(25/2$^+$)	2.51 ns *13*	DEF	$T_{1/2}$: from Ir(α,xnγ) (1985Ko13). J^π: (E2) γ to (21/2)$^+$ level; member of γ cascade in (α,xnγ).
2087.3[@] *4*	(21/2$^-$)		F	J^π: γ to (19/2)$^-$ level; band structure.
2100.9[b] *15*	(19/2$^-$)		E	J^π: E2 to (15/2$^-$); band structure.
2104.44 *15*	(11/2,13/2)$^-$		C	J^π: γ's to 9/2$^-$ and (15/2)$^-$ levels.
2125.37 *19*	(11/2$^-$)		C	J^π: (E2) γ to (13/2)$^-$ level gives π=(−) and 9/2≤J≤17/2; log $f^{1u}t$=6.9 from 13/2$^+$ ^{193}Hg rules out J=9/2 and 17/2; 1196γ - 547 (E2) γ cascade to 5/2$^+$ level rules out J=13/2 and 15/2 since 1196γ, competing with the 1262 (E2) γ, in unlikely to be an M2 transition. Therefore J(this level)=11/2 and J(929 level)=9/2.
2130.40 *12*	(11/2$^-$ to 15/2$^-$)		C	J^π: (E2) γ to (13/2)$^-$; log $f^{1u}t$=6.3 from 13/2$^+$ level.
2139.78 *19*	(13/2$^-$,15/2$^-$)		C	J^π: (M1) γ to (15/2)$^-$, γ to 9/2$^-$,11/2$^-$ level.
2140.2 *4*	(23/2$^+$)		D F	J^π: D+Q γ to (21/2)$^+$; no decay to levels with J<21/2.
2157.63 *16*	(11/2$^-$)		C	J^π: strongest γ's to (15/2)$^-$ and (9/2)$^-$ levels; the 643γ – 1132γ cascade to 5/2$^+$ level.
2159.03 *9*	(11/2$^-$ to 15/2$^-$)		C	J^π: (E2) γ to 11/2$^-$, 13/2$^-$ level; (M1,E2) γ to (15/2)$^-$; log $f^{1u}t$=6.4 from 13/2$^+$ ^{193}Hg.
2173.0[#] *4*	(23/2$^-$)		DEF	J^π: (E2) γ to (19/2)$^-$ level: band structure.
2196.88 *20*	(11/2$^-$,13/2,15/2$^-$)		C	J^π: γ's to 11/2$^-$ and (15/2)$^-$ levels.
2201.73 *9*	(11/2$^-$)		C	J^π: (E2) γ to (15/2)$^-$ level; γ to 7/2$^-$ level.
2205.94 *22*	(11/2$^-$)		C	J^π: log $f^{1u}t$=6.1 from 13/2$^+$ ^{193}Hg; γ to 7/2$^-$ level.
2215.20 *17*	(13/2$^-$,15/2$^-$)		C	J^π: (M1) γ to (15/2)$^-$ level; γ to 11/2$^-$ level; log $f^{1u}t$=5.9 from 13/2$^+$ ^{193}Hg.
2255.12 *13*	(11/2$^-$ to 15/2$^-$)		C	J^π: (M1) γ to (13/2)$^-$ level.
2279.39 *17*	(11/2$^-$)		C	J^π: intense γ's to 7/2$^-$ and (15/2)$^-$ levels; (E2) γ to (7/2,9/2,11/2)$^-$ level.
2285.28 *16*	(11/2$^+$)		C	J^π: log *ft*=6.8, log $f^{1u}t$=5.2 from 13/2$^+$ ^{193}Hg; γ to (7/2$^+$) level.
2291.01 *16*	(11/2$^+$)		C	J^π: log *ft*=6.5, log $f^{1u}t$=5.6 from 13/2$^+$ ^{193}Hg; γ to (7/2$^+$) level.
2320.1[a] *12*	(21/2$^-$)		E	J^π: 611.3γ E2 to (17/2$^-$). Band structure.
2324.9[d] *5*	(29/2$^+$)	<0.2 ns	F	$T_{1/2}$: Ir(α,xnγ) (1985Ko13). J^π: 2007Ok05 (^{11}B,4nγ) assign 29/2$^+$ based on 245.1γ E2 to 25/2$^+$ and 161.8γ d from 31/2$^+$. However, 1979Go15 (α,xnγ) assign 27/2$^+$ based on 244.9γ (M1) to 25/2$^+$ and 161.8γ (E2) from 31.2$^+$. Note that Multipolarity assignments in 2007Ok05 were from R(DCO) and polarization measurements, while for 161.8γ in 1979Go15 (M1) multipolarity from measured total conversion coefficient and γ-ray angular distribution measurements.
2377.9[#] *4*	(27/2$^-$)	0.79 ns *8*	DEF	μ≤9.5 (2014StZZ,1985Ko13) μ: From integral perturbed angular distribution. J^π: (E2) γ to (23/2$^-$) level; band structure. $T_{1/2}$: from Ir(α,xnγ) (1985Ko13).
2476.6[#] *5*	(31/2$^-$)	3.52 ns *18*	EF	μ=4.7 *31* (2014StZZ,1985Ko13) J^π: (E2) γ to (27/2$^-$) level; band structure. $T_{1/2}$: from Ir(α,xnγ) (1985Ko13). μ: From integral perturbed angular distribution.
2486.7[&] *6*	(31/2$^+$)	150 ns *50*	EF	J^π: D γ to (27/2$^+$); band structure. $T_{1/2}$: from Ir(α,xnγ) (1985Ko13).
2701.1[c] *6*	(33/2$^-$)	1.80 ns *9*	EF	μ=2.3 *19* (2014StZZ,1985Ko13)

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Adopted Levels, Gammas (continued)

^{193}Au Levels (continued)

E(level)[†]	J^π	$T_{1/2}$	XREF	Comments
				J^π: 2007Ok05 (^{11}B,4nγ) assign 33/2$^-$ based on 224.5γ M1+E2 to 31/2$^-$. However, 1979Go15 (α,xnγ) assign 35/2$^-$ based on 224.5γ as E2 to 31/2$^-$. Note that Multipolarity assignments in 2007Ok05 were from R(DCO) and polarization measurements. In 1979Go15 Q multipolarity from γ-ray angular distribution measurements. $T_{1/2}$: from Ir(α,xnγ) (1985Ko13). μ: From integral perturbed angular distribution.
2923.4[&] *7*	(35/2$^+$)		EF	J^π: (E2) γ to (31/2$^+$) level; band structure.
3155.1[c] *7*	(37/2$^-$)	<0.5 ns	EF	J^π: (E2) γ to (33/2$^-$) level; band structure. $T_{1/2}$: from Ir(α,xnγ) (1985Ko13).
3441.9[&] *7*	(39/2$^+$)		EF	J^π: (E2) γ to (35/2$^+$) level; band structure.
3896.1[c] *7*	(41/2$^-$)		EF	J^π: (E2) γ to (37/2$^-$) level; band structure.
4063.4[&] *8*	(43/2$^+$)		EF	J^π: (E2) γ to (39/2$^+$) level, band structure.
4348.5[&] *11*	(47/2$^+$)		E	J^π: 285.1γ E2 to (43/2$^+$), band structure.
4701.1[c] *9*	(45/2$^-$)		E	J^π: 805.0γ E2 to (41/2$^-$), band structure.
5058.8[&] *14*	(51/2$^+$)		E	J^π: 710.3γ E2 to (47/2$^+$), band structure.
5231.8[c] *13*	(49/2$^-$)		E	J^π: 530.7γ E2 to (45/2$^-$), band structure.
5741.6[&] *17*	(55/2$^+$)		E	J^π: 682.8γ E2 to (51/2$^+$), band structure.

[†] From least-squares fit to Eγ.
[‡] Band(A): g.s. band.
[#] Band(B): h11/2 decoupled band (favored sequence).
[@] Band(C): h11/2 decoupled band (unfavored sequence).
[&] Band(D): rotation-aligned band based on 31/2$^+$ level.
[a] Band(E): $h_{9/2}$ band, α=+1/2.
[b] Band(F): $h_{9/2}$ band, α=−1/2.
[c] Band(G): Band based on (33/2$^-$). Continuation of $h_{11/2}$ band after band crossing. Second band crossing occurs at $\hbar\omega\approx$0.22 MeV.
[d] Band(H): Band based on (21/2$^+$).

$\gamma(^{193}Au)$

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.†	δ	α[b]	Comments
38.234	(1/2)+	38.23@ 2	100	0.0	3/2+	M1+E2	0.41 8	86 23	B(M1)(W.u.)=0.00098 17; B(E2)(W.u.)=46 12
224.80	(3/2)+	186.56§ 3	100# 10	38.234	(1/2)+	M1+E2§	0.26§ 5	1.186 25	B(M1)(W.u.)>0.045; B(E2)(W.u.)>22
		224.81§ 4	5.0# 10	0.0	3/2+				
257.986	5/2+	219.75@ 3	5.7 3	38.234	(1/2)+	E2		0.273	B(E2)(W.u.)=14 7 I_γ: From ^{193}Au IT decay (3.9 s). I_γ: Iγ=4 from Ir(α,xnγ) (1974Tj02).
		257.99@ 3	100# 10	0.0	3/2+	M1+E2	−0.75 11	0.380 25	B(M1)(W.u.)=0.014 7; B(E2)(W.u.)=31 15 δ: From (p,2nγ).
290.20	11/2−	32.21 3	≈4.1	257.986	5/2+	E3		9.29×10^4	B(E3)(W.u.)≈0.042 E_γ: From ^{193}Hg ε decays (11.8 h). I_γ: Branching deduced using I(γ+ce) in ^{193}Au IT decay (3.9 s).
		289.8‡	100	0.0	3/2+	[M4]		18.1	I_γ: Branching deduced using I(γ+ce) in ^{193}Au IT decay (3.9 s). Yields B(M4)(W.u.)=26 14, note the value exceeds RUL=10 by 1 to 2 sigmas.
381.62	5/2+	156.8# 2	1# 1	224.80	(3/2)+				
		343.4# 2	6# 1	38.234	(1/2)+				
		381.60 4	100# 10	0.0	3/2+	D+Q#	−2.9# +6−5		δ: 1.2 +5−3 (^{193}Hg ε decay (11.8 h)).
508.27	7/2−	126.56 10	2.0 6	381.62	5/2+	(E1)		0.229	B(E1)(W.u.)=5.3×10^{-6} 17
		218.07 4	100 14	290.20	11/2−	E2		0.280	B(E2)(W.u.)=46 4
538.99	(7/2+)	157.40 10	2.5 5	381.62	5/2+	(E2)		0.877	
		280.94 5	26# 4	257.986	5/2+	D+Q#	−0.06# 3		I_γ: Others: 15 12 (^{193}Hg ε decay (11.8 h)), 45 from Ir(α,xnγ) (1974Tj02).
		314.0# 2	2# 1	224.80	(3/2)+				
		539.03 6	100# 10	0.0	3/2+	(E2)		0.0216	
687.43	(7/2+)	148.5# 3	1# 1	538.99	(7/2+)				
		305.9# 2	9# 1	381.62	5/2+	D+Q#	+0.44# +22−19		
		429.51d 5	100d# 10	257.986	5/2+	D+Q#	−0.19# +2−3		
		462.6# 2	13# 2	224.80	(3/2)+	Q#			
		687.5# 2	27# 1	0.0	3/2+				
697.81	(15/2)−	407.63 4	100	290.20	11/2−	E2		0.0433	
789.94	9/2−	251.0# 2	2# 2	538.99	(7/2+)	[E1]#		0.0412	B(E1)(W.u.)=1.6×10^{-7} 16
		281.76 4	20# 1	508.27	7/2−	M1+E2	0.66 +17−12	0.31 3	B(M1)(W.u.)=8.9×10^{-5} 15; B(E2)(W.u.)=0.16 6
		499.65 5	100# 10	290.20	11/2−	M1+E2	0.8 4	0.062 15	B(M1)(W.u.)=5.5×10^{-5} 19; B(E2)(W.u.)=0.09 3
808.57	(9/2)+	269.4 2	3# 1	538.99	(7/2+)	D+Q#	−0.13# 5		E_γ: Average of 269.2 3 (α,xnγ) and 269.6 2 (p,2nγ).

$^{193}_{79}Au_{114}$-6

$\gamma(^{193}Au)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	δ	α[b]	Comments
808.57	(9/2)+	427.0[#] *2*	3[#] *1*	381.62	5/2+				
		550.63 *6*	100[#] *10*	257.986	5/2+	Q			
828.00	3/2+	446.4[#] *2*	52[#] *9*	381.62	5/2+	D+Q[#]	−0.30[#] *7*		
		603.2[#] *3*	100[#] *10*	224.80	(3/2)+	D+Q[#]	+0.50[#] *+36−28*		δ: Angular correlation analysis did yield a distinct value (2014Th02 – (p,2nγ)).
		789.7[#] *2*	54[#] *4*	38.234	(1/2)+	(M1)[§]		0.0258	E_γ: 789.21 *21* in ^{193}Hg ε decay (3.80 h) is a doublet (2014Th02).
		828.0[#] *2*	81[#] *23*	0.0	3/2+	(E2)[§]		0.00840	E_γ: 827.81 *20* in ^{193}Hg ε decay (3.80 h) is a doublet (2014Th02).
863.36	(13/2)−	165.53 *4*	0.28 *7*	697.81	(15/2)−	M1		1.728	
		573.25 *6*	100 *10*	290.20	11/2−	M1+E2	+0.36[&] *7*	0.0545 *19*	
890.80	9/2−	382.47 *4*	100 *21*	508.27	7/2−	M1		0.1723	
		600.65 *6*	100 *11*	290.20	11/2−	M1+E2	1.4 *+6−4*	0.029 *6*	I_γ: Iγ=18 from Ir(α,xnγ) (1974Tj02).
929.09	(9/2+)	241.70 *4*	40 *9*	687.43	(7/2+)	D+Q[#]	−0.12[#] *5*		
		390.1[#] *3*	29[#] *2*	538.99	(7/2+)	D[#]			
		547.43 *6*	100[#] *10*	381.62	5/2+	(E2)		0.0208	
		638.9[#] *2*	14[#] *5*	290.20	11/2−				
983.59	(7/2+)	155.6[#] *4*	2[#] *1*	828.00	3/2+				
		444.6[#] *4*	10[#] *4*	538.99	(7/2+)				
		725.6[#] *2*	100[#] *10*	257.986	5/2+	D+Q[#]	+2.54[#] *+30−25*		
		758.8[#] *2*	56[#] *4*	224.80	(3/2)+	Q[#]			
1085.35	(7/2+)	295.4[#] *3*	100[#] *10*	789.94	9/2−				
		577.1[#] *2*	23[#] *3*	508.27	7/2−				
		703.7[#] *2*	37[#] *4*	381.62	5/2+	D+Q[#]	+0.36[#] *+21−19*		δ: Value listed in parentheses (2014Th02 - (p,2nγ)).
		827.5[#] *3*	40[#] *5*	257.986	5/2+	D+Q[#]	+0.48[#] *16*		δ: Value listed in parentheses (2014Th02 - (p,2nγ)).
		860.5[#] *3*	63[#] *8*	224.80	(3/2)+				
1089.34		580.97[§] *8*	100	508.27	7/2−				
1105.92	(7/2+)	277.9[#] *2*	20[#] *4*	828.00	3/2+				
		567.1[#] *3*	59[#] *12*	538.99	(7/2+)	D+Q[#]	+0.32[#] *+22−19*		
		724.3[#] *2*	100[#] *10*	381.62	5/2+	D+Q[#]	+0.40[#] *11*		
		847.8[#] *3*	35[#] *7*	257.986	5/2+	D+Q[#]	+0.28[#] *5*		
1106.4	(11/2−)	316.5[a] *5*	100	789.94	9/2−	M1+E2[a]		0.19 *10*	
1118.97	(3/2)+	861.11[§] *17*	100[§] *17*	257.986	5/2+	M1+E2[#]	+1.33[#] *40*	0.0124 *23*	
		1080.7[§] *3*	29[§] *4*	38.234	(1/2)+				

$^{193}_{79}Au_{114}$-7

Adopted Levels, Gammas (continued)

$\gamma(^{193}$Au) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	δ	α[b]	Comments
1118.97	(3/2)$^+$	1118.84[§] *17*	64[§] *9*	0.0	3/2$^+$				Mult.: (E2) in ^{193}Hg ε decay (3.80 h). Spin parity implies (M1+E2).
1131.84	9/2$^-$,11/2$^-$	341.91 *4*	100	789.94	9/2$^-$	M1+E2	0.9 *3*	0.16 *3*	
1153.53	(11/2$^+$)	345.00 *4*	91 *39*	808.57	(9/2)$^+$	D			Mult.: From (p,2nγ), in band transition. α(K)exp= 0.052 *33* (^{193}Hg ε decay (11.8 h) indicates dominant E2 (>90%).
		614.32 *10*	100 *16*	538.99	(7/2$^+$)	Q			Mult.: From (p,2nγ). α(K)exp=0.021 *5* (^{193}Hg ε decay (11.8 h)) indicates M1+E2 with δ=1.5 *4*.
1194.31	(13/2$^-$)	404.36 *5*	100	789.94	9/2$^-$	(E2)		0.0442	E_γ: Other value: 406.9 keV *9* (^{11}B,4nγ).
1284.81	9/2$^-$,11/2$^-$	394.00 *4*	100 *12*	890.80	9/2$^-$	M1+E2	0.75 *22*	0.119 *16*	
		776.57 *20*	26 *11*	508.27	7/2$^-$				
		994.61 *15*	61 *7*	290.20	11/2$^-$	E2		0.00581	
1297.41	(3/2$^-$ to 11/2$^-$)	207.7[#] *3*	19[#] *4*	1089.34					
		789.1[#] *2*	100[#] *10*	508.27	7/2$^-$				
1300.39	(3/2 to 11/2$^+$)	215.1[#] *3*	100[#] *10*	1085.35	(7/2$^+$)				
		612.9[#] *3*	13[#] *5*	687.43	(7/2$^+$)				
1330.90	(9/2$^+$)	347.3[#] *3*	100[#] *10*	983.59	(7/2$^+$)	D+Q[#]	−0.45[#] *24*		
		401.8[#] *3*	95[#] *19*	929.09	(9/2$^+$)				
		522.3[#] *3*	53[#] *11*	808.57	(9/2)$^+$				
		643.5[#] *3*	89[#] *18*	687.43	(7/2$^+$)				
		949.3[#] *3*	28[#] *6*	381.62	5/2$^+$				
1343.69	(1/2$^+$ to 9/2$^+$)	962[#] *3*	19[#] *6*	381.62	5/2$^+$				
		1085.7[#] *2*	100[#] *10*	257.986	5/2$^+$				
1355.32	(11/2 to 15/2$^-$)	657.62 *15*	100	697.81	(15/2)$^-$	(E2)		0.01370	
1372.94	(17/2)$^-$	675.17 *12*	100	697.81	(15/2)$^-$	M1+E2	1.5 *+10−5*	0.021 *5*	
1379.93	(11/2$^+$)	571.3[#] *2*	100[#] *10*	808.57	(9/2)$^+$	D[#]			
		692.54 *12*	98[#] *20*	687.43	(7/2$^+$)	(E2)		0.01224	
		840.9 *3*	77[#] *15*	538.99	(7/2$^+$)				
1398.51	(13/2)$^-$	535.15 *5*	100 *20*	863.36	(13/2)$^-$	M1+E2	1.3 *+8−4*	0.040 *10*	
		608.70 *10*	4.7 *13*	789.94	9/2$^-$	(E2)		0.01628	
		700.88 *12*	15 *3*	697.81	(15/2)$^-$	(M1+E2)	1.1 *+10−5*	0.0224 *66*	
1400.39	11/2$^-$	509.43 *6*	37 *18*	890.80	9/2$^-$	M1+E2	1.4 *+8−4*	0.044 *10*	
		537.08 *5*	100 *13*	863.36	(13/2)$^-$	M1+E2	0.8 *+6−5*	0.051 *15*	
		1109.80[e] *17*	32 *5*	290.20	11/2$^-$				
1413.03	(9/2$^-$)	725.60[d] *15*	100[d]	687.43	(7/2$^+$)				
1417.99	(5/2$^+$,7/2$^+$)	434.4[#] *3*	58[#] *12*	983.59	(7/2$^+$)				
		488.9[#] *3*	64[#] *13*	929.09	(9/2$^+$)				

$\gamma(^{193}Au)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	δ	α[b]	Comments
1417.99	(5/2+,7/2+)	590.0[#] 3	67[#] 17	828.00	3/2+				
		609.3[#] 3	32[#] 6	808.57	(9/2)+				
		879.1[#] 3	100[#] 10	538.99	(7/2+)				
1419.13	(19/2)−	721.3[#] 3	100	697.81	(15/2)−	E2[&]		0.01122	
1433.49	(11/2+,13/2+)	624.91 10	100	808.57	(9/2)+	(E2)		0.01535	
1455.19	(11/2 to 15/2−)	591.72 8	80 23	863.36	(13/2)−	M1+E2	1.0 7	0.036 16	
		757.63 20	100 20	697.81	(15/2)−	(E2)		0.01010	
1463.10		572.3[#] 3	100[#] 10	890.80	9/2−				
		635.1[#] 3	21[#] 5	828.00	3/2+				
1476.98	(13/2+)	668.4[#] 2		808.57	(9/2)+				E_γ: Other: 669.8 in (^{7}Li,6nγ).
1477.18	(7/2,9/2,11/2)−	668.48 12	100	808.57	(9/2)+	E1		0.00474	
1496.30	(9/2)−	364.47 4	100 14	1131.84	9/2−,11/2−	M1+E2	1.3 +5−4	0.110 25	
		706.30 12	39 7	789.94	9/2−	(E2)		0.01173	
		957.42[e] 25	13 3	538.99	(7/2+)	(E1)		0.00239	
		1205.3 6	1.3 5	290.20	11/2−				
1514.20	(7/2−)	1132.50 20	100	381.62	5/2+				
1521.9	(15/2−)	415.5[a] 9	100	1106.4	(11/2−)	E2[a]		0.0412 7	
1526.9	(9/2,7/2+)	987.9[#] 3	100	538.99	(7/2+)				
1572.29	(9/2−,11/2,13/2+)	274.4[#] 3	100[#] 10	1297.41	(3/2− to 11/2−)				
		482.1[#] 3	17[#] 3	1089.34					
		643.41 12		929.09	(9/2+)				
1575.62	11/2−,13/2−	290.75 5	40 8	1284.81	9/2−,11/2−	M1		0.362	
		444.0 4	3.5 10	1131.84	9/2−,11/2−				
		684.77 12	29 8	890.80	9/2−	(E2)		0.01254	
		712.15 12	17 3	863.36	(13/2)−	M1+E2	1.3 5	0.0198 53	
		877.76 17	100 13	697.81	(15/2)−	E2		0.00746	
		1285.20 20	29 4	290.20	11/2−	M1+E2	1.3 7	0.0050 15	
1578.01	(5/2,7/2)+	472.1[#] 2	100[#] 10	1105.92	(7/2+)				
		750.0[#] 2	17[#] 6	828.00	3/2+				
1598.6		404.3[#] 3	100[#]	1194.31	(13/2−)				
1603.15	(3/2−,5/2+)	1094.5[§] 4	94[§] 28	508.27	7/2−				
		1221.1[§] 5	46[§] 14	381.62	5/2+				
		1378.5[§] 4	100[§] 29	224.80	(3/2)+				
		1565.0[§] 6	19[§] 10	38.234	(1/2)+				
		1603.4[c§] 3	350[c§] 70	0.0	3/2+				
1630.25	11/2−,13/2−	274.95 7	0.56 14	1355.32	(11/2 to 15/2−)	(M1+E2)	1.2 +8−5	0.251 76	
		345.46 4	8.6 9	1284.81	9/2−,11/2−	M1+E2	0.24 3	0.218 4	
		739.47 17	1.3 8	890.80	9/2−	(E2,M1)		0.021 10	

Adopted Levels, Gammas (continued)

$\gamma(^{193}Au)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. †	δ	α [b]
1630.25	11/2⁻,13/2⁻	766.97 *20*	3.1 *6*	863.36	(13/2)⁻	(E2)		0.00985
		932.37 *15*	100 *10*	697.81	(15/2)⁻	(E2)		0.00660
1654.69	(9/2⁻,11/2,13/2⁺)	725.60[d] *15*	100[d]	929.09	(9/2⁺)			
1658.0	1/2^(+) to 5/2^(+)	1276.38§ *25*		381.62	5/2⁺	(E2)§		0.00360
1678.79		695.2# *2*	100# *10*	983.59	(7/2⁺)			
		870.2# *3*	68# *18*	808.57	(9/2)⁺			
1680.35	(11/2⁻,13/2⁻)	790.6 *4*	23 *10*	890.80	9/2⁻			
		816.81 *20*	100 *17*	863.36	(13/2)⁻	(E2)		0.00864
		982.2 *4*	17 *6*	697.81	(15/2)⁻			
1684.74	(9/2⁻ to 13/2⁻)	895.0 *5*	1.8 *6*	789.94	9/2⁻			
		1394.50 *20*	100 *15*	290.20	11/2⁻	(E2)		0.00307
1708.8	(17/2⁻)	514.5[a] *9*	100	1194.31	(13/2⁻)	E2[a]		0.0241
1733.44	(15/2⁻)	360.51 *5*	14 *4*	1372.94	(17/2)⁻	(M1+E2)	0.9 *+6−4*	0.139 *35*
		870.05 *17*	100 *14*	863.36	(13/2)⁻	(E2)		0.00759
		1035.54 *17*	62 *10*	697.81	(15/2)⁻	(E2)		0.00537
1745.1		1236.8# *3*	100	508.27	7/2⁻			
1776.04	11/2⁻	200.30 *7*		1575.62	11/2⁻,13/2⁻			
		491.3 *4*	11 *6*	1284.81	9/2⁻,11/2⁻			
		885.3 *4*	7.2 *22*	890.80	9/2⁻			
		913.06 *15*	100 *11*	863.36	(13/2)⁻	E2		0.00689
		985.9 *4*	3.6 *11*	789.94	9/2⁻			
		1267.90 *20*	19 *3*	508.27	7/2⁻	(E2)		0.00365
		1486.10 *25*	94 *11*	290.20	11/2⁻	(E2)		0.00276
1794.92	(13/2⁻)	421.8 *4*	100 *25*	1372.94	(17/2)⁻			
		1004.6 *6*	58 *18*	789.94	9/2⁻			
		1097.15 *15*	58 *15*	697.81	(15/2)⁻			
1815.1	(1/2,3/2,5/2⁺)	1776.4§ *4*	32§ *8*	38.234	(1/2)⁺			
		1815.6§ *4*	100§ *24*	0.0	3/2⁺			
1815.41	(9/2⁻,11/2⁻,13/2⁻)	952.0 *4*	9 *3*	863.36	(13/2)⁻			
		1026.0 *6*	2.3 *9*	789.94	9/2⁻			
		1525.1 *3*	100 *14*	290.20	11/2⁻	(E2)		0.00265
1829.91	(11/2⁻,13/2⁻)	429.51[d] *5*	37[d] *19*	1400.39	11/2⁻			
		431.46 *5*	21 *6*	1398.51	(13/2)⁻	(M1)		0.1249
		545.05 *6*	100 *22*	1284.81	9/2⁻,11/2⁻	(E2)		0.0210
		939.1 *4*	18 *5*	890.80	9/2⁻			
		966.1 *4*	14 *5*	863.36	(13/2)⁻			
		1539.0 *5*	21 *5*	290.20	11/2⁻			
1861.91	(1/2⁺,3/2,5/2⁺)	1603.4[c]§ *3*	143[c]§ *28*	257.986	5/2⁺			
		1824.3§ *4*	36§ *11*	38.234	(1/2)⁺			

Adopted Levels, Gammas (continued)

γ(^{193}Au) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	δ	α[b]	Comments
1861.91	(1/2$^+$,3/2,5/2$^+$)	1862.2[§] 4	100[§] 19	0.0	3/2$^+$				
1869.28	(11/2$^-$ to 15/2$^-$)	1171.50 17	100 22	697.81	(15/2)$^-$	(E2)		0.00423	
		1578.9 4	5.3 15	290.20	11/2$^-$				
1876.29	(11/2$^-$,13/2$^-$)	1013.3 4	50 13	863.36	(13/2)$^-$				
		1085.7 6	18 7	789.94	9/2$^-$				
		1178.60 20	100 23	697.81	(15/2)$^-$	(E2)		0.00418	
		1585.5 4	57 13	290.20	11/2$^-$				
1915.20	(11/2$^-$ to 15/2$^-$)	1052.00 20	100 17	863.36	(13/2)$^-$	(E2)		0.00520	
		1217.7 5	3.0 9	697.81	(15/2)$^-$				
		1624.5 3	54 8	290.20	11/2$^-$				
1930.03	11/2$^-$,13/2$^-$	299.82 4	18 3	1630.25	11/2$^-$,13/2$^-$	M1		0.333	
		354.5 5	2.6 12	1575.62	11/2$^-$,13/2$^-$				
		529.51 7	35 20	1400.39	11/2$^-$	(E2)		0.0225	
		645.23 12	8.2 23	1284.81	9/2$^-$,11/2$^-$	(E2)		0.01429	
		1040.5 3	<10	890.80	9/2$^-$				
		1066.0 6	1.4 5	863.36	(13/2)$^-$				
		1139.5 5	2.9 9	789.94	9/2$^-$				
		1232.20 20	68 9	697.81	(15/2)$^-$	E2		0.00385	
		1639.4 3	100 15	290.20	11/2$^-$				
1939.20	(11/2,13/2)$^-$	654.51 15	3.8 11	1284.81	9/2$^-$,11/2$^-$	(E2)		0.01385	
		1048.5 4	1.8 6	890.80	9/2$^-$				
		1075.90 25	14.6 21	863.36	(13/2)$^-$	(E2)		0.00498	
		1241.30 20	100 9	697.81	(15/2)$^-$	E2		0.00379	
		1648.5 3	46 7	290.20	11/2$^-$				
1947.10	(21/2)$^+$	528.0[&] 3	100[&] 7	1419.13	(19/2)$^-$	E1[&]		0.00765	B(E1)(W.u.)=1.04×10^{-7} 13 E_γ: Weighted average of 527.9 3 (α,xnγ) and 528.4 5 (^{11}B,4nγ).
		1249.3[&] 3	26[&] 3	697.81	(15/2)$^-$	(E3)[&]		0.00799	B(E3)(W.u.)=2.3 4
2012.20	(13/2$^-$,15/2$^-$)	639.0[d] 4	35[d] 18	1372.94	(17/2)$^-$				
		1149.3 6	6 2	863.36	(13/2)$^-$				
		1314.51[d] 20	100[d] 38	697.81	(15/2)$^-$				
		1721.3 5	3.8 11	290.20	11/2$^-$				
2014.72	(1/2$^+$,3/2,5/2$^+$)	1756.7[§] 5	18[§] 6	257.986	5/2$^+$				
		1976.6[§] 4	100[§] 24	38.234	(1/2)$^+$				
		2014.6[§] 4	3.2[§] 8	0.0	3/2$^+$				
2023.47	(11/2 to 15/2$^-$)	623.10 10	12 3	1400.39	11/2$^-$	M1+E2	1.0 9	0.032 16	
		738.60[e] 17	10 6	1284.81	9/2$^-$,11/2$^-$				
		1160.18 20	17.6 25	863.36	(13/2)$^-$	(E2)		0.00431	
		1325.50 20	100 12	697.81	(15/2)$^-$	(E2)		0.00336	
2037.47	(11/2,13/2)$^-$	461.83 6	40 6	1575.62	11/2$^-$,13/2$^-$	M1+E2	0.9 6	0.072 27	

γ(^{193}Au) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	δ	α[b]	Comments
2037.47	(11/2,13/2)⁻	560.0 *4*	9 *4*	1477.18	(7/2,9/2,11/2)⁻				
		639.0[d] *4*	11[d] *4*	1398.51	(13/2)⁻				
		752.70 *15*	11.7 *23*	1284.81	9/2⁻,11/2⁻	(M1+E2)	0.9 *7*	0.0207 *78*	
		883.6 *4*	3.4 *11*	1153.53	(11/2⁺)				
		1147.20 *20*	6.4 *13*	890.80	9/2⁻	(E2)		0.00440	
		1174.00 *17*	53 *8*	863.36	(13/2)⁻	(E2)		0.00421	
		1339.60 *20*	100 *13*	697.81	(15/2)⁻	(E2)		0.00330	
2043.4	1/2,3/2,5/2	953.7[§] *4*	100[§] *29*	1089.34					
		1662.1[§] *4*	62[§] *16*	381.62	5/2⁺				
2063.05	11/2⁻,13/2⁻,15/2⁻	330.0 *5*	1.9 *6*	1733.44	(15/2⁻)				
		487.41 *6*	25 *5*	1575.62	11/2⁻,13/2⁻	M1+E2	1.1 *3*	0.056 *10*	
		662.73 *12*	18 *5*	1400.39	11/2⁻				
		778.37 *20*	13 *7*	1284.81	9/2⁻,11/2⁻	(M1,E2)		0.0182 *87*	
		1199.5 *3*	2.7 *8*	863.36	(13/2)⁻	(M1)		0.00892	
		1365.10 *22*	100 *13*	697.81	(15/2)⁻	(E2)		0.00319	
2080.0	(25/2⁺)	132.9[&] *3*	100	1947.10	(21/2)⁺	E2[&]		1.66 *3*	B(E2)(W.u.)=30.9 *17*
2087.3	(21/2⁻)	668.2[&] *3*		1419.13	(19/2)⁻				
2100.9	(19/2⁻)	578.5[ae] *9*	100	1521.9	(15/2⁻)	E2[a]		0.0183	
2104.44	(11/2,13/2)⁻	1314.51[d] *20*	36[d] *14*	789.94	9/2⁻				
		1406.60 *20*	100 *14*	697.81	(15/2)⁻	(M1,E2)		0.0045 *15*	
2125.37	(11/2⁻)	295.4 *4*	13 *5*	1829.91	(11/2⁻,13/2⁻)				
		1196.4 *3*	53 *12*	929.09	(9/2⁺)				
		1261.9 *3*	100 *25*	863.36	(13/2)⁻	(E2)		0.00368	
2130.40	(11/2⁻ to 15/2⁻)	731.95 *12*	32 *6*	1398.51	(13/2)⁻	(E2)		0.01087	
		1432.40 *20*	100 *15*	697.81	(15/2)⁻	(E2,M1)		0.0044 *15*	
2139.78	(13/2⁻,15/2⁻)	1007.8 *4*	36 *9*	1131.84	9/2⁻,11/2⁻				
		1442.00 *20*	100 *21*	697.81	(15/2)⁻	(M1)		0.00569	
2140.2	(23/2⁺)	193.1[&] *3*	100	1947.10	(21/2)⁺	D+Q[&]			
2157.63	(11/2⁻)	643.41[d] *12*	26[d] *10*	1514.20	(7/2⁻)				
		661.7 *4*	42 *13*	1496.30	(9/2)⁻				
		963.1 *6*	5.8 *24*	1194.31	(13/2⁻)				
		1294.3 *4*	17 *5*	863.36	(13/2)⁻				
		1459.8 *4*	100 *30*	697.81	(15/2)⁻				
2159.03	(11/2⁻ to 15/2⁻)	583.32 *8*	27 *8*	1575.62	11/2⁻,13/2⁻	(E2)		0.0179	
		1461.60 *20*	100 *30*	697.81	(15/2)⁻	(M1,E2)		0.0042 *14*	
		1869.2 *3*	41 *11*	290.20	11/2⁻				
2173.0	(23/2⁻)	753.8[&] *3*	100	1419.13	(19/2)⁻	(E2)[&]		0.01021	
2196.88	(11/2⁻,13/2,15/2⁻)	798.39 *25*	30 *13*	1398.51	(13/2)⁻				
		1499.2 *4*	100 *26*	697.81	(15/2)⁻				
		1906.4 *5*	23 *8*	290.20	11/2⁻				

γ(^{193}Au) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[†]	α[b]	Comments
2201.73	(11/2⁻)	626.22 *10*	13 *4*	1575.62	11/2⁻,13/2⁻	(M1)	0.0469	
		746.11 *20*	9 *3*	1455.19	(11/2 to 15/2⁻)			
		803.22 *25*	3.8 *15*	1398.51	(13/2)⁻	(M1)	0.0247	
		1070.6 *6*	1.4 *7*	1131.84	9/2⁻,11/2⁻			
		1503.80 *25*	100 *17*	697.81	(15/2)⁻	(E2)	0.00271	
		1693.4 *6*	2.3 *9*	508.27	7/2⁻			
2205.94	(11/2⁻)	1697.0 *3*	25 *6*	508.27	7/2⁻			
		1916.4 *3*	100 *21*	290.20	11/2⁻			
2215.20	(13/2⁻,15/2⁻)	1351.52 *25*	50 *15*	863.36	(13/2)⁻	(E2,M1)	0.0049 *17*	
		1517.50 *25*	100 *15*	697.81	(15/2)⁻	(M1)	0.00505	
		1925.5 *4*	38 *11*	290.20	11/2⁻			
2255.12	(11/2⁻ to 15/2⁻)	854.80 *25*	49 *16*	1400.39	11/2⁻			
		970.0 *4*	19 *3*	1284.81	9/2⁻,11/2⁻			
		1123.2 *3*	20 *9*	1131.84	9/2⁻,11/2⁻			
		1392.00 *20*	100 *18*	863.36	(13/2)⁻	(M1)	0.00619	
		1556.9 *3*	93 *16*	697.81	(15/2)⁻			
2279.39	(11/2⁻)	801.73 *25*	58 *15*	1477.18	(7/2,9/2,11/2)⁻	(E2)	0.00898	
		900.4 *6*	7 *3*	1379.93	(11/2⁺)			
		1581.9 *3*	100 *21*	697.81	(15/2)⁻			
		1771.6 *4*	42 *12*	508.27	7/2⁻			
		1988.6 *6*	1.2 *6*	290.20	11/2⁻			
2285.28	(11/2⁺)	808.3 *6*	5.3 *15*	1477.18	(7/2,9/2,11/2)⁻			
		905.1 *5*	5.2 *21*	1379.93	(11/2⁺)			
		1476.70 *20*	100 *15*	808.57	(9/2)⁺			
		1746.3 *3*	88 *18*	538.99	(7/2⁺)			
2291.01	(11/2⁺)	1137.80 *25*	29 *9*	1153.53	(11/2⁺)			
		1400.0 *3*	41 *12*	890.80	9/2⁻			
		1481.6 *4*	100 *26*	808.57	(9/2)⁺			
		1752.2 *3*	41 *12*	538.99	(7/2⁺)			
2320.1	(21/2⁻)	611.3[a] *8*	100	1708.8	(17/2⁻)	E2[a]	0.01613	
2324.9	(29/2⁺)	244.9[&] *3*	100	2080.0	(25/2⁺)	(E2)	0.191	B(E2)(W.u.)>40 Mult.: From (^{11}B,4nγ). Other (M1) in (α,xnγ).
2377.9	(27/2⁻)	204.9[&] *3*	100[&] *12*	2173.0	(23/2⁻)	(E2)[&]	0.345	B(E2)(W.u.)=17 *4*
		298.0[&] *3*	41[&] *12*	2080.0	(25/2⁺)	(E1)[a]	0.0273	B(E1)(W.u.)=2.2×10^{-6} *8* E_γ: Other value: 297.2 *8* (α,4xnγ).
2476.6	(31/2⁻)	98.7[&] *3*	100	2377.9	(27/2⁻)	(E2)[&]	5.50 *11*	B(E2)(W.u.)=39.9 *23*
2486.7	(31/2⁺)	161.8[&] *3*	100	2324.9	(29/2⁺)	D		Mult.: From (^{11}B,4nγ). Other (E2) in (αxnγ).
2701.1	(33/2⁻)	224.5[&] *3*	100	2476.6	(31/2⁻)	(E2)[&]	0.254	B(E2)(W.u.)=6.6 *4*
2923.4	(35/2⁺)	436.7[&] *3*	100	2486.7	(31/2⁺)	(E2)[&]	0.0362	
3155.1	(37/2⁻)	454.0[&] *3*	100	2701.1	(33/2⁻)	(E2)[&]	0.0328	B(E2)(W.u.)>0.85

$\gamma(^{193}Au)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[†]	α[b]
3441.9	(39/2$^+$)	518.5[&] *3*	100	2923.4	(35/2$^+$)	(E2)[&]	0.0237
3896.1	(41/2$^-$)	741.0[&] *3*	100	3155.1	(37/2$^-$)	(E2)[&]	0.01059
4063.4	(43/2$^+$)	621.5[&] *3*	100	3441.9	(39/2$^+$)	(E2)[&]	0.01554
4348.5	(47/2$^+$)	285.1[a] *7*	100	4063.4	(43/2$^+$)	E2[a]	0.1192 *19*
4701.1	(45/2$^-$)	805.0[a] *5*	100	3896.1	(41/2$^-$)	E2[a]	0.00890
5058.8	(51/2$^+$)	710.3[a] *9*	100	4348.5	(47/2$^+$)	E2[a]	0.01159
5231.8	(49/2$^-$)	530.7[a] *9*	100	4701.1	(45/2$^-$)	E2[a]	0.0224
5741.6	(55/2$^+$)	682.8[a] *9*	100	5058.8	(51/2$^+$)	E2[a]	0.01262

† From ^{193}Hg ε decay (11.8 h), unless otherwise noted.

‡ From ^{193}Au IT decay (3.9 s).

§ From ^{193}Hg ε decay (3.80 h).

& From Ir(α,xnγ).

@ Weighted average of measurements from 1970Fo08 (^{193}Au IT decay) and 1974ViZS (^{193}Hg decays).

\# From (p,2nγ).

a From (^{11}B,4nγ).

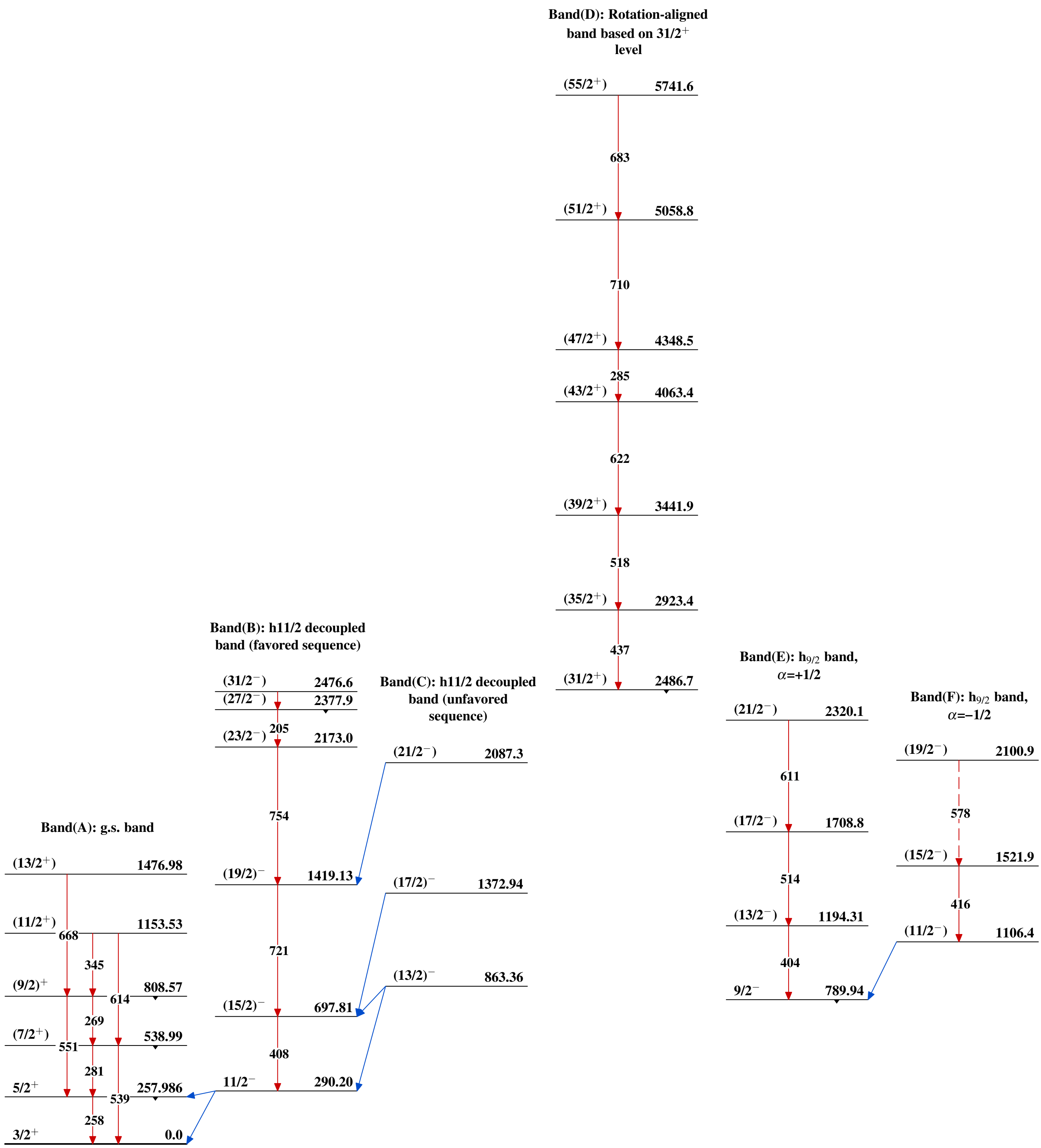
b Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

c Multiply placed with undivided intensity.

d Multiply placed with intensity suitably divided.

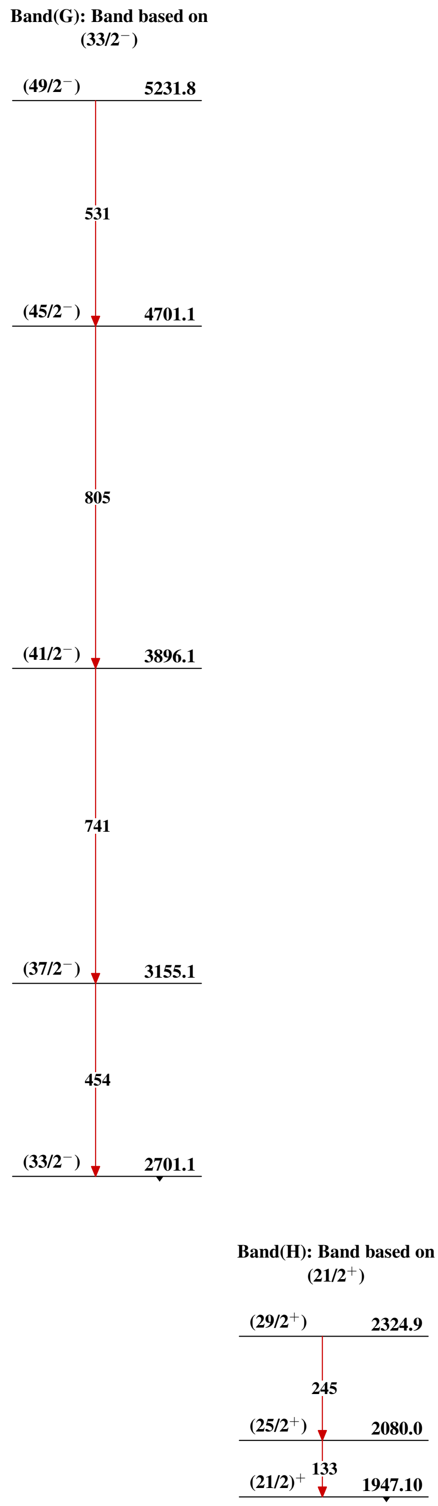
e Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas



$^{193}_{79}Au_{114}$

Adopted Levels, Gammas (continued)



$^{193}_{79}Au_{114}$

^{193}Au IT decay (3.9 s) 1970Fo08

Parent: ^{193}Au: E=290.20 *3*; J^{π}=11/2^{-}; $T_{1/2}$=3.9 s *3*; %IT decay=99.97

^{193}Au-%IT decay: 99.97% from I(γ+ce)(258.0γ (M1) in ^{193}Au): I(γ+ce)(135.5γ (M4) in ^{193}Pt)=1000:0.3 (1955Br41). Ratio deduced from ce-intensities and theoretical conversion coefficients (not given).

1970Fo08: activity from ^{193}Hg ε (3.80 h) + ^{193}Hg (11.8 h) decay (produced by spallation of Pb by 600-MeV protons, ms). Measured Eγ, Iγ (Ge(Li)), E(ce), Ice (mag spect), γ(ce), (ce)(ce)t.

Others: 1974ViZS, 1958Br88, 1955Br12, 1955Br41, 1955Fi30, 1954Gi04, 1952Fi06.

^{193}Au Levels

The decay scheme is that proposed by 1970Fo08.

E(level)†	J^{π}†	$T_{1/2}$†	Comments
0.0	3/2^{+}	17.65 h *15*	
38.23 *2*	(1/2)$^{+}$	3.81 ns *18*	
257.98 *2*	5/2^{+}	45 ps *20*	$T_{1/2}$: from (ce(L)(32.21γ))(ce(K)(257.95γ)t) (1970Fo08).
290.20 *3*	11/2^{-}	3.9 s *3*	%IT=99.97 $T_{1/2}$: from 1955Fi30. Other: 3.8 s *3* (1955Br41).

† From Adopted Levels, unless otherwise noted.

$\gamma(^{193}Au)$

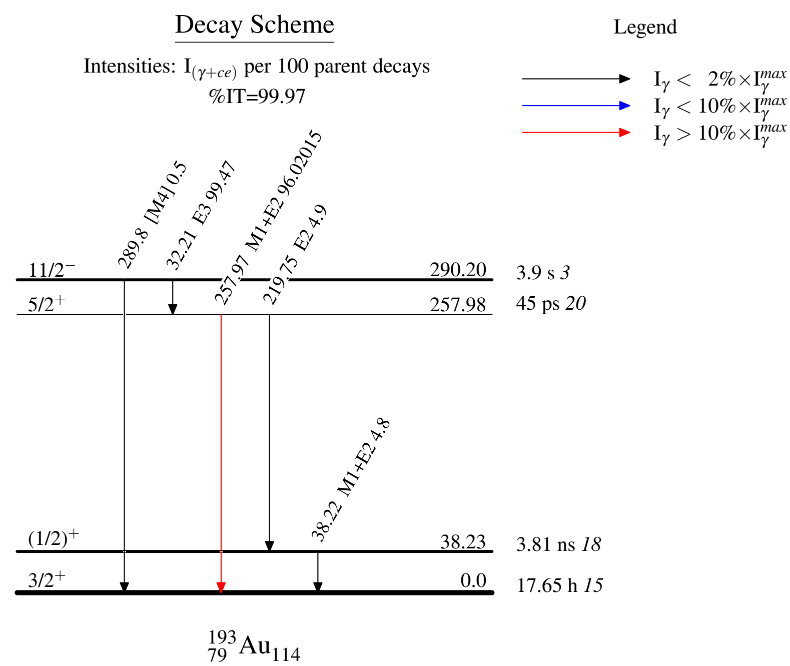
Iγ normalization: From I(γ+ce)(219.75γ)+I(γ+ce)(257.97γ)-I(γ+ce)(289.8γ)=99.47.
All data are from 1970Fo08, unless otherwise noted.

E_γ †	I_γ ‡&	E_i(level)	J^π_i	E_f	J^π_f	Mult.	δ§	α#	$I_{(\gamma+ce)}$ @	Comments
32.21 *3*		290.20	11/2⁻	257.98	5/2⁺	E3		9.29×10^4	99.47	E_γ: from 1974ViZS. Mult.: from (M1+M2+M3)/(M4+M5)=11.3 (1958Br88); other subshell ratios allow E2 or E3, but (M1+M2+M3)/(M4+M5)=71.2 (E2 theory), =9.13 (E3 theory) is consistent only with E3. L2/L3=0.65 (1954Gi04). $I_{(\gamma+ce)}$: from 99.97 − I(γ+ce)(289.8γ).
38.22 *2*		38.23	(1/2)⁺	0.0	3/2⁺	M1+E2	0.42 *+5−4*	89 *14*	4.81 *26*	$I_{(\gamma+ce)}$: from I(γ+ce)(38.22)=I(γ+ce)(219.75) in level scheme. Mult.: from L1:L2:L3=42 *4*:98 *9*:100. δ: from L1/L3=0.50 *10*, weighted average from 1970Fo08 and 1974ViZS (^{193}Hg (3.80 h) decay).
219.75 *5*	3.85 *20*	257.98	5/2⁺	38.23	(1/2)⁺	E2		0.273		Mult.: from K:L1:L2:L3=14.0 *15*:2.35 *30*:6.7 *7*:5.1 *6*.
257.97 *3*	67.1	257.98	5/2⁺	0.0	3/2⁺	M1+E2	0.52 *15*	0.43 *4*		Mult.: from L1:L2:L3=100:22 *4*:4.7 *+47−30*. δ: from weighted average of ce(L) ratios from 1970Fo08 and 1974ViZS (^{193}Hg (11.8 h) decay).
289.8		290.20	11/2⁻	0.0	3/2⁺	[M4]		18.1	0.5	E_γ,$I_{(\gamma+ce)}$: from 1955Br41. $I_{(\gamma+ce)}$: deduced from I(ce) relative to I(ce 257.97γ) and theoretical conversion coefficients (values not given by 1955Br41). $I_{(\gamma+ce)}$: upper limit≈3% from comparison of the ce-lines of the 290 and 256 transitions (1954Gi04).

† Deduced from E(ce); calibrated with E(ce(K)) of the 117.99 *2* γ in ^{193}Pt.
‡ Calculated from intensity balances in the level scheme, the conversion coefficients, and the ratio I(219.75γ)/I(257.97γ)=0.0572 *30* (1970Fo08).
§ If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
& For absolute intensity per 100 decays, multiply by 1.0007.
@ Absolute intensity per 100 decays.
# Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

$^{193}_{79}Au_{114}$-18

^{193}Au IT decay (3.9 s) 1970Fo08



^{193}Hg ε decay (3.80 h) 1974ViZS

Parent: ^{193}Hg: E=0.0; $J^{\pi}=3/2^-$; $T_{1/2}$=3.80 h *15*; Q(ε)=2343 *14*; %ε+%β^+ decay=100

Sources from (p,xn) reactions on gold, E(p)=70, 80 MeV, isotope separation; measured Eγ, Iγ, E(ce), Ice, (Ge(Li), Si(Li) (FWHM=1.2-2.5 keV), mag spect (resolution=0.1%)), Eβ+, Iβ^+ (mag spect), $\gamma\gamma$ coin.

Other studies of ^{193}Hg decays: 1976Di15, 1976ViZM, 1975Zg01, 1970Fo08, 1970Pl01, 1962Di05, 1958Br88, 1955Br12, 1954Gi04.

1974ViZS studied 1) freshly prepared Hg sources to measure the decay curves of the transitions, and 2) Hg sources which had reached transient equilibrium (40 to 100 hours after preparation). In the first case distinction could be made between transitions following the decay of ^{193}Hg (3.80 h) and ^{193}Hg (11.8 h). In the second case the relative intensities of transitions in both decays could be measured since in the metastable state ^{193}Hg (11.8 h) decays to the ground state ^{193}Hg (3.80 h) with %IT=7.2, and all transitions now decay with a $T_{1/2}$=11.8 h.

^{193}Au Levels

The decay scheme is from 1974ViZS and is constructed from transitions showing a 3.80 h component in the pre-equilibrium sources of ^{193}Hg. For high energy levels fed directly by ε decay, the entire γ intensity is assigned to this decay. For the medium levels, which are not directly fed by $\varepsilon+\beta^+$ but are fed by γ's from both ^{193}Hg decays, the intensity of the deexciting transitions is divided according to the feeding.

E(level)[†]	J^{π}[‡]	$T_{1/2}$[‡]	Comments
0.0	$3/2^+$	17.65 h *15*	
38.245 *23*	$(1/2)^+$	3.81 ns *18*	$T_{1/2}$: from (ce(K)(186.56γ))(ce(L)(38.22γ))t (1970Fo08); other: 4.2 ns *6* (γ(ce)(t) 1962Ja04).
224.81 *3*	$(3/2)^+$	<0.03 ns	$T_{1/2}$: from γ(ce(K) 187)(t) (1970Fo08).
257.99 *3*	$5/2^+$	45 ps *20*	
290.20 *4*	$11/2^-$	3.9 s *3*	
381.61 *4*	$5/2^+$		
508.26 *5*	$7/2^-$	0.29 ns *2*	
539.00?[#] *4*			
827.67 *14*	$(1/2^+,3/2^+)$		
1089.25 *10*			
1118.97 *12*	$(3/2)^+$		
1603.15 *19*	$(3/2^-,5/2^+)$		
1658.0 *3*	$1/2^{(+)}$ to $5/2^{(+)}$		
1815.1 *3*	$(1/2,3/2),(5/2)^+$		
1861.92 *21*	$(1/2,3/2,5/2^+)$		
2014.73 *25*			
2043.3 *3*	1/2,3/2,5/2		

† From a least-squares fit to γ-ray energies.

‡ From Adopted Levels.

\# This level is only fed by the 289.0γ from the 827.7 level. However, since the 827.7 level is seen only in this decay, and the 539.0 level is seen only in the ^{193}Hg (11.8 h) decay it is not clear to which decay the 289.0γ belongs, or whether the placement of the γ is correct.

ε,β^+ radiations

The study of β^+ spectrum shows only one major β^+ group with E(β^+)=1287 *15* (1974ViZS,1976Di15). From the intensity balance in the level scheme shown (Σ I(γ+ce)(to ^{193}Au g.s.) − I(γ+ce)(^{193}Hg IT decay)≈0) 1974ViZS has deduced that this β^+ group does not go directly to ^{193}Au g.s. From intensity balance in the level scheme it appears that the group feeds the 224.8 level, resulting in Q+=2534 *15*. 2017Wa10 evaluation of atomic masses adopted Q+=2343 *14*, corresponding to feeding both the ground and first excited states, and was adopted in this evaluation.

The fact that there is no significant direct $\varepsilon+\beta^+$ decay from the $3/2^-$ ^{193}Hg to the $3/2^+$ g.s. and $1/2^+$ level in ^{193}Au seems surprising. However, no systematics for these transitions has been established. In A=189 and A=191 the log *ft*'s for these transitions

^{193}Hg ε decay (3.80 h) 1974ViZS (continued)

ε,β^+ radiations (continued)

have not been measured. In A=195 and A=197 J^π(Hg)=1/2$^-$ and the log *ft*'s for the transitions to the 3/2$^+$ Au g.s. are 7.3 and≥8.0.

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I($\varepsilon+\beta^+$)†‡	Comments
(300 *14*)	2043.3		1.6 *4*	6.12 *13*	1.6 *4*	
(328 *14*)	2014.73		2.1 *5*	6.10 *12*	2.1 *5*	
(481 *14*)	1861.92		4.0 *6*	6.22 *8*	4.0 *6*	
(528 *14*)	1815.1		3.4 *7*	6.39 *10*	3.4 *7*	
(685 *14*)	1658.0		2.6 *6*	6.76 *11*	2.6 *6*	
(740 *14*)	1603.15		3.6 *6*	6.69 *8*	3.6 *6*	
(1224 *14*)	1118.97		24 *3*	6.34 *6*	24 *3*	
(1254 *14*)	1089.25		3.2 *21*	7.2 *3*	3.2 *21*	
(1515 *14*)	827.67	0.0072 *14*	9.2 *13*	6.95 *7*	9.2 *13*	
(1961 *14*)	381.61	0.12 *6*	13 *6*	7.03 *21*	13 *6*	
(2118 *14*)	224.81	0.56 *7*	34 *4*	6.68 *6*	35 *4*	E(decay): E(β^+)=1287 *15* (1974ViZS,1976Di15,1976DiZM).
(2305 *14*)	38.245	<0.41	<15	>7.1	<15	

† From intensity balance in the level scheme.
‡ Absolute intensity per 100 decays.

$\gamma(^{193}Au)$

Iγ normalization: From Σ I(γ+ce)(to ^{193}Au g.s.)=100, assuming no g.s. feeding. Deduced value of Iγ normalization=6.7 *7* is in good agreement with the Iγ normalization=6.8 obtained by applying the half-life correction to the equilibrium counting rate of 100 disintegrations of ^{193}Hg (11.8 h).

All data are from 1974ViZS, unless otherwise noted. The transitions listed showed a 3.80 h component in the pre-equilibrium sources.

E_γ	I_γ[†d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡c]	α[e]	$I_{(\gamma+ce)}$[d]	Comments
32.21 *3*		290.20	11/2$^-$	257.99	5/2$^+$	E3		9.29×10^4	0.5 *2*	$I_{(\gamma+ce)}$: From I(γ+ce)(32.21γ)= I(γ+ce)(218.07γ). Mult.: see ^{193}Hg (11.8 h) decay.
38.24 *3*		38.245	(1/2)$^+$	0.0	3/2$^+$	M1+E2	0.42 *+5−4*	88 *14*	7.7 *10*	Mult.: L1:L2:L3=205 *12*: 320 *20*: 330 *20*; M1:M2:M3=43 *5*: 85 *9*: 95 *9*. δ: from L1/L3=0.50 *10*, weighted average from 1974ViZS and 1970Fo08 (^{193}Au IT decay). $I_{(\gamma+ce)}$: I(γ+ce)(from equilibrium source) - I(γ+ce)(attributed to ^{193}Hg(11.8 h) decay). I(γ+ce)=Σ Ice + Iγ=11.7 *8*.
126.56 *10*	0.008[&] *4*	508.26	7/2$^-$	381.61	5/2$^+$	(E1)		0.229		%Iγ=0.05 *3* Mult.: from ^{193}Hg (11.8 h) decay.
186.56 *3*		224.81	(3/2)$^+$	38.245	(1/2)$^+$	M1+E2	0.26 *5*	1.186 *25*	4.9 *4*	Mult.,δ: L1:L2:L3=31 *3*: 4.5 *5*: 1.1 *2*, K/L=6.0 *7*. $I_{(\gamma+ce)}$: Σ Ice + Iγ; Iγ=2.22 *21* deduced from Ice(K)=2.20 *15* and α(K)=0.99 *2*.
218.07 *4*	0.4[&] *1*	508.26	7/2$^-$	290.20	11/2$^-$	E2		0.280		%Iγ=2.7 *8* Mult.: from ^{193}Hg (11.8 h) decay.
219.75 *4*	0.07[§] *2*	257.99	5/2$^+$	38.245	(1/2)$^+$	E2		0.273		%Iγ=0.47 *15* Mult.: see ^{193}Hg (11.8 h) decay.
224.81 *4*	0.15 *3*	224.81	(3/2)$^+$	0.0	3/2$^+$	(E2)		0.253		%Iγ=1.01 *23* I_γ: other: Iγ(224.8γ)/Iγ(185.6γ)<0.052 (1970Fo08).
258.00 *4*	1.3[§] *3*	257.99	5/2$^+$	0.0	3/2$^+$	M1+E2	0.62 *4*	0.407 *11*		%Iγ=8.7 *20* Mult.,δ: from ^{193}Hg (11.8 h) decay.
289.0[g]	0.16 *8*	827.67	(1/2$^+$,3/2$^+$)	539.00?						%Iγ=1.1 *6* I_γ: estimated from coincidence data. It is not clear whether this γ belongs in this decay or the ^{193}Hg (11.8 h) decay. See comment with the 539.0 level. 2014Th02 (p,2nγ) do not support this placement. Not adopted by evaluator.

γ(^{193}Au) (continued)

E_γ	I_γ [†d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡c]	α[e]	Comments
381.60 *4*	2.3 *7*	381.61	5/2$^+$	0.0	3/2$^+$	M1+E2	1.2 *+5−3*	0.102 *19*	%Iγ=15 *5* I_γ: from Iγ=3.1 *6* in equilibrium source less Iγ=0.8 *2* attributed to ^{193}Hg (11.8 h) decay. Mult.,δ: α(K)exp=0.081 *14*, K/L1=5.7 *10*.
[x]429.51[b] *5*						(M1+E2)		0.08 *5*	Mult.: α(K)exp=0.046 *12*; theory: α(K)(M1)=0.072, α(K)(E2)=0.024.
446.5 *5*	0.10 *3*	827.67	(1/2$^+$,3/2$^+$)	381.61	5/2$^+$				%Iγ=0.67 *22*
[x]567.2[@] *5*	0.007 *3*								%Iγ=0.047 *21*
580.97 *8*	0.6 *3*	1089.25		508.26	7/2$^-$				%Iγ=4.0 *21* Mult.: α(K)exp=0.010 *7*.
789.21 *20*	0.65 *13*	827.67	(1/2$^+$,3/2$^+$)	38.245	(1/2)$^+$	(M1)		0.0258	%Iγ=4.4 *10* Mult.: α(K)exp=0.017 *5*.
827.81 *20*	0.57 *10*	827.67	(1/2$^+$,3/2$^+$)	0.0	3/2$^+$	(E2)		0.00840	%Iγ=3.8 *8* Mult.: α(K)exp=0.0068 *20*.
861.11 *17*	1.8 *3*	1118.97	(3/2)$^+$	257.99	5/2$^+$	M1+E2	+1.33 *40*	0.0124 *23*	%Iγ=12.1 *24* Mult.: From Adopted Gammas. α(K)exp=0.0061 *16*, K/L12=6.1 *13* (1974ViZS); Theory: α(K)(E2)=0.00618 *9*, K/L12=5.49 *11*; α(K)(M1+E2, δ=1.33 40)=0.0101 *20*, K/L12=5.8 *12*.
[x]920.0 *4*	0.11 *3*								%Iγ=0.74 *22*
953.7 *4*	0.14 *4*	2043.3	1/2,3/2,5/2	1089.25					%Iγ=0.9 *3*
[x]1040.5[#] *6*	0.33 *7*								%Iγ=2.2 *6*
1080.7 *3*	0.53 *8*	1118.97	(3/2)$^+$	38.245	(1/2)$^+$				%Iγ=3.6 *7*
1094.5 *4*	0.080 *24*	1603.15	(3/2$^-$,5/2$^+$)	508.26	7/2$^-$				%Iγ=0.54 *17*
1118.84 *17*	1.16 *17*	1118.97	(3/2)$^+$	0.0	3/2$^+$	(E2)		0.00462	%Iγ=7.8 *14* Mult.: α(K)exp=0.0049 *12*.
1221.1 *5*	0.039 *12*	1603.15	(3/2$^-$,5/2$^+$)	381.61	5/2$^+$				%Iγ=0.26 *9*
1276.38[a] *25*	0.38 *8*	1658.0	1/2$^{(+)}$ to 5/2$^{(+)}$	381.61	5/2$^+$	(E2)		0.00360	%Iγ=2.5 *6* Mult.: α(K)exp=0.0036 *13*.
1378.5 *4*	0.085 *25*	1603.15	(3/2$^-$,5/2$^+$)	224.81	(3/2)$^+$				%Iγ=0.57 *18*
1565.0 *6*	0.016 *8*	1603.15	(3/2$^-$,5/2$^+$)	38.245	(1/2)$^+$				%Iγ=0.11 *6*
1603.4[f] *3*	0.30[f] *6*	1603.15	(3/2$^-$,5/2$^+$)	0.0	3/2$^+$				%Iγ=2.0 *5* Mult.: α(K)exp=0.0026 *16*.
1603.4[f] *3*	0.30[f] *6*	1861.92	(1/2,3/2,5/2$^+$)	257.99	5/2$^+$				%Iγ=2.0 *5*
1662.1 *4*	0.087 *22*	2043.3	1/2,3/2,5/2	381.61	5/2$^+$				%Iγ=0.58 *16*
1756.7 *5*	0.045 *14*	2014.73		257.99	5/2$^+$				%Iγ=0.30 *10*
1776.4 *4*	0.12 *3*	1815.1	(1/2,3/2),(5/2)$^+$	38.245	(1/2)$^+$				%Iγ=0.80 *22*
1815.6 *4*	0.37 *9*	1815.1	(1/2,3/2),(5/2)$^+$	0.0	3/2$^+$				%Iγ=2.5 *7*
1824.3 *4*	0.075 *22*	1861.92	(1/2,3/2,5/2$^+$)	38.245	(1/2)$^+$				%Iγ=0.50 *16*

γ(^{193}Au) (continued)

E_γ	I_γ[†d]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1862.2 *4*	0.21 *4*	1861.92	(1/2,3/2,5/2$^+$)	0.0	3/2$^+$	%Iγ=1.4 *3*
1976.6 *4*	0.25 *6*	2014.73		38.245	(1/2)$^+$	%Iγ=1.7 *5*
2014.6 *4*	0.008 *2*	2014.73		0.0	3/2$^+$	%Iγ=0.054 *15*

† Intensity determined in the ^{193}Hg (11.8 h) source in equilibrium with the ^{193}Hg (3.80 h) decay. Intensity per 100 disintegrations of ^{193}Hg (11.8 h). Applying the half-life correction for transient equilibrium, the intensity is per 148 ^{193}Au (3.80 h) decays.

‡ From α(K)exp and/or ce subshell ratios, except where noted. The photon and ce intensity scales were normalized through the theoretical α(K) of 218.07, 219.75, 573.25 and 932.37 transitions (1974ViZS).

§ From the decay scheme of 1974ViZS 2.3% of the decay from the 258 level follows decay from levels seen in ^{193}Hg (3.80 h) g.s., 98% follows decay from ^{193}Hg (11.8 h) isomer. From intensity balance there is no direct ε feeding to this level.

& Iγ divided on the basis of feeding from high levels as shown on the level scheme. From intensity balance there is no direct ε feeding. For the 508.23 level 7% of decay is from 3.80 h decay, 93% from 11.8 h decay.

@ γ belongs in this decay from composite $T_{1/2}$. Placed from the 2043 level by 1974ViZS feeding the 1477 level where the deexciting γ shows no composite $T_{1/2}$. However, this γ is weak and would contribute only≈10% or less to the deexciting G. Possible spin assigments for these levels – make the placement unlikely. The list as unplaced.

Multiply placed γ by 1974ViZS in composite level scheme. γ placed from the 2043 level to a 1004 level in ^{193}Hg(3.80 h) decay. However, the multiply placed 746.11γ from the 1004 level is weaker than the 1040γ and is not shown as possessing a composite $T_{1/2}$.

a γ shows composite $T_{1/2}$. Placement here supported by γγ results. 1974ViZS also shows the γ from the 2139 level in the ^{193}Hg(11.8 h) decay with no γγ support for that placement. The evaluator has included total Iγ in this decay.

b γ is shown as exhibiting composite $T_{1/2}$ in pre-equilibrium source, but appears to be in coincidence only with γ's from ^{193}Hg(11.8 h) decay.

c If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

d For absolute intensity per 100 decays, multiply by 6.7 *7*.

e Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

f Multiply placed with undivided intensity.

g Placement of transition in the level scheme is uncertain.

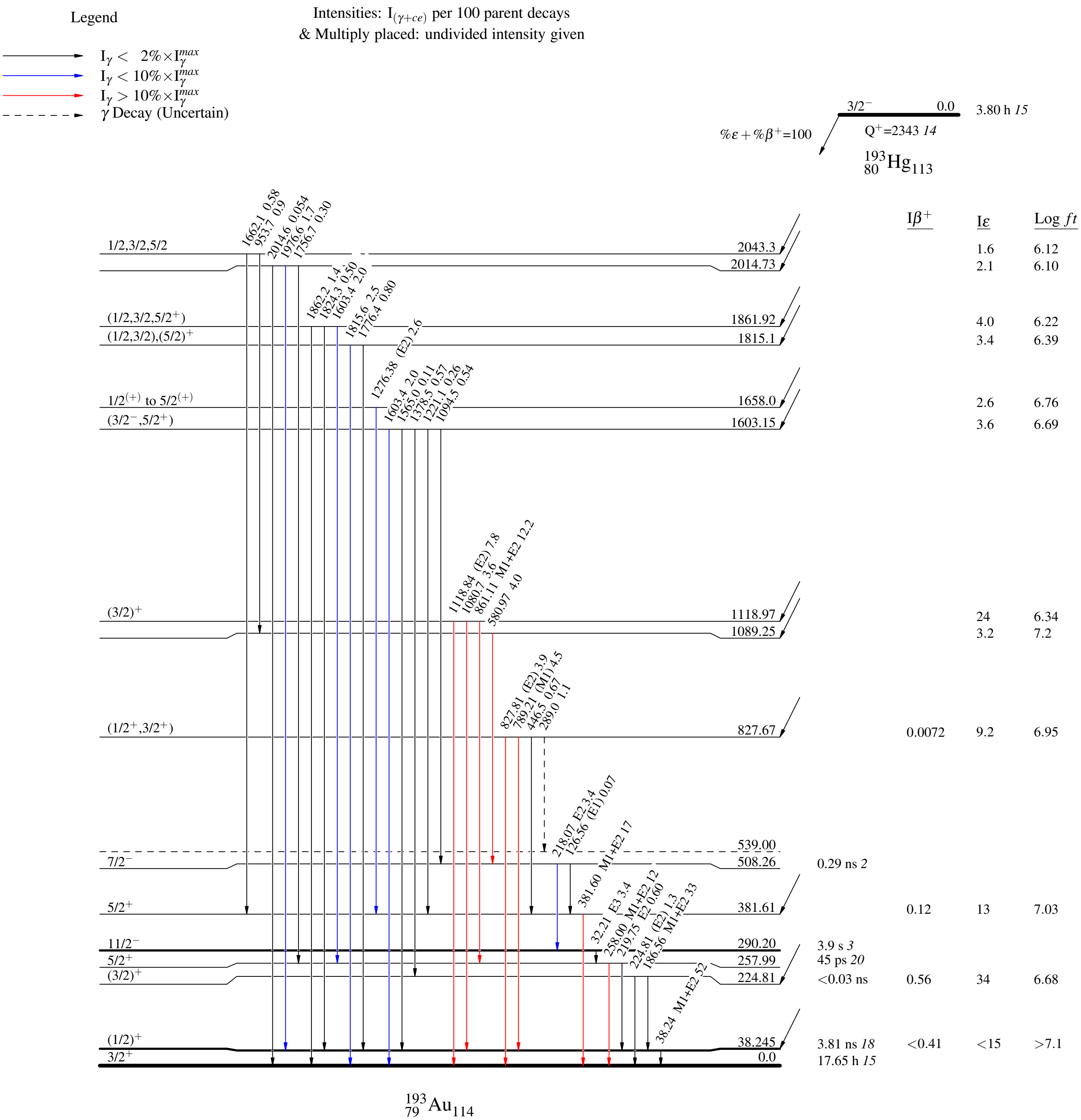
x γ ray not placed in level scheme.

$^{193}_{79}Au_{114}$-24

^{193}Hg ε decay (3.80 h) 1974ViZS

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



^{193}Hg ε decay (11.8 h) 1974ViZS,1970Pl01

Parent: ^{193}Hg: E=140.76 *5*; J^π=13/2$^{(+)}$; $T_{1/2}$=11.8 h *2*; Q(ε)=2343 *14*; %ε+%β^+ decay=?
^{193}Hg-%ε+%β^+ decay: 92.8% *5*; see ^{193}Hg IT decay.
1974ViZS: source: from (p,xn) reactions on gold, E(p)=70, 80 MeV, ms; measured Eγ, Iγ, E(ce), Ice, (Ge(Li), Si(Li), mag spect), Eβ+, Iβ^+ (mag spect), $\gamma\gamma$ coin.
1970Pl01: source: from spallation of Pb by 660-MeV protons, chem; measured Eγ, Iγ (Ge(Li), NaI(Tl)), $\gamma\gamma$ coin.
Others: 1970Fo08, 1962Di03, 1962Di05, 1958Br88, 1957Br53, 1955Br12, 1954Gi04.
Two β^+ groups have been reported by 1958Br88: Eβ+=1.17 *3* MeV, Iβ^+/(I(ce(K) 913γ)+I(ce(K) 932γ))=3.1; and Eβ+=0.42 keV, no intensity given. The 1.17 MeV β^+ group to the 290 keV level would give Q(g.s.)=2.34 and a 19% ε+β^+ decay to the 290 keV level. This is in contradiction to the data as reported by 1974ViZS. It is possible that the 1.17 MeV seen by 1958Br88 (it is an inner group in a F-K plot which also includes ^{192}Au β^+ spectrum) is the same as the 1.287 MeV b+ group seen by 1974ViZS (also reported in 1976Di15, 1976ViZM) and assigned to ^{193}Hg (3.80 h) decay.
It is interesting to note that in the proposed decay scheme there is no direct ε+β^+ branch to the 11/2$^+$ level in ^{193}Au. This is contrary to the situation in A=191, 195, and 197, where the log *ft*'s for this transition are≈7.0, 7.3, and 6.8, respectively.
Decay scheme is not normalized due to difficulty with separating the decays of the two ^{193}Hg isomers in an equilibrium source.

^{193}Au Levels

The decay scheme is deduced from that proposed by 1974ViZS from the decay of the ^{193}Hg (11.8 h, 13/2$^+$) in equilibrium with ^{193}Hg (3.80 h, 3/2$^-$). The levels which are fed directly by ε and which are then deexcited by γ's observed to have a composite half-life (in the pre-equilibrium source) are omitted from this level scheme. The γ's from such levels have also been omitted. The levels which are not fed directly by ε, but are fed by γ's arising from both the 11.8 h and 3.80 h decays are included and the intensities of the deexciting γ's have been divided according to the feeding pattern.

E(level)†	J^π‡	$T_{1/2}$‡	Comments
0.0	3/2$^+$	17.65 h *15*	
38.24 *3*	(1/2)$^+$	3.81 ns *18*	
257.99 *3*	5/2$^+$	45 ps *20*	
290.19 *4*	11/2$^-$	3.9 s *3*	
381.63 *4*	5/2$^+$		
508.24 *5*	7/2$^-$	0.29 ns *2*	$T_{1/2}$: from (ce(K) 382.47)(ce(K) 218.07)t (1970Ba56).
539.00 *4*	(7/2$^+$)		
687.45 *5*	(7/2$^+$,9/2$^+$)		
697.79 *5*	(15/2)$^-$		
789.93 *5*	9/2$^-$	1.2 ns *1*	$T_{1/2}$: from γce(t) (1975Be29).
808.58 *6*	(9/2)$^+$		
863.34 *5*	(13/2)$^-$		
890.79 *5*	9/2$^-$		
929.12 *5*	(9/2$^+$)		
1131.82 *6*	9/2$^-$,11/2$^-$		
1153.54 *7*	(11/2$^+$)		
1194.29 *7*	(9/2$^-$,11/2$^-$,13/2$^-$)		
1284.80 *5*	9/2$^-$,11/2$^-$		
1355.30 *9*	(11/2 to 15/2$^-$)		
1372.92 *10*	(17/2)$^-$		
1379.96 *11*	(11/2$^+$)		
1398.49 *6*	(13/2)$^-$		
1400.37 *6*	11/2$^-$		
1413.05 *16*	(9/2$^-$,11/2)		
1433.49 *12*	(11/2$^+$,13/2$^+$)		
1455.17 *9*	(11/2 to 15/2$^-$)		
1477.18 *12*	(7/2,9/2,11/2)$^-$		
1496.28 *7*	(9/2)$^-$		
1514.19 *16*	(7/2$^-$)		
1572.53 *13*	(9/2$^-$,11/2,13/2$^+$)		

Continued on next page (footnotes at end of table)

^{193}Hg ε decay (11.8 h) 1974ViZS,1970Pl01 (continued)

^{193}Au Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
1575.62 *6*	11/2⁻,13/2⁻	1876.27 *17*	(11/2⁻,13/2⁻)	2139.76 *19*	(13/2⁻,15/2⁻)
1630.23 *6*	11/2⁻,13/2⁻	1915.18 *17*	(11/2⁻ to 15/2⁻)	2157.63 *17*	(11/2⁻)
1654.72 *16*	(9/2⁻,11/2,13/2⁺)	1930.00 *6*	11/2⁻,13/2⁻	2159.13 *8*	(11/2⁻ to 15/2⁻)
1680.33 *17*	(11/2⁻,13/2⁻)	1939.18 *11*	(11/2,13/2)⁻	2196.87 *20*	(11/2⁻,13/2,15/2⁻)
1684.73 *19*	(9/2⁻ to 13/2⁻)	2012.18 *17*	(13/2⁻,15/2⁻)	2201.73 *10*	(11/2⁻)
1733.42 *10*	(15/2⁻)	2023.45 *10*	(11/2 to 15/2⁻)	2206.37 *22*	(11/2⁻)
1776.03 *8*	11/2⁻	2037.47 *7*	(11/2,13/2)⁻	2215.18 *17*	(13/2⁻,15/2⁻)
1794.84 *21*	(13/2⁻)	2063.04 *7*	11/2⁻,13/2⁻,15/2⁻	2255.10 *13*	(11/2⁻ to 15/2⁻)
1815.40 *23*	(9/2⁻,11/2⁻,13/2⁻)	2104.42 *15*	(11/2,13/2)⁻	2279.38 *17*	(11/2⁻)
1829.90 *6*	(11/2⁻,13/2⁻)	2125.37 *20*	(11/2⁻)	2285.28 *16*	(11/2⁺)
1869.26 *17*	(11/2⁻ to 15/2⁻)	2130.38 *12*	(11/2⁻ to 15/2⁻)	2291.01 *16*	(11/2⁺)

† From least-squares fit to γ-ray energies.

‡ From Adopted Levels.

γ(^{193}Au)

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡b]	α[c]	$I_{(\gamma+ce)}$	Comments
32.21 *3*		290.19	11/2⁻	257.99	5/2⁺	E3		9.29×10^4	88 *10*	Mult.: α(L1)exp=2.8×10^2 *11*, L1:L2:L3=0.28 *11*: 29.7 *30*: 34.3 *34*, M2:M3:M4:M5=8.3 *10*: 8.1 *10*: 0.65 *16*: 0.95 *24* (1974ViZS). $I_{(\gamma+ce)}$: from Σ Ice.
38.24 *3*		38.24	(1/2)⁺	0.0	3/2⁺	M1+E2	0.41 *8*	86 *23*	4.1 *7*	Mult.: from ce subshell ratios (see ^{193}Hg 3.80 h decay). δ: from L1/L3=0.50 *10*, weighted average from 1974ViZS and 1970Fo08 (^{193}Au IT decay). $I_{(\gamma+ce)}$: deduced from intensity balance at 38.2 level. I(γ+ce)=I(γ+ce)(219.75γ).
126.56 *10*	0.11[@] *3*	508.24	7/2⁻	381.63	5/2⁺	(E1)		0.229		I_γ: measured Iγ=0.12 *3* adjusted for contribution from 3.80 h ^{193}Hg decay. Mult.: α(K)exp=0.008 *4* (1974ViZS).
157.40 *10*	0.037[&] *7*	539.00	(7/2⁺)	381.63	5/2⁺	(E2)		0.877		Mult.: α(K)exp=0.59 *30* (1974ViZS).
165.53 *4*	0.086 *21*	863.34	(13/2)⁻	697.79	(15/2)⁻	M1		1.728		Mult.: α(K)exp=1.7 *7*, K/L1=4.7 *16* (1974ViZS).
200.30 *7*		1776.03	11/2⁻	1575.62	11/2⁻,13/2⁻					I_γ: γ not seen, Ice(K)=0.021 *3* (1974ViZS).
218.07 *4*	5.6[@] *8*	508.24	7/2⁻	290.19	11/2⁻	E2		0.280		I_γ: measured Iγ=6.0 *8* adjusted for contribution from 3.80 h ^{193}Hg decay. Mult.: K:L1:L2=83 *6*: 10.2 *12*: 37 *4*, M2:M3=12.3 *12*: 7.6 *12* (1974ViZS); K/L12=1.4, L12/L3>1.3 (1958Br88).
219.75 *4*	3.2[&] *5*	257.99	5/2⁺	38.24	(1/2)⁺	E2		0.273		I_γ: measured Iγ=3.3 *5* adjusted for contribution the ^{193}Hg (3.80 h) decay. Mult.: α(K)exp=0.12 *3*, L1:L2:L3=4.6 *4*: 15.2 *30*: 10.0 *10* (1974ViZS).
241.70 *4*	0.17 *4*	929.12	(9/2⁺)	687.45	(7/2⁺,9/2⁺)	(M1)		0.601		Mult.: α(K)exp=0.53 *16* (1974ViZS).
258.00 *4*	57[&] *6*	257.99	5/2⁺	0.0	3/2⁺	M1+E2	0.52 *15*	0.43 *4*		I_γ: measured Iγ=58 *6* adjusted for contribution from the ^{193}Hg (3.80 h) decay. Mult.: α(K)exp=0.40 *8*, K/L=6.6 *10*, L1:L2:L3=260 *13*:67 *3*:24 *2* (1974ViZS). δ: from ce(L) ratios from 1974ViZS and L1/L2=4.5 *8* (1970Fo08 (^{193}Au IT decay)).

γ(^{193}Au) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡b]	α [c]	Comments
274.95 7	0.082 21	1630.23	11/2⁻,13/2⁻	1355.30	(11/2 to 15/2⁻)	(M1+E2)	1.2 +8−5	0.251 76	α(K)=0.19 6; α(L)=0.050 9; α(M)=0.0120 15; α(N+..)=0.00376 21 Mult.: α(K)exp=0.19 6 (1974ViZS).
280.94 5	0.22 [&] 18	539.00	(7/2⁺)	257.99	5/2⁺	(M1,E2)		0.26 14	Mult.: α(K)exp=0.41 36, K/L1=4.5 7 (1974ViZS).
281.76 4	0.91 11	789.93	9/2⁻	508.24	7/2⁻	M1+E2	0.66 +17−12	0.31 3	I_γ: Iγ calculated from Ice(K)=0.24 2 and α(K)=0.265 21. Mult.,δ: K/L12=4.4 6, L1/L2=4.6 9 (1974ViZS).
290.75 5	1.9 4	1575.62	11/2⁻,13/2⁻	1284.80	9/2⁻,11/2⁻	M1		0.362	Mult.: α(K)exp=0.26 6, K/L12=4.3 6, L12/M12=3.3 5 (1974ViZS); other: α(K)exp=0.145 (1970Pl01), K/L1=9.8 (1958Br88).
295.4 4	0.040 16	2125.37	(11/2⁻)	1829.90	(11/2⁻,13/2⁻)				
299.82 4	0.62 10	1930.00	11/2⁻,13/2⁻	1630.23	11/2⁻,13/2⁻	M1		0.333	Mult.: α(K)exp=0.27 7, K/L12=6.1 12, L1/L2=8.1 18 (1974ViZS); α(K)exp=0.14 (1970Pl01).
330.0 5	0.059 18	2063.04	11/2⁻,13/2⁻,15/2⁻	1733.42	(15/2⁻)				
341.91 4	3.0 5	1131.82	9/2⁻,11/2⁻	789.93	9/2⁻	M1+E2	0.77 25	0.17 3	Mult.,δ: from α(K)exp=0.13 3, K/L=3.6 6, L1:L2:L3=9.2 14: 1.2 3: 0.56 10 (1974ViZS); Other: α(K)exp=0.0555 (1970Pl01).
345.00 4	0.7 3	1153.54	(11/2⁺)	808.58	(9/2)⁺				Mult.: α(K)exp=0.052 33 (1974ViZS) indicates dominant E2 (>90%) component. See comments in adopted gammas.
345.46 4	1.25 13	1630.23	11/2⁻,13/2⁻	1284.80	9/2⁻,11/2⁻	M1+E2	0.24 3	0.218 4	I_γ: from Ice(K)=0.220 15 (1974ViZS) and α(K)=0.176 13. Mult.,δ: K/L12=5.7 7, L1/L2=9.0 2 (1974ViZS).
354.5 5	0.09 4	1930.00	11/2⁻,13/2⁻	1575.62	11/2⁻,13/2⁻				
360.51 5	0.40 10	1733.42	(15/2⁻)	1372.92	(17/2)⁻	(M1+E2)	0.9 +6−4	0.139 35	Mult.,δ: α(K)exp=0.11 3 (1974ViZS).
364.47 4	2.8 4	1496.28	(9/2)⁻	1131.82	9/2⁻,11/2⁻	M1+E2	1.2 +5−4	0.11 3	Mult.,δ: α(K)exp=0.089 19, K/L1=7.1 13 (1974ViZS); other: α(K)exp=0.041 (1970Pl01).
381.60 4	0.8 2	381.63	5/2⁺	0.0	3/2⁺	M1+E2	1.2 +5−3	0.102 19	I_γ: deduced from intensity balance at 381.6 level. Mult.,δ: from ^{193}Hg (3.80 h) decay.
382.47 4	4.7 10	890.79	9/2⁻	508.24	7/2⁻	M1		0.1723	Mult.: α(K)exp=0.12 3, K/L1=5.9 3 (1974ViZS).
394.00 4	5.7 7	1284.80	9/2⁻,11/2⁻	890.79	9/2⁻	M1+E2	0.75 22	0.119 16	Mult.: α(K)exp=0.089 15, K/L12=5.0 7,

$\gamma(^{193}$Au) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡b]	α[c]	Comments
									L1/L2=6.2 16 (1974ViZS); K/L1=2.5 (1958Br88).
404.36 5	1.4 3	1194.29	(9/2$^-$,11/2$^-$,13/2$^-$)	789.93	9/2$^-$	(E2)		0.0442	Mult.: α(K)exp=0.030 10 (1974ViZS).
407.63 4	37 6	697.79	(15/2)$^-$	290.19	11/2$^-$	E2		0.0433	Mult.: α(K)exp=0.024 6, K/L=2.6 3, L1:L2:L3=15.2 18: 14.0 17: 5.6 7 (1974ViZS); K/L=3.13, L12/L3=2.6 (1958Br88).
421.8 4	0.40 10	1794.84	(13/2$^-$)	1372.92	(17/2)$^-$				
429.51[d] 5	0.70[d] 12	687.45	(7/2$^+$,9/2$^+$)	257.99	5/2$^+$				I_γ: deduced from intensity balance at 687.4 level. γ shows composite $T_{1/2}$ in pre-equilibrium source, therefore, some of measured Iγ=1.6 3 belongs in the 3.80 h decay.
429.51[d] 5	0.33[d] 17	1829.90	(11/2$^-$,13/2$^-$)	1400.37	11/2$^-$				I_γ: intensity divided on the basis of coincidence data (1974ViZS). Mult.: α(K)exp=0.046 12 for the multiplet (1974ViZS).
431.46 5	0.19 5	1829.90	(11/2$^-$,13/2$^-$)	1398.49	(13/2)$^-$	(M1)		0.1249	Mult.: α(K)exp=0.10 7 (1974ViZS).
444.0 4	0.17 5	1575.62	11/2$^-$,13/2$^-$	1131.82	9/2$^-$,11/2$^-$				
461.83 6	1.9 3	2037.47	(11/2,13/2)$^-$	1575.62	11/2$^-$,13/2$^-$	M1+E2	0.9 6	0.072 27	Mult.: α(K)exp=0.055 14, K/L1=5.5 10 (1974ViZS); α(K)exp=0.075 (1970Pl01).
487.41 6	0.77 16	2063.04	11/2$^-$,13/2$^-$,15/2$^-$	1575.62	11/2$^-$,13/2$^-$	M1+E2	1.1 3	0.056 10	Mult.: α(K)exp=0.040 22, K/L12=5.3 24, L1/L2=4.3 12 (1974ViZS).
491.3 4	0.38 19	1776.03	11/2$^-$	1284.80	9/2$^-$,11/2$^-$				I_γ: deduced from $\gamma\gamma$ spectrum (1974ViZS).
499.65 5	5.5 7	789.93	9/2$^-$	290.19	11/2$^-$	M1+E2	0.8 4	0.062 15	Mult.,δ: α(K)exp=0.055 10, K:L1:L2=30 2: 4.7 5: 1.0 2 (1974ViZS).
509.43 6	2.9 14	1400.37	11/2$^-$	890.79	9/2$^-$	M1+E2	1.4 +8−4	0.044 10	Mult.,δ: K/L12=5.2 9, L1/L2=3.4 11 (1974ViZS).
516.7 4	0.17 5	1379.96	(11/2$^+$)	863.34	(13/2)$^-$				E_γ: Placement not confirmed by 2014Th02 (p,2nγ). Not adopted by evaluator.
529.51 7	1.2 7	1930.00	11/2$^-$,13/2$^-$	1400.37	11/2$^-$	(E2)		0.0225	Mult.: α(K)exp=0.010 7 (1974ViZS).
535.15 5	4.5 9	1398.49	(13/2)$^-$	863.34	(13/2)$^-$	M1+E2	1.3 +8−4	0.040 12	Mult.: α(K)exp=0.032 9, K/L1=6.9 11 (1974ViZS).
537.08 5	7.9 10	1400.37	11/2$^-$	863.34	(13/2)$^-$	M1+E2	0.8 +6−5	0.051 15	Mult.: α(K)exp=0.042 11, K/L12=7.1 (1974ViZS).
539.03 6	1.5[&] 4	539.00	(7/2$^+$)	0.0	3/2$^+$	(E2)		0.0216	Mult.: α(K)exp=0.011 5 (1974ViZS).
545.05 6	0.90 20	1829.90	(11/2$^-$,13/2$^-$)	1284.80	9/2$^-$,11/2$^-$	(E2)		0.0210	Mult.: α(K)exp=0.024 7 (1974ViZS).
547.43 6	0.43 11	929.12	(9/2$^+$)	381.63	5/2$^+$	(E2)		0.0208	Mult.: α(K)exp=0.011 4 (1974ViZS).
[x]548.59 7	0.8 6					(E1)		0.00706	Mult.: α(K)exp=0.0018 12 (1974ViZS).
550.63 6	1.5 8	808.58	(9/2)$^+$	257.99	5/2$^+$	E2		0.0205	I_γ: calculated from Ice(K)=0.023 12 and α(K)=0.0154.

γ(^{193}Au) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡b]	α [c]	Comments
									Mult.: K/L=3.5 *19*, L1:L2:L3=0.35 *3*: 0.22 *3*: 0.08 *2* (1974ViZS).
560.0 *4*	0.40 *19*	2037.47	(11/2,13/2)$^-$	1477.18	(7/2,9/2,11/2)$^-$				I_γ: intensity deduced from $\gamma\gamma$ data.
573.25 *6*	30.8 *31*	863.34	(13/2)$^-$	290.19	11/2$^-$	M1+E2	+0.36 *7*	0.0545 *19*	Mult.: α(K)exp=0.032 *5*, K/L12=5.7 *32* (1974ViZS); K/L1=4.6 (1958Br88). δ: from $\gamma(\theta)$ (α,xnγ); δ=1.0 *3* from ce data.
583.32 *8*	0.20 *6*	2159.13	(11/2$^-$ to 15/2$^-$)	1575.62	11/2$^-$,13/2$^-$	(E2)		0.0179	Mult.: α(K)exp=0.027 *12* (1974ViZS). δ: from α(K)exp δ=1.3 *+37−7*.
591.72 *8*	0.24 *7*	1455.17	(11/2 to 15/2$^-$)	863.34	(13/2)$^-$	M1+E2	1.0 *7*	0.036 *16*	Mult.: α(K)exp=0.029 *12*, K/L12=5.8 *12* (1974ViZS). δ: From α(K)exp and K/L12 data.
600.65 *6*	4.7 *5*	890.79	9/2$^-$	290.19	11/2$^-$	M1+E2	1.4 *+6−4*	0.029 *6*	Mult.,δ: α(K)exp=0.021 *4*, K/L12=5.9 *9*, L1/L2=4.8 *12* (1974ViZS).
608.70 *10*	0.21 *6*	1398.49	(13/2)$^-$	789.93	9/2$^-$	(E2)		0.01628	Mult.: α(K)exp=0.023 *10* (1974ViZS).
614.32 *10*	0.77 *12*	1153.54	(11/2$^+$)	539.00	(7/2$^+$)	(E2)		0.01595	Mult.,δ: α(K)exp=0.021 *5* (1974ViZS) indicates M1+E2 with δ=1.5 *4*. See comments in adopted gammas. Evaluator assign from level scheme.
623.10 *10*	0.57 *14*	2023.45	(11/2 to 15/2$^-$)	1400.37	11/2$^-$	M1+E2	1.0 *9*	0.032 *16*	Mult.,δ: From α(K)exp=0.022 *8*, K/L12=7.7 *13* (1974ViZS).
624.91 *10*	0.48 *12*	1433.49	(11/2$^+$,13/2$^+$)	808.58	(9/2)$^+$	(E2)		0.01535	Mult.: α(K)exp=0.013 *5* (1974ViZS).
626.22 *10*	0.16 *5*	2201.73	(11/2$^-$)	1575.62	11/2$^-$,13/2$^-$	(M1)		0.0469	Mult.: α(K)exp=0.046 *20* (1974ViZS).
639.0 [d] *4*	0.28 [d] *14*	2012.18	(13/2$^-$,15/2$^-$)	1372.92	(17/2)$^-$				I_γ: intensity divided on the basis of coincidence data (1974ViZS).
639.0 [d] *4*	0.51 [d] *18*	2037.47	(11/2,13/2)$^-$	1398.49	(13/2)$^-$				I_γ: division of intensity based on $\gamma\gamma$ data.
643.41 [d] *12*	0.09 [d] *4*	1572.53	(9/2$^-$,11/2,13/2$^+$)	929.12	(9/2$^+$)				I_γ: intensity divided on the basis of $\gamma\gamma$ data (1974ViZS).
643.41 [d] *12*	0.20 [d] *8*	2157.63	(11/2$^-$)	1514.19	(7/2$^-$)				I_γ: intensity division based on $\gamma\gamma$ data, Iγ(multiplet)=0.30 *10* (1974ViZS). Mult.: α(K)exp=0.014 *6* for the multiplet (1974ViZS).
645.23 *12*	0.28 *8*	1930.00	11/2$^-$,13/2$^-$	1284.80	9/2$^-$,11/2$^-$	(E2)		0.01429	Mult.: α(K)exp=0.015 *7* (1974ViZS).
654.51 *15*	0.21 *6*	1939.18	(11/2,13/2)$^-$	1284.80	9/2$^-$,11/2$^-$	(E2)		0.01385	Mult.: α(K)exp=0.020 *10* (1974ViZS).
657.62 *15*	0.23 *7*	1355.30	(11/2 to 15/2$^-$)	697.79	(15/2)$^-$	(E2)		0.01370	Mult.: α(K)exp=0.0061 *32*, K/L12=1.8 *6* (1974ViZS).
661.7 *4*	0.32 *10*	2157.63	(11/2$^-$)	1496.28	(9/2)$^-$				
662.73 *12*	0.57 *14*	2063.04	11/2$^-$,13/2$^-$,15/2$^-$	1400.37	11/2$^-$	(E2)		0.01347	Mult.: α(K)exp=0.011 *4*, K/L12=5.9 *22* (1974ViZS).

$^{193}_{79}$Au$_{114}$-31

$\gamma(^{193}$Au) (continued)

E_γ†	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ‡b	αc	Comments
668.48 *12*	0.83 *14*	1477.18	(7/2,9/2,11/2)$^-$	808.58	(9/2)$^+$			0.00477	Mult.: From α(K)exp=0.0043 *12*, K/L12=3.6 *8* (1974ViZS).
675.17 *12*	1.7 *3*	1372.92	(17/2)$^-$	697.79	(15/2)$^-$	M1+E2	1.5 *+10−5*	0.021 *5*	Mult.,δ: α(K)exp=0.017 *4*, K/L12=5.5 *7* (1974ViZS).
684.77 *12*	1.4 *4*	1575.62	11/2$^-$,13/2$^-$	890.79	9/2$^-$	(E2)		0.01254	Mult.: α(K)exp=0.0077 *31* (1974ViZS).
692.54 *12*	0.32 *10*	1379.96	(11/2$^+$)	687.45	(7/2$^+$,9/2$^+$)	(E2)		0.01224	Mult.: α(K)exp=0.012 *5*, K/L12=3.3 *8* (1974ViZS).
700.88 *12*	0.68 *14*	1398.49	(13/2)$^-$	697.79	(15/2)$^-$	(M1+E2)	1.1 *+10−5*	0.0224 *66*	Mult.: α(K)exp=0.018 *5* (1974ViZS).
706.30 *12*	1.10 *20*	1496.28	(9/2)$^-$	789.93	9/2$^-$	(E2)		0.01173	Mult.: α(K)exp=0.009 *3* (1974ViZS).
712.15 *12*	0.83 *14*	1575.62	11/2$^-$,13/2$^-$	863.34	(13/2)$^-$	M1+E2	1.3 *5*	0.0198 *53*	Mult.,δ: From α(K)exp=0.016 *4* (1974ViZS).
725.60[d] *15*	0.10[d] *5*	1413.05	(9/2$^-$,11/2)	687.45	(7/2$^+$,9/2$^+$)	#			I_γ: intensity division from coincidence data (1974ViZS).
725.60[d] *15*	0.7[d] *4*	1654.72	(9/2$^-$,11/2,13/2$^+$)	929.12	(9/2$^+$)	#			I_γ: Iγ=80 *14* divided on the basis of coincidence data (1974ViZS).
[x]727.2[§] *10*	0.26[§] *11*								
731.95 *12*	0.46 *9*	2130.38	(11/2$^-$ to 15/2$^-$)	1398.49	(13/2)$^-$	(E2)		0.01087	Mult.: α(K)exp=0.014 *4* (1974ViZS).
738.60[e] *17*	0.5 *3*	2023.45	(11/2 to 15/2$^-$)	1284.80	9/2$^-$,11/2$^-$				Mult.: α(K)exp=0.0028 *21* (1974ViZS). Theory: α(K)(E1)=0.00327, α(K)(E2)=0.00840. α(K)exp indicates E1, but level scheme requires M1,E2.
739.47 *17*	0.19 *11*	1630.23	11/2$^-$,13/2$^-$	890.79	9/2$^-$	(E2,M1)		0.021 *10*	I_γ: from Ice(K)=0.0033 *6* (1974ViZS) and α(K)=0.017 *9*. Mult.: K/L12=4.7 *16* (1974ViZS).
746.11[a] *20*	0.11 *4*	2201.73	(11/2$^-$)	1455.17	(11/2 to 15/2$^-$)				Mult.: α(K)exp(doublet)=0.010 *5* (1974ViZS).
752.70 *15*	0.55 *11*	2037.47	(11/2,13/2)$^-$	1284.80	9/2$^-$,11/2$^-$	(M1+E2)	0.9 *7*	0.0207 *78*	Mult.: α(K)exp=0.017 *5* (1974ViZS).
757.63 *20*	0.30 *6*	1455.17	(11/2 to 15/2$^-$)	697.79	(15/2)$^-$	(E2)		0.01010	Mult.: α(K)exp=0.007 *3* (1974ViZS).
766.97 *20*	0.45 *9*	1630.23	11/2$^-$,13/2$^-$	863.34	(13/2)$^-$	(E2)		0.00985	Mult.: α(K)exp=0.012 *5* (1974ViZS).
776.57 *20*	1.5 *6*	1284.80	9/2$^-$,11/2$^-$	508.24	7/2$^-$	[M1,E2]		0.0183 *87*	Mult.: α(K)exp=0.0040 *14* (1974ViZS).
778.37 *20*	0.40 *20*	2063.04	11/2$^-$,13/2$^-$,15/2$^-$	1284.80	9/2$^-$,11/2$^-$	(M1,E2)		0.0182 *87*	I_γ: intensity deduced from $\gamma\gamma$ data. Mult.: α(K)exp=0.018 *14* (1974ViZS).
790.6 *4*	0.12 *5*	1680.33	(11/2$^-$,13/2$^-$)	890.79	9/2$^-$				
798.39 *25*	0.07 *3*	2196.87	(11/2$^-$,13/2,15/2$^-$)	1398.49	(13/2)$^-$				Mult.: 0.013 *10* (1974ViZS).
801.73 *25*	0.19 *5*	2279.38	(11/2$^-$)	1477.18	(7/2,9/2,11/2)$^-$	(E2)		0.00898	Mult.: α(K)exp=0.009 *4* (1974ViZS).
803.22 *25*	0.045 *18*	2201.73	(11/2$^-$)	1398.49	(13/2)$^-$	(M1)		0.0247	Mult.: α(K)exp=0.031 *18* (1974ViZS).

$^{193}_{79}$Au$_{114}$-32

γ(^{193}Au) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[c]	Comments
808.3 *6*	0.045 *13*	2285.28	$(11/2^+)$	1477.18	$(7/2,9/2,11/2)^-$			
816.81 *20*	0.53 *9*	1680.33	$(11/2^-,13/2^-)$	863.34	$(13/2)^-$	(E2)	0.00864	Mult.: α(K)exp=0.0093 *34*, K/L12=9.8 *25* (1974ViZS).
840.9 *3*	0.33 *7*	1379.96	$(11/2^+)$	539.00	$(7/2^+)$			
854.80 *25*	0.22 *7*	2255.10	$(11/2^-$ to $15/2^-)$	1400.37	$11/2^-$			Mult.: α(K)exp=0.0036 *14* (1974ViZS).
^{x}855.8 *4*	0.31 *9*							
870.05 *17*	2.9 *4*	1733.42	$(15/2^-)$	863.34	$(13/2)^-$	(E2)	0.00759	Mult.: α(K)exp=0.0060 *16*, K/L12=8.8 *20* (1974ViZS); other: α(K)exp=0.0111 (1970Pl01).
877.76 *17*	4.8 *6*	1575.62	$11/2^-,13/2^-$	697.79	$(15/2)^-$	E2	0.00746	Mult.: α(K)exp=0.0067 *18*, K/L12=7.1 *16* (1974ViZS); other: α(K)exp=0.0108 (1970Pl01).
883.6 *4*	0.16 *5*	2037.47	$(11/2,13/2)^-$	1153.54	$(11/2^+)$			
885.3 *4*	0.26 *8*	1776.03	$11/2^-$	890.79	$9/2^-$			
^{x}890.5 *4*	0.057 *17*							
895.0 *5*	0.032 *11*	1684.73	$(9/2^-$ to $13/2^-)$	789.93	$9/2^-$			
900.4 *6*	0.024 *10*	2279.38	$(11/2^-)$	1379.96	$(11/2^+)$			
^{x}902.4 *6*	0.032 *13*							
905.1 *5*	0.044 *18*	2285.28	$(11/2^+)$	1379.96	$(11/2^+)$			
913.06 *15*	3.6 *4*	1776.03	$11/2^-$	863.34	$(13/2)^-$	E2	0.00689	Mult.: α(K)exp=0.0060 *11*, K/L12=5.8 *9* (1974ViZS).
932.37 *15*	14.6 *15*	1630.23	$11/2^-,13/2^-$	697.79	$(15/2)^-$	(E2)	0.00660	Mult.: α(K)exp=0.0064 *10*, K/L12=7.4 *7* (1974ViZS).
939.1 *4*	0.16 *4*	1829.90	$(11/2^-,13/2^-)$	890.79	$9/2^-$			
952.0 *4*	0.12 *4*	1815.40	$(9/2^-,11/2^-,13/2^-)$	863.34	$(13/2)^-$			
957.42 *25*	0.35 *7*	1496.28	$(9/2)^-$	539.00	$(7/2^+)$	(E1)	0.00239	Mult.: α(K)exp=0.0026 *15* (1974ViZS).
963.1 *6*	0.044 *18*	2157.63	$(11/2^-)$	1194.29	$(9/2^-,11/2^-,13/2^-)$			
966.1 *4*	0.13 *4*	1829.90	$(11/2^-,13/2^-)$	863.34	$(13/2)^-$			
970.0 *4*	0.084 *15*	2255.10	$(11/2^-$ to $15/2^-)$	1284.80	$9/2^-,11/2^-$			
982.2 *4*	0.09 *3*	1680.33	$(11/2^-,13/2^-)$	697.79	$(15/2)^-$			
985.9 *4*	0.13 *4*	1776.03	$11/2^-$	789.93	$9/2^-$			
994.61 *15*	3.5 *4*	1284.80	$9/2^-,11/2^-$	290.19	$11/2^-$	E2	0.00581	Mult.: α(K)exp=0.0047 *9*, K/L12=5.5 *9* (1974ViZS); K/L1=4.4 (1958Br88).
^{x}1003.5 *5*	0.20 *6*							
1004.6 *6*	0.23 *7*	1794.84	$(13/2^-)$	789.93	$9/2^-$			
1007.8 *4*	0.12 *3*	2139.76	$(13/2^-,15/2^-)$	1131.82	$9/2^-,11/2^-$			
1013.3 *4*	0.15 *4*	1876.27	$(11/2^-,13/2^-)$	863.34	$(13/2)^-$			
1026.0 *6*	0.032 *13*	1815.40	$(9/2^-,11/2^-,13/2^-)$	789.93	$9/2^-$			
1035.54 *17*	1.8 *3*	1733.42	$(15/2^-)$	697.79	$(15/2)^-$	(E2)	0.00537	Mult.: α(K)exp=0.0037 *11* (1974ViZS).
^{x}1037.22 *25*	0.19 *7*							Mult.: α(K)exp=0.005 *4* (1974ViZS). Theory: α(K)(E1)=0.00173, α(K)(E2)=0.00433.
1040.5 *6*	<0.33	1930.00	$11/2^-,13/2^-$	890.79	$9/2^-$			γ placed also in 3.80 h decay. Placement here confirmed by coincidence data (1974ViZS).
1048.5 *4*	0.10 *3*	1939.18	$(11/2,13/2)^-$	890.79	$9/2^-$			

$^{193}_{79}$Au$_{114}$-33

γ(^{193}Au) (continued)

E$_γ$†	I$_γ$†	E$_i$(level)	J$_i^π$	E$_f$	J$_f^π$	Mult.‡	δ‡b	α c	Comments
1052.00 *20*	1.20 *20*	1915.18	(11/2⁻ to 15/2⁻)	863.34	(13/2)⁻	(E2)		0.00520	Mult.: α(K)exp=0.0043 *13* (1974ViZS).
1066.0 *6*	0.046 *18*	1930.00	11/2⁻,13/2⁻	863.34	(13/2)⁻				
1070.6 *6*	0.017 *9*	2201.73	(11/2⁻)	1131.82	9/2⁻,11/2⁻				
1075.90 *25*	0.82 *12*	1939.18	(11/2,13/2)⁻	863.34	(13/2)⁻	(E2)		0.00498	Mult.: α(K)exp=0.0046 *21* (1974ViZS).
1085.7 *6*	0.053 *21*	1876.27	(11/2⁻,13/2⁻)	789.93	9/2⁻				
1097.15 *25*	0.23 *6*	1794.84	(13/2⁻)	697.79	(15/2)⁻				Mult.: α(K)exp=0.0029 *15* (1974ViZS).
1109.80[e] *17*	2.5 *4*	1400.37	11/2⁻	290.19	11/2⁻				Mult.: α(K)exp=0.0015 *4* (1974ViZS). Placement in level scheme by 1970Pl01. From α(K)exp 1974ViZS suggest that γ is E1 and does not place it in level scheme.
1123.2 *3*	0.09 *4*	2255.10	(11/2⁻ to 15/2⁻)	1131.82	9/2⁻,11/2⁻				Mult.: α(K)exp=0.0041 *28* (1974ViZS).
1132.50 *20*	0.26 *5*	1514.19	(7/2⁻)	381.63	5/2⁺				Mult.: α(K)exp=0.0025 *10* (1974ViZS).
1137.80 *25*	0.10 *3*	2291.01	(11/2⁺)	1153.54	(11/2⁺)				Mult.: α(K)exp=0.0042 *23* (1974ViZS).
1139.5 *5*	0.10 *3*	1930.00	11/2⁻,13/2⁻	789.93	9/2⁻				
1147.20 *20*	0.30 *6*	2037.47	(11/2,13/2)⁻	890.79	9/2⁻	(E2)		0.00440	Mult.: α(K)exp=0.0037 *14* (1974ViZS).
1149.3 *6*	0.048 *19*	2012.18	(13/2⁻,15/2⁻)	863.34	(13/2)⁻				
1160.18 *20*	0.86 *12*	2023.45	(11/2 to 15/2⁻)	863.34	(13/2)⁻	(E2)		0.00431	Mult.: α(K)exp=0.0039 *10* (1974ViZS).
1171.50 *17*	1.35 *30*	1869.26	(11/2⁻ to 15/2⁻)	697.79	(15/2)⁻	(E2)		0.00423	Mult.: α(K)exp=0.0035 *11* (1974ViZS).
1174.00 *17*	2.5 *4*	2037.47	(11/2,13/2)⁻	863.34	(13/2)⁻	(E2)		0.00421	Mult.: α(K)exp=0.0047 *16* (1974ViZS).
1178.60 *20*	0.30 *7*	1876.27	(11/2⁻,13/2⁻)	697.79	(15/2)⁻	(E2)		0.00418	Mult.: α(K)exp=0.0053 *22* (1974ViZS).
[x]1184.0 *5*	0.08 *3*								
[x]1189.5 *7*	0.017 *9*								
1196.4 *3*	0.17 *4*	2125.37	(11/2⁻)	929.12	(9/2⁺)				Mult.: α(K)exp=0.0039 *24* (1974ViZS).
1199.5 *3*	0.085 *25*	2063.04	11/2⁻,13/2⁻,15/2⁻	863.34	(13/2)⁻	(M1)		0.00892	Mult.: α(K)exp=0.013 *7* (1974ViZS).
1205.3 *6*	0.035 *14*	1496.28	(9/2)⁻	290.19	11/2⁻				
[x]1212.2 *6*	0.019 *6*								
1217.7 *5*	0.036 *11*	1915.18	(11/2⁻ to 15/2⁻)	697.79	(15/2)⁻				
1232.20 *20*	2.3 *3*	1930.00	11/2⁻,13/2⁻	697.79	(15/2)⁻	E2		0.00385	Mult.: α(K)exp=0.0028 *7*, K/L12=5.4 *15* (1974ViZS).
1241.30 *20*	5.6 *7*	1939.18	(11/2,13/2)⁻	697.79	(15/2)⁻	E2		0.00379	Mult.: α(K)exp=0.0034 *7*, K/L12=4.6 *5* (1974ViZS).
[x]1254.1 *3*	0.22 *5*								Mult.: α(K)exp=0.0021 *16* (1974ViZS). Theory: α(K)(E1)=0.00124, α(K)(E2)=0.00304.
1261.9 *3*	0.32 *8*	2125.37	(11/2⁻)	863.34	(13/2)⁻	(E2)		0.00368	Mult.: α(K)exp=0.0027 *12* (1974ViZS).
[x]1265.4 *5*	0.22 *4*								
1267.90 *20*	0.68 *10*	1776.03	11/2⁻	508.24	7/2⁻	(E2)		0.00365	Mult.: α(K)exp=0.0035 *11* (1974ViZS).
1285.20 *20*	1.40 *20*	1575.62	11/2⁻,13/2⁻	290.19	11/2⁻	M1+E2	1.3 *7*	0.0050 *15*	Mult.,δ: From α(K)exp=0.0041 *11* (1974ViZS).
[x]1288.7 *6*	0.08 *4*								
1294.3 *4*	0.13 *4*	2157.63	(11/2⁻)	863.34	(13/2)⁻				
[x]1296.80 *25*	0.30 *9*								Mult.: α(K)exp=0.0021 *12* (1974ViZS). Theory: α(K)(E1)=0.00117, α(K)(E2)=0.00286.
[x]1301.0 *4*	0.19 *5*								

$^{193}_{79}Au_{114}$-34

γ(^{193}Au) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α [c]	Comments
[x]1309.5 7	0.016 8							
1314.51[d] 20	0.8[d] 3	2012.18	(13/2⁻,15/2⁻)	697.79	(15/2)⁻			I_γ: intensity divided on the basis of coincidence data (1974ViZS).
1314.51[d] 20	0.80[d] 32	2104.42	(11/2,13/2)⁻	789.93	9/2⁻			I_γ: intensity division on the basis of γγ data (1974ViZS). Mult.: α(K)exp=0.0029 8 for the multiplet (1974ViZS). Theory: α(K)(E2)=0.00279.
1325.50 20	4.9 6	2023.45	(11/2 to 15/2⁻)	697.79	(15/2)⁻	(E2)	0.00336	Mult.: α(K)exp=0.0029 6 (1974ViZS).
1339.60 20	4.7 6	2037.47	(11/2,13/2)⁻	697.79	(15/2)⁻	(E2)	0.00330	Mult.: α(K)exp=0.0022 4 (1974ViZS).
1351.52 25	0.40 12	2215.18	(13/2⁻,15/2⁻)	863.34	(13/2)⁻	(E2,M1)	0.0049 17	Mult.: α(K)exp=0.0037 18 (1974ViZS).
[x]1353.5 3	0.28 8							Mult.: α(K)exp=0.0019 11 (1974ViZS). Theory: α(K)(E1)=0.00109, α(K)(E2)=0.00264.
[x]1359.4 6	0.11 5							
1365.10 22	3.1 4	2063.04	11/2⁻,13/2⁻,15/2⁻	697.79	(15/2)⁻	(E2)	0.00319	Mult.: α(K)exp=0.0027 7 (1974ViZS).
[x]1387.6§ 10	0.12§ 3							
1392.00 20	0.45 8	2255.10	(11/2⁻ to 15/2⁻)	863.34	(13/2)⁻	(M1)	0.00619	Mult.: α(K)exp=0.0044 13 (1974ViZS).
1394.50 20	1.75 26	1684.73	(9/2⁻ to 13/2⁻)	290.19	11/2⁻	(E2)	0.00307	Mult.: α(K)exp=0.0031 8 (1974ViZS).
1400.0 3	0.14 4	2291.01	(11/2⁺)	890.79	9/2⁻			Mult.: α(K)exp=0.004 3 (1974ViZS). α(K)exp covers E1, E2, E3, M1.
1406.60 20	2.2 3	2104.42	(11/2,13/2)⁻	697.79	(15/2)⁻	(M1,E2)	0.0045 15	Mult.: α(K)exp=0.0038 10, K/L12=13 5 (1974ViZS).
[x]1414.1 4	0.061 15							
1432.40 20	1.46 22	2130.38	(11/2⁻ to 15/2⁻)	697.79	(15/2)⁻	(E2,M1)	0.0044 15	Mult.: α(K)exp=0.0035 12 (1974ViZS).
1442.00 20	0.33 7	2139.76	(13/2⁻,15/2⁻)	697.79	(15/2)⁻	(M1)	0.00569	Mult.: α(K)exp=0.0073 29 (1974ViZS).
[x]1453.9 5	0.08 3							
1459.8 4	0.76 23	2157.63	(11/2⁻)	697.79	(15/2)⁻			
1461.60 10	0.73 22	2159.13	(11/2⁻ to 15/2⁻)	697.79	(15/2)⁻	(M1,E2)	0.0042 14	Mult.: α(K)exp=0.0034 21 (1974ViZS).
1476.70 20	0.85 13	2285.28	(11/2⁺)	808.58	(9/2)⁺			Mult.: α(K)exp=0.0022 9 (1974ViZS).
1481.6 4	0.34 9	2291.01	(11/2⁺)	808.58	(9/2)⁺			Mult.: α(K)exp=0.0015 11 (1974ViZS).
1486.10 25	3.4 4	1776.03	11/2⁻	290.19	11/2⁻	(E2)	0.00276	Mult.: α(K)exp=0.0023 6 (1974ViZS).
1499.2 4	0.23 6	2196.87	(11/2⁻,13/2,15/2⁻)	697.79	(15/2)⁻			
1503.80 25	1.20 20	2201.73	(11/2⁻)	697.79	(15/2)⁻	(E2)	0.00271	Mult.: α(K)exp=0.0027 8 (1974ViZS).
1517.50 25	0.80 12	2215.18	(13/2⁻,15/2⁻)	697.79	(15/2)⁻	(M1)	0.00505	Mult.: α(K)exp=0.0051 19 (1974ViZS).
1525.1 3	1.4 2	1815.40	(9/2⁻,11/2⁻,13/2⁻)	290.19	11/2⁻	(E2)	0.00265	Mult.: α(K)exp=0.0021 9 (1974ViZS).
[x]1533.5 4	0.20 5							
1539.0 5	0.17 4	1829.90	(11/2⁻,13/2⁻)	290.19	11/2⁻			
[x]1551.5 6	0.037 11							
1556.9 3	0.42 7	2255.10	(11/2⁻ to 15/2⁻)	697.79	(15/2)⁻			Mult.: α(K)exp=0.0045 27 (1974ViZS).
[x]1562.2 4	0.056 14							
1578.9 4	0.072 21	1869.26	(11/2⁻ to 15/2⁻)	290.19	11/2⁻			
1581.9 3	0.33 7	2279.38	(11/2⁻)	697.79	(15/2)⁻			
1585.5 4	0.17 4	1876.27	(11/2⁻,13/2⁻)	290.19	11/2⁻			
[x]1591.4 6	0.013 6							

$^{193}_{79}Au_{114}$-35

γ(^{193}Au) (continued)

E_{γ}†	I_{γ}†	E_i(level)	J^{π}_i	E_f	J^{π}_f	Comments
x1599.9 3	0.27 5					
x1608.5 6	0.012 6					
1624.5 3	0.65 10	1915.18	(11/2− to 15/2−)	290.19	11/2−	
1639.4 3	3.4 5	1930.00	11/2−,13/2−	290.19	11/2−	
1648.5 3	2.6 4	1939.18	(11/2,13/2)−	290.19	11/2−	Mult.: α(K)exp=0.0018 5 evaluated from given Iγ and ce data from 1958Br88.
x1674.2 6	0.019 8					
x1678.1 5	0.35 1					
x1683.8 5	0.039 12					
1693.4 6	0.027 11	2201.73	(11/2−)	508.24	7/2−	
1697.9 3	0.18 4	2206.37	(11/2−)	508.24	7/2−	
x1700.0 6	0.026 10					
1721.3 5	0.030 9	2012.18	(13/2−,15/2−)	290.19	11/2−	
x1732.3 4	0.37 7					
x1737.6 5	0.054 16					
1746.3 3	0.75 15	2285.28	(11/2+)	539.00	(7/2+)	
1752.2 3	0.14 4	2291.01	(11/2+)	539.00	(7/2+)	
x1760.9 4	0.034 10					
x1768.4 6	0.024 10					
1771.6 4	0.14 4	2279.38	(11/2−)	508.24	7/2−	
x1783.7 6	0.023 9					
x1785.2 5	0.09 3					
x1788.9 6	0.021 8					
x1795.3 5	0.040 12					
x1803.2 6	0.023 9					
x1806.9 3	0.075 22					
x1813.4 6	0.07 3					
x1827.5 5	0.11 3					
x1836.2 4	0.12 3					
x1848.5 3	0.32 5					
x1853.3 5	0.026 10					
x1856.0 5	0.025 10					
1869.2 3	0.30 8	2159.13	(11/2− to 15/2−)	290.19	11/2−	
x1878.1 6	0.021 9					
x1881.3 5	0.075 22					
x1885.4 5	0.056 17					
x1892.5 4	0.18 5					
x1898.4 5	0.040 14					
x1903.7 5	0.040 14					
1906.4 5	0.054 19	2196.87	(11/2−,13/2,15/2−)	290.19	11/2−	
x1909.8 4	0.16 4					
1916.4 3	0.73 15	2206.37	(11/2−)	290.19	11/2−	
x1919.8 4	0.20 6					

$^{193}_{79}Au_{114}$-36

γ(^{193}Au) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π
[x]1923.5 *4*	0.25 *7*					1988.6 *6*	0.004 *2*	2279.38	(11/2⁻)	290.19	11/2⁻
1925.5 *4*	0.30 *9*	2215.18	(13/2⁻,15/2⁻)	290.19	11/2⁻	[x]1997.3 *5*	0.008 *2*				
[x]1933.3 *6*	0.014 *5*					[x]2028.0 *7*	0.002 *1*				
[x]1954.9 *4*	0.14 *4*					[x]2032.6 *7*	0.002 *1*				
[x]1963.6 *4*	0.31 *8*					[x]2045.2 *7*	0.002 *1*				
[x]1968.2 *6*	0.013 *5*					[x]2060.1 *5*	0.010 *4*				
[x]1972.9 *6*	0.039 *12*										

† From 1974ViZS.

‡ From 1974ViZS and based on α(K)exp and/or ce subshell ratios, unless otherwise noted. The photon and ce intensity scales were normalized through α of 218.1γ, 129.8γ, 573.25γ, 932.37γ (1974ViZS). The α(K)exp from 1970Pl01 are based on I(ce) of 1958Br88 and Iγ of 1970Pl01 with the intensities normalized through α(K)(407.6γ E2)=0.0301.

§ From 1970Pl01.

& From intensity balance, this level is not fed directly by ε. From feeding pattern 98% of the decay out of this level follows γ's seen in ^{193}Hg (11.8 h) ε.

@ From intensity balance, this level is not fed directly by ε. From feeding pattern 93% of the decay out of this level follows γ's seen in ^{193}Hg (11.8 h) ε.

\# α(K)exp=0.0044 *18*, K/L12=2.3 *9*. Theory: E1: α(K)=0.00337, K/L12=7.02; E2: α(K)=0.00865, K/L12=5.12; M1: α(K)=0.0265, K/L12=6.26; M2: α(K)=0.068, K/L12=5.46. From this it can be seen that numerous combinations of multipolarities are possible from the members of this doublet.

[a] 1974ViZS show this γ as a doublet with second placement from a 1004 level. The 1004 level is fed by a 1040γ which is shown as belonging to the 3.80 h decay, while the 746γ deexciting the level is not shown as being of composite $T_{1/2}$.

[b] If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

[c] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[d] Multiply placed with intensity suitably divided.

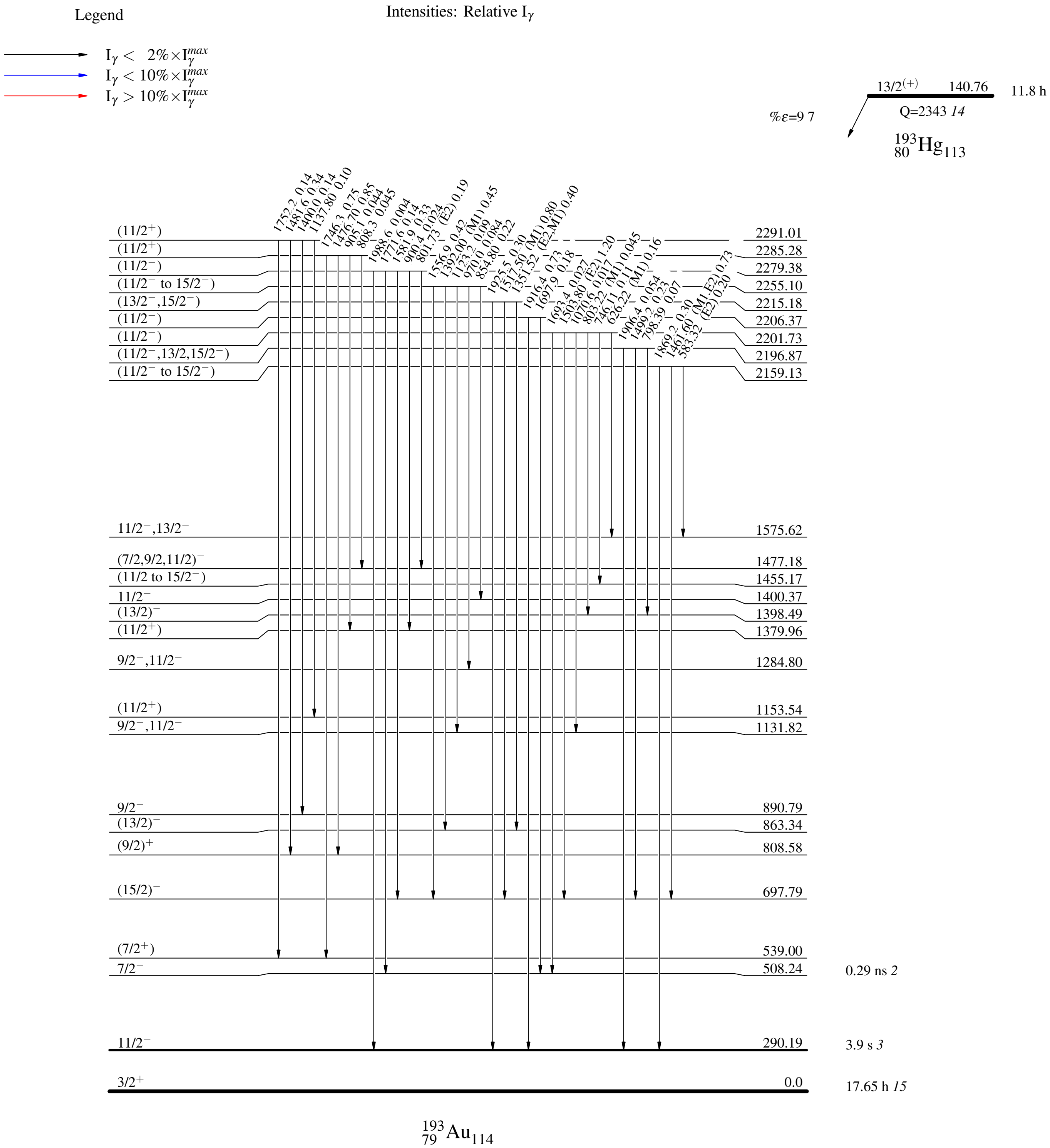
[e] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

$^{193}_{79}$Au$_{114}$-37

^{193}Hg ε decay (11.8 h) 1974ViZS,1970Pl01

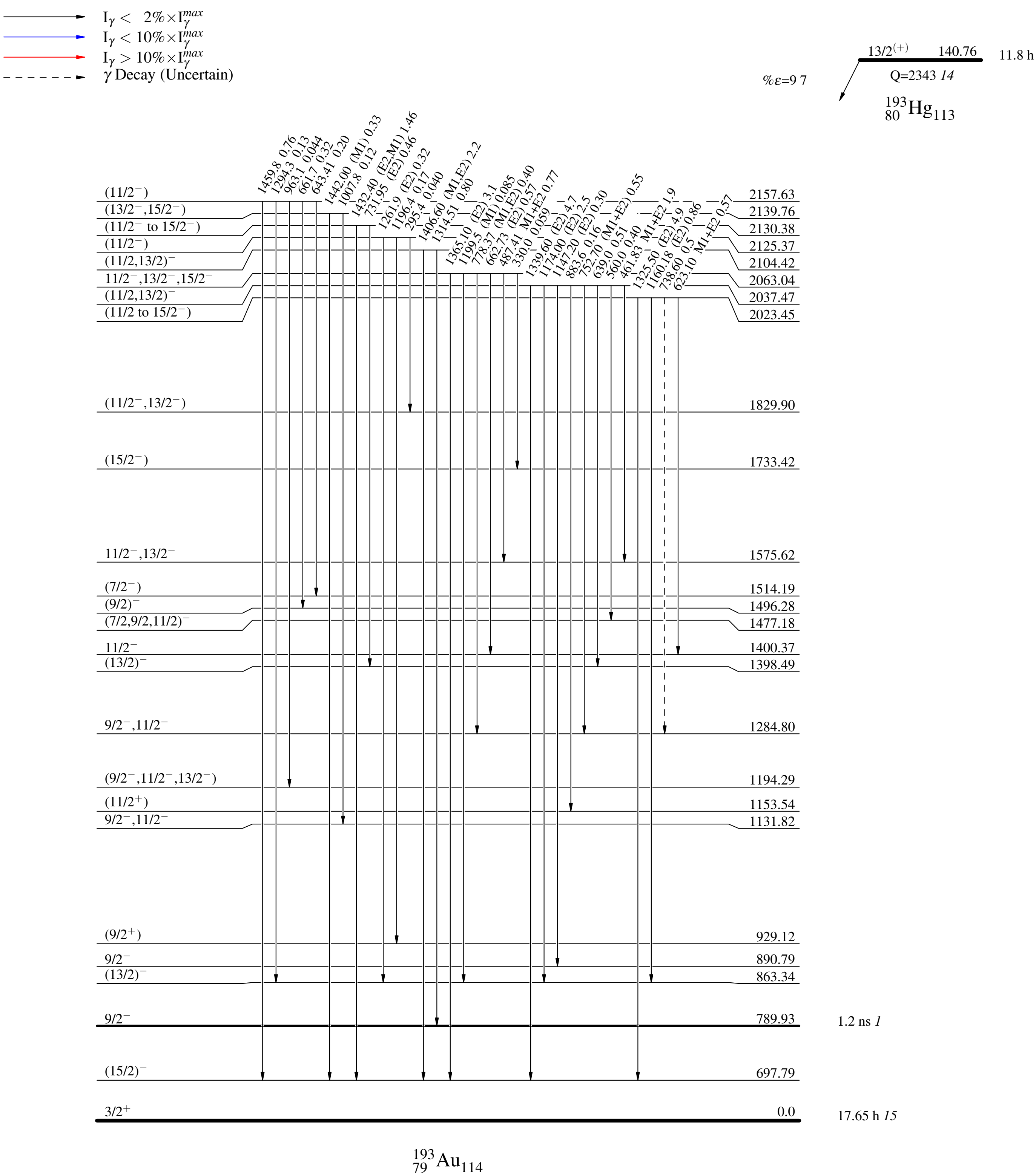
Decay Scheme



^{193}Hg ε decay (11.8 h) 1974ViZS,1970Pl01

Decay Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

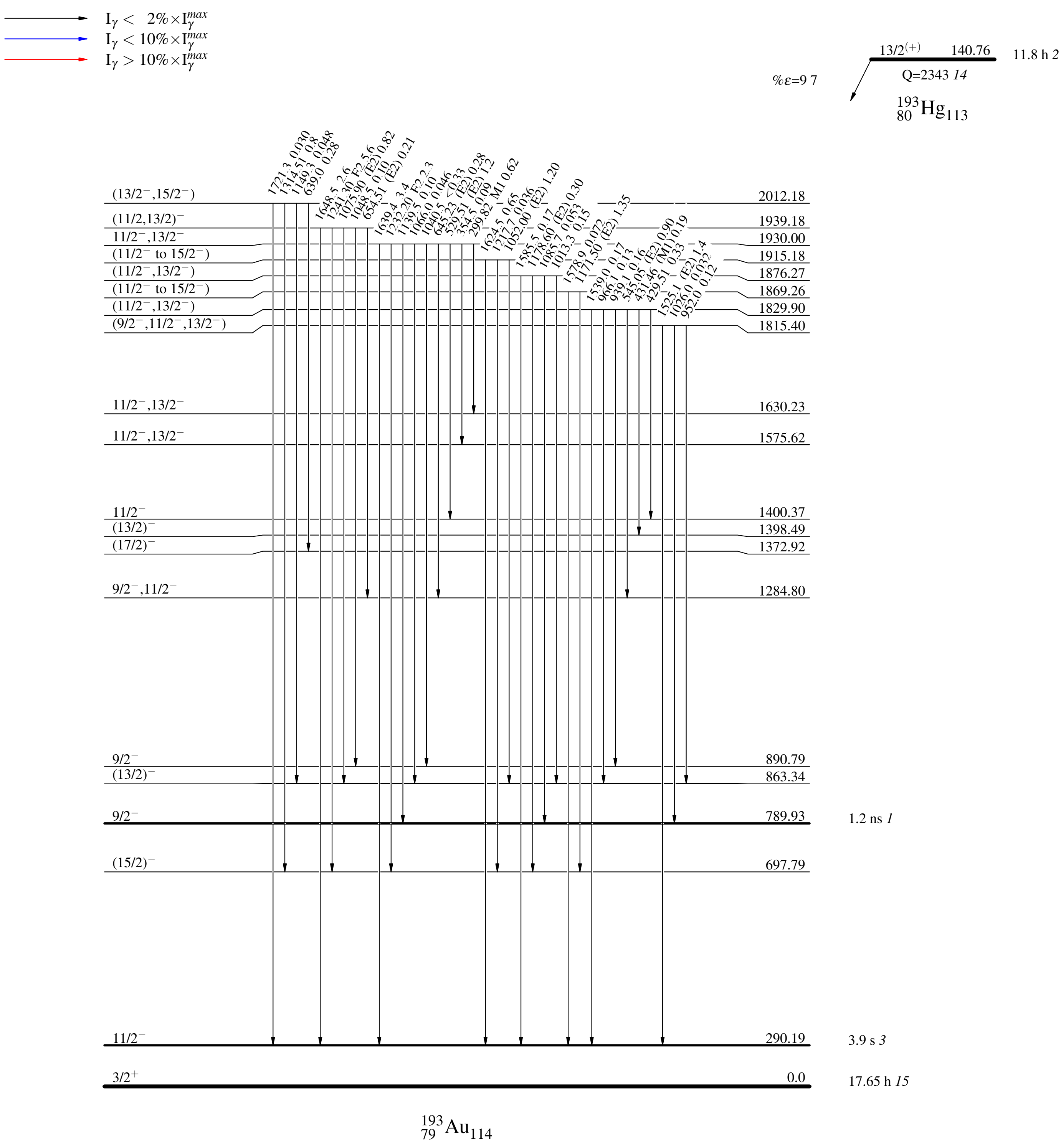


^{193}Hg ε decay (11.8 h) 1974ViZS,1970Pl01

Decay Scheme (continued)

Intensities: Relative I_γ

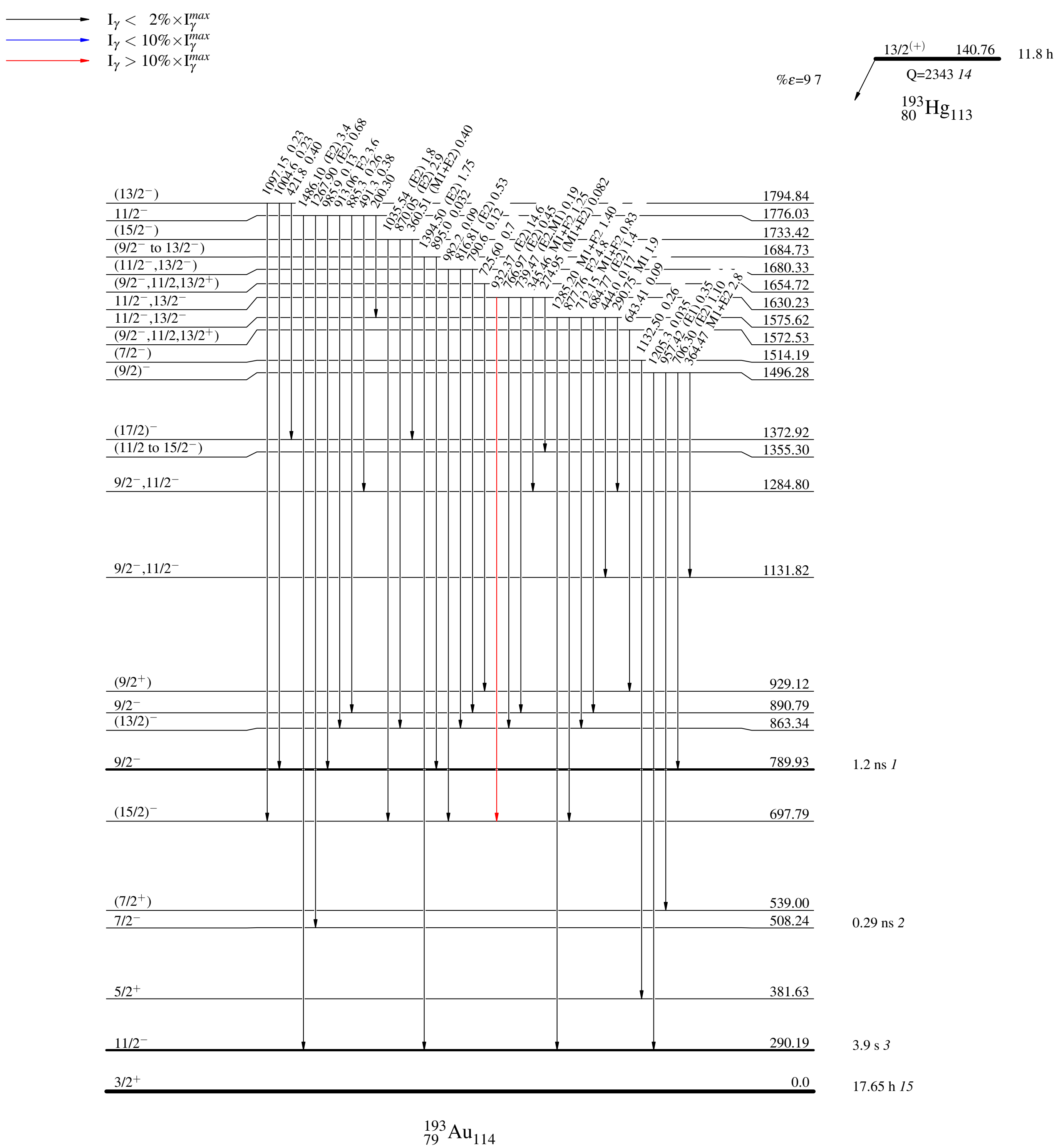
@ Multiply placed: intensity suitably divided



^{193}Hg ε decay (11.8 h) 1974ViZS,1970Pl01

Decay Scheme (continued)

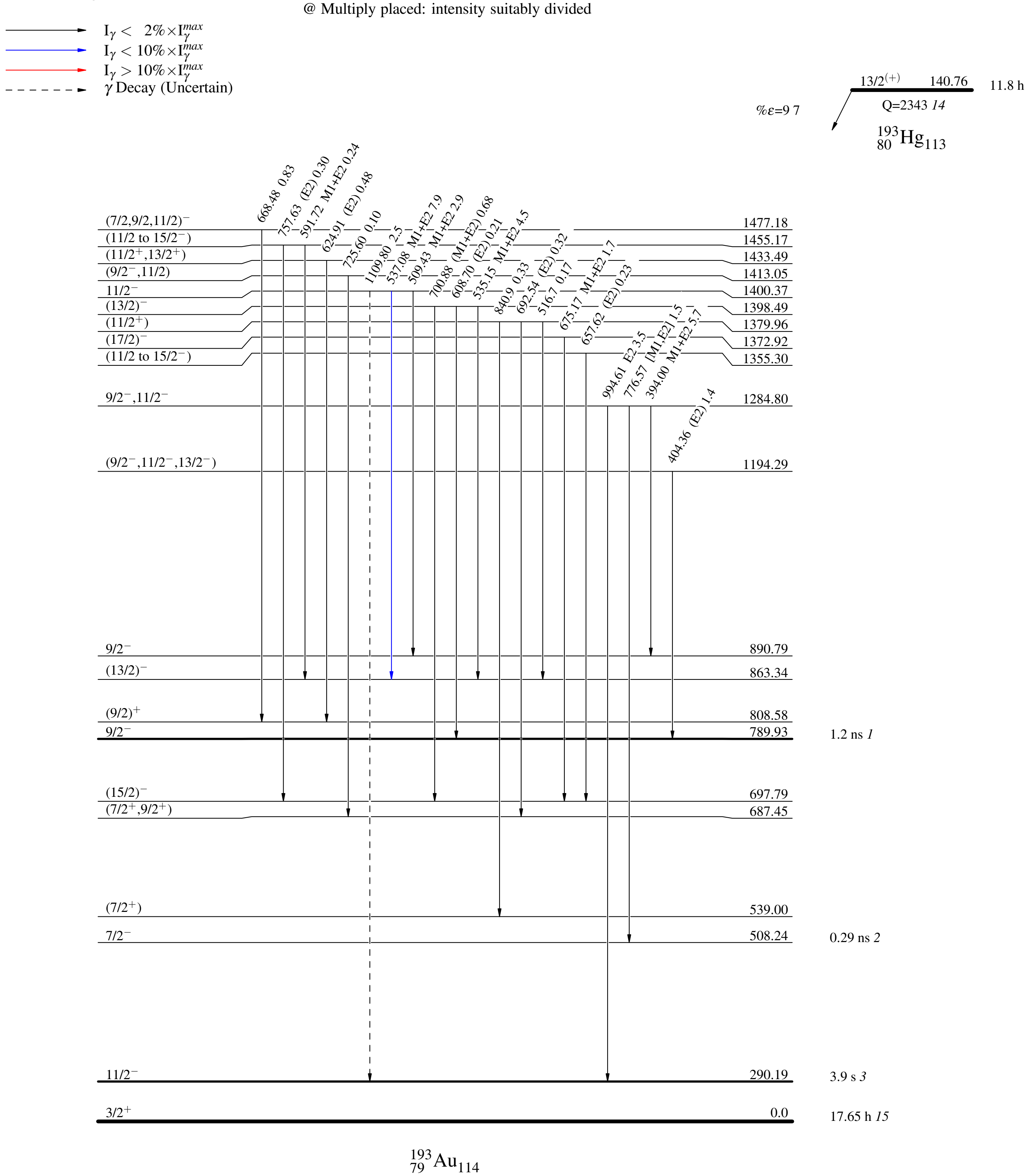
Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided



^{193}Hg ε decay (11.8 h) 1974ViZS,1970Pl01

Decay Scheme (continued)

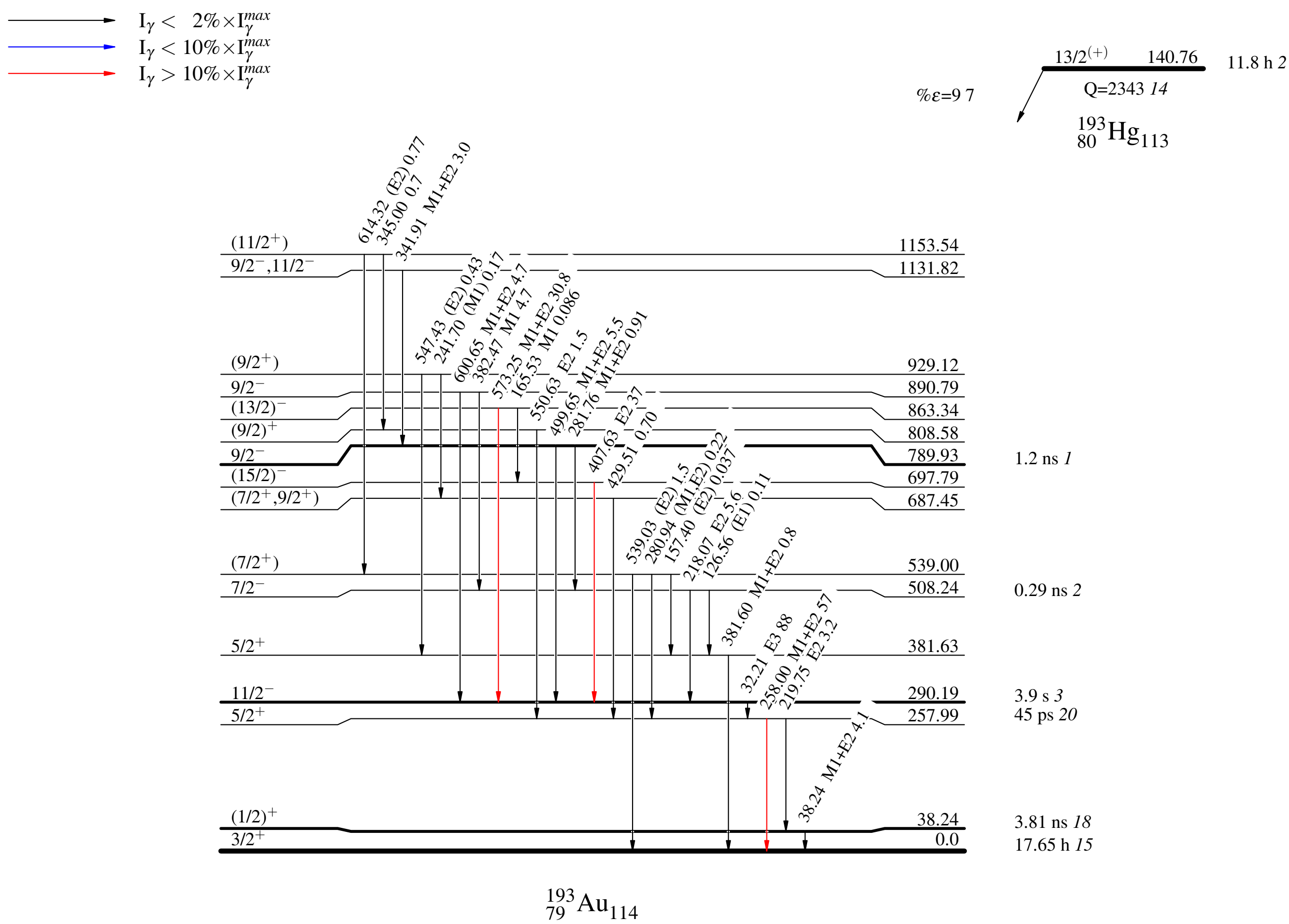
Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided



^{193}Hg ε decay (11.8 h) 1974ViZS,1970Pl01

Decay Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided



^{186}W(^{11}B,4nγ) 2007Ok05

Target: ^{186}W foil (thickness 300 μg/cm^2); Projectile: ^{11}B, E=68 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO), γ(lin pol) using the YRAST Ball array of seven Clover Ge detectors, 16 single Ge detectors and three LEPs detectors. Deduce level scheme, spin and parity.

^{193}Au Levels

E(level)[†]	J$^\pi$	T$_{1/2}$[‡]	Comments
290.20[&] *3*	11/2$^-$	3.9 s *3*	
698.2[&] *5*	15/2$^-$		
790.4[#] *5*	9/2$^-$		
1106.9[@] *7*	11/2$^-$		E(level): Level energy corrected in erratum.
1197.1[#] *11*	13/2$^-$		
1419.7[&] *7*	19/2$^-$		
1522.4[@] *12*	15/2$^-$		E(level): Level energy corrected in erratum.
1711.6[#] *14*	17/2$^-$		
1948.1[c] *9*	21/2$^+$		
2081.2[c] *10*	25/2$^+$		
2100.9[@] *15*	(19/2$^-$)		E(level): Level energy corrected in erratum.
2173.5[&] *9*	23/2$^-$		
2322.9[#] *16*	21/2$^-$		
2326.3[c] *11*	29/2$^+$		
2378.4[&] *10*	27/2$^-$		Terminating state, configuration=$\pi h^{-1}_{11/2}\otimes 8^+$ or 10$^+$ isomer in the core nucleus ^{194}Hg.
2477.0[&] *11*	31/2$^-$		Configuration=$\pi h^{-1}_{11/2}\otimes\nu i^{-2}_{13/2}$.
2488.1[b] *12*	31/2$^+$		
2701.5[a] *12*	33/2$^-$		
2925.0[b] *13*	35/2$^+$		
3155.9[a] *13*	(37/2$^-$)		
3444.4[b] *14*	39/2$^+$		
3897.0[a] *14*	(41/2$^-$)		
4066.5[b] *15*	43/2$^+$		
4351.6[b] *16*	47/2$^+$		
4702.0[a] *15*	(45/2$^-$)		
5061.9[b] *19*	51/2$^+$		
5232.7[a] *17*	(49/2$^-$)		
5744.7[b] *21*	55/2$^+$		

† From least-squares fit to Eγ's.
‡ From Adopted Levels.
# Band(A): h$_{9/2}$ band, α=+1/2.
@ Band(a): h$_{9/2}$ band, α=−1/2. 215.3γ in 2007Ok05 has been removed in the erratum.
& Band(B): h$_{11/2}$ band. Decoupled favored sequence.
a Band(C): Band based on 33/2$^-$. Continuation of h$_{11/2}$ band after band crossing. Second band crossing occurs at $\hbar\omega\approx$0.22 MeV.
b Band(D): Band based on 31/2$^+$.
c Band(E): Band based on 21/2$^+$.

$^{186}W(^{11}B,4n\gamma)$ 2007Ok05 (continued)

$\gamma(^{193}Au)$

E_γ[§]	I_γ[§]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
98.6 5	18.6 3	2477.0	31/2⁻	2378.4	27/2⁻		
133.1 5	48.7 5	2081.2	25/2⁺	1948.1	21/2⁺	Q	DCO=1.2 4
161.8 5	40.3 3	2488.1	31/2⁺	2326.3	29/2⁺	D	DCO=0.70 18
204.9 5	136.3 7	2378.4	27/2⁻	2173.5	23/2⁻	E2	DCO=1.04 9 POL=+0.12 15.
224.5 5	109.1 6	2701.5	33/2⁻	2477.0	31/2⁻	M1+E2	DCO=0.80 9 POL=−0.05 10.
245.1 5	47.3 4	2326.3	29/2⁺	2081.2	25/2⁺	E2	DCO=1.0 3 POL=+0.11 16.
285.1 7	20.9 4	4351.6	47/2⁺	4066.5	43/2⁺	E2	DCO=1.14 19 POL=+0.12 12.
297.2 8	73.1 4	2378.4	27/2⁻	2081.2	25/2⁺	E1	DCO=0.55 9 POL=+0.12 9.
316.5[&] 5	80.2 9	1106.9	11/2⁻	790.4	9/2⁻	M1+E2	DCO=0.88 12 POL=−0.09 7.
406.7[&] 9	48.4 7	1197.1	13/2⁻	790.4	9/2⁻	E2	DCO=1.2 3 POL=+0.05 9.
408.0 5	306.5 10	698.2	15/2⁻	290.20	11/2⁻	E2[‡]	
415.5[&] 9	32.7 3	1522.4	15/2⁻	1106.9	11/2⁻	E2	DCO=1.23 24 POL=+0.04 23.
436.9 5	45.5 4	2925.0	35/2⁺	2488.1	31/2⁺	E2	DCO=1.14 18 POL=+0.08 9.
454.4 5	104.9 5	3155.9	(37/2⁻)	2701.5	33/2⁻	E2	DCO=1.10 22 POL=+0.13 10.
500.2 5	100.0 5	790.4	9/2⁻	290.20	11/2⁻	M1+E2[‡]	
514.5[&] 9	44.2 25	1711.6	17/2⁻	1197.1	13/2⁻	E2	DCO=1.05 24 POL=+0.14 9.
519.4 5	36.1 5	3444.4	39/2⁺	2925.0	35/2⁺	E2	DCO=1.1 3 POL=+0.09 15.
528.4 5	122.5 10	1948.1	21/2⁺	1419.7	19/2⁻	E1	DCO=0.88 13 POL=+0.06 8.
530.7 9	46.6 6	5232.7	(49/2⁻)	4702.0	(45/2⁻)	E2	DCO=1.05 23 POL=+0.10 7.
578.5[&@] 9	11.9 19	2100.9	(19/2⁻)	1522.4	15/2⁻	E2	DCO=1.2 3 POL=+0.2 3.
611.3[&] 8	32.9 4	2322.9	21/2⁻	1711.6	17/2⁻	E2	DCO=1.1 3 POL=+0.02 14.
622.1 5	29.5 6	4066.5	43/2⁺	3444.4	39/2⁺	E2	DCO=1.09 19 POL=+0.11 9.
682.8 9	9.3 3	5744.7	55/2⁺	5061.9	51/2⁺	E2	DCO=0.96 21 POL=+0.05 10.
710.3 9	10.3 3	5061.9	51/2⁺	4351.6	47/2⁺	E2	DCO=1.0 3 POL=+0.12 14.
721.5 5	278.6 12	1419.7	19/2⁻	698.2	15/2⁻	E2	DCO=1.07 8 POL=+0.06 2.
741.1 5	106.8 6	3897.0	(41/2⁻)	3155.9	(37/2⁻)	E2	DCO=1.08 13 POL=+0.13 4.
753.8 5	99.2 6	2173.5	23/2⁻	1419.7	19/2⁻	E2	DCO=1.2 4 POL=+0.09 17.
805.0 5	81.3 7	4702.0	(45/2⁻)	3897.0	(41/2⁻)	E2	DCO=0.95 23 POL=+0.04 6.

[†] DCO's correspond to gates on ΔJ=2, quadrupole transition 408.0γ unless otherwise stated. Expected DCO=1.0 for ΔJ=2,

Continued on next page (footnotes at end of table)

^{186}W(^{11}B,4nγ) 2007Ok05 (continued)

γ(^{193}Au) (continued)

quadrupole and 0.5 for ΔJ=1, dipole or dipole+quadrupole transitions. All DCO and POL values are from erratum published by the authors of 2007Ok05.

‡ From Adopted Gammas. Used for gating and DCO analysis.

§ From erratum of 2007Ok05.

& DCO corresponds to gate on ΔJ=1, M1+E2, 500.2γ.

@ Placement of transition in the level scheme is uncertain.

$^{192}Os(^{7}Li,6n\gamma)$ 1974Tj02

E(^{7}Li)=58 MeV; measured γ, $\gamma\gamma$, $\gamma(\theta)$;Ge(Li) detectors.

^{193}Au Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$	Comments
0.0	3/2$^+$		
258.0	5/2$^+$		
290.1	11/2$^-$		
539.3	(7/2$^+$)		
697.8	(15/2)$^-$		
809.2	(9/2)$^+$		
890.7	9/2$^-$		
1419.0	(19/2)$^-$		
1479.0	(13/2$^+$)		
1947.7	(21/2)$^+$	10.4 ns *8*	$T_{1/2}$: From Adopted Levels. 12 ns in 1974Tj02.
2080.8	(25/2$^+$)		
2141.2	(23/2$^+$)		
2173.5	(23/2$^-$)		
2378.7	(27/2$^-$)		

† From 1974Tj02.
‡ From Adopted Levels.

γ(^{193}Au)

E_γ	I_γ[†]	E_i(level)	J^{π}_i	E_f	J^{π}_f	Comments
133.1[§]	14.1	2080.8	(25/2$^+$)	1947.7	(21/2)$^+$	Iγ(45°)/Iγ(90°)=1.37.
193.5[§]	30.1	2141.2	(23/2$^+$)	1947.7	(21/2)$^+$	Iγ(45°)/Iγ(90°)=1.08.
205.2	72.8	2378.7	(27/2$^-$)	2173.5	(23/2$^-$)	Iγ(45°)/Iγ(90°)=1.11. I_γ: includes contribution from ^{192}Os Coulomb excitation.
258.1	38.1	258.0	5/2$^+$	0.0	3/2$^+$	Iγ(45°)/Iγ(90°)=0.97.
281.5	6.4	539.3	(7/2$^+$)	258.0	5/2$^+$	Iγ(45°)/Iγ(90°)=1.06.
407.7	100	697.8	(15/2)$^-$	290.1	11/2$^-$	Iγ(45°)/Iγ(90°)=1.16.
528.7	33.9	1947.7	(21/2)$^+$	1419.0	(19/2)$^-$	Iγ(45°)/Iγ(90°)=0.80.
(539.0[‡])		539.3	(7/2$^+$)	0.0	3/2$^+$	
(550.6[‡])		809.2	(9/2)$^+$	258.0	5/2$^+$	
600.9	19.4	890.7	9/2$^-$	290.1	11/2$^-$	Iγ(45°)/Iγ(90°)=1.04.
669.8	10.7	1479.0	(13/2$^+$)	809.2	(9/2)$^+$	Iγ(45°)/Iγ(90°)=1.77. E_γ: 2014Th02 (p,2nγ) measure a 668.4 keV *2* γ ray in γγ spectra and do not find any signature of a doublet (without a broadened peak width) in coincidence with 550.6γ. Evaluator considers 669.8γ same as 668.4γ.
721.2	77.8	1419.0	(19/2)$^-$	697.8	(15/2)$^-$	Iγ(45°)/Iγ(90°)=1.20.
754.5	32.5	2173.5	(23/2$^-$)	1419.0	(19/2)$^-$	Iγ(45°)/Iγ(90°)=1.27.
1250.1	≈10	1947.7	(21/2)$^+$	697.8	(15/2)$^-$	

† Relative Iγ at 90°.
‡ γ expected from Adopted Levels, but not measured in this reaction.
§ Placement in level scheme from Adopted Levels. 1974Tj02 identify as preceding γ of 21/2$^+$ isomer.

^{194}Pt(p,2nγ) 2014Th02

E(p)=14 MeV. Target=1.3 mg/cm^2 thick ^{194}Pt. Measured Eγ, Iγ, γγ-coin, γ(θ) using HORUS array with 12 HPGe detectors at Cologne tandem accelerator facility. Deduced levels, J, π, mixing ratios, B(M1), B(E1). Comparison with predictions of IBFM model calculations.

^{193}Au Levels

E(level)†	Jπ@	T1/2&	Comments
0.0	3/2+		
38.234 *17*	(1/2)+&		E(level): From Adopted Levels.
224.83 *9*	3/2+		
258.01 *7*	5/2+		
290.20 *3*	11/2−&	3.9 s *3*	E(level): From Adopted Levels.
381.61 *7*	5/2+		
508.25 *8*	7/2−&	0.29 ns *2*	
538.91 *7*	7/2+		
687.44 *8*	7/2+		
697.79 *10*	(15/2)−&		
789.97 *9*	9/2−&		
808.60 *9*	9/2+		
827.99‡ *10*	3/2+		Jπ: 1/2+ discarded based on correlation analysis of 446γ and 381γ cascade.
863.42 *15*	(13/2)−&		
890.80 *9*	9/2−&		
929.10 *9*	9/2+		
983.61 *12*	7/2+		
1085.35 *12*	(7/2+)		
1089.65 *19*			
1105.90 *13*	7/2+		Jπ: 9/2 is also possible from γγ(θ) data, but discarded from γ to 3/2+.
1119.01 *21*	3/2+		Jπ: 7/2 with δ(861γ)=−2.28 *+49−75* is also possible, but it is inconsistent with log *ft* value in decay data.
1131.8 *3*	9/2−,11/2−&		
1153.56 *23*	11/2+		
1194.3 *4*	(13/2−)&		
1284.95 *13*	9/2−,11/2−&		
1297.35 *19*	(3/2 to 11/2)		
1300.40 *23*	(3/2 to 11/2+)		
1330.91 *15*	9/2+		
1343.71 *21*	(1/2 to 9/2+)		E(level): 1243.6 listed in table 1 of 2014Th02 is a misprint (communications with 1st Author).
1355.40 *17*	(11/2 to 15/2−)		E(level),Jπ: From Adopted Levels. Level not listed in Table 1 of 2014Th02, however needed for 274.95γ from 1630 keV level.
1372.9 *3*	15/2,17/2−		
1379.89# *16*	11/2+		
1398.56 *24*	(13/2)−&		
1400.4 *4*	11/2−&		
1417.98 *15*	(5/2,7/2)+		
1419.1 *4*	(19/2)−&		
1463.10 *23*	(1/2 to 7/2+)		
1477.00 *22*	9/2+,11/2+,13/2+		Jπ: Best fit to γγ(θ) data is obtained for 13/2 -> 9/2 -> 5/2, yet 9/2 and 11/2 cannot be ruled out.
1496.1 *3*	(9/2)−&		
1526.8 *3*	(9/2,7/2+)&		
1571.7 *3*			
1575.79 *20*	11/2−,13/2−&		

Continued on next page (footnotes at end of table)

^{194}Pt(p,2nγ) 2014Th02 (continued)

^{193}Au Levels (continued)

E(level)[†]	Jπ[@]	Comments
1578.00 *17*	(5/2,7/2)+[&]	
1598.6 *5*		
1630.4 *4*	11/2−,13/2−[&]	
1655.4 *4*		Jπ: 2014Th02 propose (3/2 to 11/2). Evaluator's note: 726γ to (9/2+).
1658.5 *3*	(1/2+ to 9/2+)	
1678.81 *19*	(3/2+ to 11/2+)	
1733.49 *22*	(15/2−)[&]	
1745.1 *3*		

† From least-squares fit to γ-ray energies.
‡ An uncertain placement of 289.0γ in the literature from this level was not in agreement with the data in 2014Th02.
# 516.7γ in the literature from this level was not observed in γγ coincidence spectrum in 2014Th02.
@ From 2014Th02 based on γγ(θ) results and γ-decay pattern, unless otherwise stated.
& From Adopted Levels.

γ(^{193}Au)

Unplaced γ rays are observed in coincidence spectra with a gated transition.

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.†	δ†	Comments
		^{x}422.2@ *3*						
		^{x}528.2 *4*						γ in coin with 721γ.
		^{x}545.1@ *3*						
		^{x}809.4 *3*						γ in coin with 581γ.
		^{x}913.1& *3*						
		^{x}989.7& *3*						
		^{x}1052.5& *3*						
		^{x}1097.3§ *3*						
		^{x}1115.6 *3*						γ in coin with 499γ.
		^{x}1171.5§ *3*						
		^{x}1174.1& *3*						
		^{x}1178.7§ *3*						
		^{x}1212.0 *5*						γ in coin with 429γ.
		^{x}1232.4§ *4*						
		^{x}1241.6§ *3*						
		^{x}1314.5§ *3*						
		^{x}1325.9§ *3*						
		^{x}1339.7§ *3*						
		^{x}1352.2& *3*						
		^{x}1365.4§ *3*						
		^{x}1442.2§ *3*						
		^{x}1460.0§ *3*						
		^{x}1505.0§ *4*						
		^{x}1557.2§ *4*						
224.83	3/2$^+$	186.6 *2*	100 *10*	38.234	(1/2)$^+$	D		δ(Q/D)=+0.11 15 (2014Th02).
		224.8 *2*	5 *1*	0.0	3/2$^+$			
258.01	5/2$^+$	219.8 *2*	6 *1*	38.234	(1/2)$^+$	Q		δ(O/Q)=+0.02 *59*.
		258.0 *1*	100 *10*	0.0	3/2$^+$	D+Q	−0.75 *11*	
381.61	5/2$^+$	156.8 *2*	1 *1*	224.83	3/2$^+$			
		343.4 *2*	6 *1*	38.234	(1/2)$^+$	[E2]‡		
		381.6 *1*	100 *10*	0.0	3/2$^+$	D+Q	−2.93 *+62−45*	δ: Other possible value of −0.07 *5* is ruled out by 2014Th02 from comparison with previous ce data.
508.25	7/2$^-$	126.5	5 *2*	381.61	5/2$^+$	[E1]‡		
		218.0 *1*	100 *10*	290.20	11/2$^-$	[E2]‡		

γ(^{193}Au) (continued)

E_i(level)	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult.†	δ†	Comments
538.91	7/2$^+$	157.2 2	2 1	381.61	5/2$^+$			
		280.9 2	26 4	258.01	5/2$^+$	D+Q	−0.06 3	
		314.0 2	2 1	224.83	3/2$^+$			
		538.9 1	100 10	0.0	3/2$^+$	Q		δ(O/Q)=−0.03 13.
687.44	7/2$^+$	148.5 3	1 1	538.91	7/2$^+$			
		305.9 2	9 1	381.61	5/2$^+$	D+Q	+0.44 +22−19	δ: According to e-mail reply of Jan 17, 2014 from T. Thomas, value of δ should be +0.44 +22−19 as in authors' table 6, if δ(381γ)=−2.93 is correct. Value of δ=+0.22 +22−19 listed in authors' table 1 should be disregarded.
		429.4 1	100 10	258.01	5/2$^+$	D+Q	−0.19 +2−3	
		462.6 2	13 2	224.83	3/2$^+$	Q		δ(O/Q)=0.00 20.
		687.5 2	27 1	0.0	3/2$^+$	[E2]‡		
697.79	(15/2)$^-$	407.6 1	100	290.20	11/2$^-$			
789.97	9/2$^-$	251.0 2	2 2	538.91	7/2$^+$	[E1]‡		
		281.7 2	20 1	508.25	7/2$^-$			
		499.8 1	100 10	290.20	11/2$^-$			
808.60	9/2$^+$	269.6 2	3 1	538.91	7/2$^+$	D+Q	−0.13 5	δ: Uncertainty is 0.07 in Table 6 of 2014Th02.
		427.0 2	3 1	381.61	5/2$^+$	[E2]‡		
		550.6 1	100 10	258.01	5/2$^+$	Q		δ(O/Q)=−0.03 2.
827.99	3/2$^+$	446.4 2	52 9	381.61	5/2$^+$	D+Q	−0.30 7	
		603.2 3	100 10	224.83	3/2$^+$	D+Q	+0.50# +36−28	
		789.7 2	54 4	38.234	(1/2)$^+$			E_γ: Energy extracted from a doublet.
		828.0 2	81 23	0.0	3/2$^+$	D+Q	+0.78 +81−45	E_γ: Energy extracted from a triplet, 2014Th02 note. However, only 828.0γ and 825.5γ are listed.
863.42	(13/2)$^-$	165.6 5	>1	697.79	(15/2)$^-$			
		573.2 2	100 10	290.20	11/2$^-$			
890.80	9/2$^-$	382.5 2	100 10	508.25	7/2$^-$			
		600.6 1	84 17	290.20	11/2$^-$			
929.10	9/2$^+$	241.7 3	39 10	687.44	7/2$^+$	D+Q	−0.12 5	
		390.1 3	29 2	538.91	7/2$^+$	D		δ(Q/D)=+0.03 8.
		547.5 1	100 10	381.61	5/2$^+$	Q		δ(O/Q)=−0.03 7.
		638.9 2	14 5	290.20	11/2$^-$	[E1]‡		
983.61	7/2$^+$	155.6 4	2 1	827.99	3/2$^+$			
		444.6 4	10 4	538.91	7/2$^+$			I_γ: 100 10 in table 1 is a misprint (communications with 1st Author).
		725.6 2	100 10	258.01	5/2$^+$	D+Q	+2.54 +30−25	
		758.8 2	56 4	224.83	3/2$^+$	Q		δ(O/Q)=+0.02 21.
1085.35	(7/2$^+$)	295.4 3	100 10	789.97	9/2$^-$	[E1]‡		
		577.1 2	23 3	508.25	7/2$^-$	[E1]‡		
		703.7 2	37 4	381.61	5/2$^+$	D+Q	+0.36# +21−19	
		827.5 3	40 5	258.01	5/2$^+$	D+Q	+0.48# 16	

γ(^{193}Au) (continued)

E_i(level)	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult.†	δ†	Comments
1085.35	(7/2$^+$)	860.5 *3*	63 *8*	224.83	3/2$^+$	[E2]‡		
1089.65		581.4 *2*	100	508.25	7/2$^-$			
1105.90	7/2$^+$	277.9 *2*	20 *4*	827.99	3/2$^+$	[E2]‡		
		567.1 *3*	59 *12*	538.91	7/2$^+$	D+Q	+0.32 *+22−19*	
		724.3 *2*	100 *10*	381.61	5/2$^+$	D+Q	+0.40 *11*	
		847.8 *3*	35 *7*	258.01	5/2$^+$	D+Q	+0.28 *5*	
1119.01	3/2$^+$	861.0 *2*	100	258.01	5/2$^+$	M1+E2	+1.33 *40*	δ: Other possible value of +0.35 *8* is ruled out by 2014Th02 from comparison with previous ce data of 1974ViZS (193HG EC Decay).
1131.8	9/2$^-$,11/2$^-$	341.8 *3*	100	789.97	9/2$^-$			
1153.56	11/2$^+$	344.9 *3*	63 *13*	808.60	9/2$^+$	D		δ(Q/D)=−0.02 *5*.
		614.7 *3*	100 *10*	538.91	7/2$^+$	Q		δ(O/Q)=+0.03 *9*.
1194.3	(13/2$^-$)	404.3 *3*	100	789.97	9/2$^-$			
1284.95	9/2$^-$,11/2$^-$	394.0 *3*	100	890.80	9/2$^-$			
		776.6 *2*	35 *7*	508.25	7/2$^-$			
		994.9 *2*	54 *11*	290.20	11/2$^-$			
1297.35	(3/2 to 11/2)	207.7 *3*	19 *4*	1089.65				
		789.1 *2*	100 *10*	508.25	7/2$^-$			
1300.40	(3/2 to 11/2$^+$)	215.1 *3*	100 *10*	1085.35	(7/2$^+$)			
		612.9 *3*	13 *5*	687.44	7/2$^+$			
1330.91	9/2$^+$	347.3 *3*	100 *10*	983.61	7/2$^+$	D+Q	−0.45 *24*	δ: From Figure caption A.2. A value of δ=−0.20 *13* in Table 1 is a misprint (communications with 1st Author).
		401.8 *3*	95 *19*	929.10	9/2$^+$			
		522.3 *3*	53 *11*	808.60	9/2$^+$			
		643.5 *3*	89 *18*	687.44	7/2$^+$			
		949.3 *3*	28 *6*	381.61	5/2$^+$			
1343.71	(1/2 to 9/2$^+$)	962 *3*	19 *6*	381.61	5/2$^+$			
		1085.7 *2*	100 *10*	258.01	5/2$^+$			
1372.9	15/2,17/2$^-$	675.1 *3*	100	697.79	(15/2)$^-$			
1379.89	11/2$^+$	571.3 *2*	100 *10*	808.60	9/2$^+$	D		δ(Q/D)=+0.05 *7*.
		692.5 *3*	98 *20*	687.44	7/2$^+$	Q		δ(O/Q)=−0.05 *8*.
		840.9 *3*	77 *15*	538.91	7/2$^+$	[E2]‡		
1398.56	(13/2)$^-$	535.1 *3*	100 *10*	863.42	(13/2)$^-$			
		700.8 *3*	49 *20*	697.79	(15/2)$^-$			
1400.4	11/2$^-$	537.0 *3*	100	863.42	(13/2)$^-$			
1417.98	(5/2,7/2)$^+$	434.4 *3*	58 *12*	983.61	7/2$^+$			
		488.9 *3*	64 *13*	929.10	9/2$^+$			
		590.0 *3*	67 *17*	827.99	3/2$^+$			
		609.3 *3*	32 *6*	808.60	9/2$^+$			
		879.1 *3*	100 *10*	538.91	7/2$^+$			
1419.1	(19/2)$^-$	721.3 *3*	100	697.79	(15/2)$^-$	Q		δ(O/Q)=+0.09 *12*.

γ(^{193}Au) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.†	δ†	Comments
1463.10	(1/2 to 7/2+)	572.3 *3*	100 *10*	890.80	9/2−	[E1]‡		
		635.1 *3*	21 *5*	827.99	3/2+			
1477.00	9/2+,11/2+,13/2+	668.4 *2*	100	808.60	9/2+			δ(Q/D)=+0.28 *17* for J(1477)=9/2, +0.47 *8* for J(1477)=11/2; δ(O/Q)=+0.02 *9* for J(1477)=13/2.
1496.1	(9/2)−	364.3 *3*	100 *10*	1131.8	9/2−,11/2−	D+Q	−0.53 *+10−11*	
		706.2 *3*	32 *6*	789.97	9/2−			
1526.8	(9/2,7/2+)	987.9 *3*	100	538.91	7/2+			
1571.7		274.4 *3*	100 *10*	1297.35	(3/2 to 11/2)			
		482.1 *3*	17 *3*	1089.65				
1575.79	11/2−,13/2−	290.8 *3*	30 *6*	1284.95	9/2−,11/2−			
		712.5 *3*	10 *3*	863.42	(13/2)−			
		877.9 *3*	100 *10*	697.79	(15/2)−			
1578.00	(5/2,7/2)+	472.1 *2*	100 *10*	1105.90	7/2+			
		750.0 *2*	17 *6*	827.99	3/2+			
1598.6		404.3 *3*	100	1194.3	(13/2−)			
1630.4	11/2−,13/2−	932.6 *3*	100	697.79	(15/2)−			
1655.4		726.3 *3*	100	929.10	9/2+			
1658.5	(1/2+ to 9/2+)	1276.9 *3*	100	381.61	5/2+			
1678.81	(3/2+ to 11/2+)	695.2 *2*	100 *10*	983.61	7/2+			
		870.2 *3*	68 *18*	808.60	9/2+			
1733.49	(15/2−)	360.5 *4*	30 *8*	1372.9	15/2,17/2−			
		869.9 *3*	100 *10*	863.42	(13/2)−			
		1035.9 *3*	60 *12*	697.79	(15/2)−			
1745.1		1236.8 *3*	100	508.25	7/2−			

† From γγ(θ) data (2014Th02), except otherwise noted.
‡ 2014Th02 assume from selection rule of G-ray transition. 2014Th02 list in parentheses, however, the evaluator list in square brackets.
§ γ in coin with 407-keV gate.
& γ in coin with 573-keV gate.
@ γ in coin with 675-keV gate.
# 2014Th02 list value in parentheses to indicate that angular correlation analysis did not yield a distict δ value.
x γ ray not placed in level scheme.

Ir(α,xnγ) 1979Go15,1985Ko13

1985Ko13: ^{193}Ir(α,4nγ), E(α)=50 MeV; measured Eγ, Iγ (Ge(Li)), E(ce), Ice (mag spect), prompt and delayed (ce)(ce) and (ce)γ, perturbed angular distributions; confirmed Configuration=(ν $i_{13/2}$2) core structure of the rotation-aligned h11/2 proton-hole band.
1979Go15: ^{193}Ir(α,4nγ), E(α)=51 MeV; measured Eγ, Iγ (Ge(Li)), γγ, γ(θ) (6 angles), γ(t). Earlier reports: 1977Go12, 1976Go22.
1975LaYS: ^{193}Ir(α,4nγ), E(α)=42-52 MeV; natural Ir targets; measured Eγ, Iγ (intrinsic germanium detectors), E(ce), Ice (Si(Li)), γγ, γ(θ);
1975StZE: ^{191}Ir(α,2nγ), E(α)=23-27 MeV; measured Eγ, Iγ (Ge(Li)), E(ce), Ice (Si(Li)), γγ, γ(θ).
1974Tj02: ^{191}Ir(α,2nγ), E(α)=26, 29, 42 MeV; measured Eγ, Iγ (Ge(Li)), γγ coin, γγ(t), γ(θ) (30° and 90°).

^{193}Au Levels

The level scheme is that proposed by 1979Go15 with g.s. band added from 1975StZE and 1974Tj02. For a discussion of the rotation-aligned h11/2 proton-hole bands see 1979Go15, 1985Ko13 and references cited therein.

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
0.0[#]	3/2+[b]		
38.2	(1/2)+[b]		
224.8	(3/2)+[b]		
258.0[#]	5/2+[b]		
290.2[@]	11/2−[b]	3.9 s *3*	$T_{1/2}$: From Adopted Levels.
508.3	7/2−		
539.0[#]	7/2+		
697.8[@]	15/2−		
789.9	9/2−		
808.6[#]	9/2+		
863.4[&]	13/2−		
890.8	9/2−		
1131.8	(11/2−)[c]		Jπ: adopted 9/2−,11/2−.
1153.5[#]	11/2+[c]		
1194.3	(13/2−)[c]		
1284.8	11/2−		Jπ: adopted 9/2−,11/2−.
1372.9[&]	17/2−		
1398.5	(15/2−)		Jπ: adopted (13/2−).
1418.9[@]	19/2−		
1478.4[#]	(13/2+)		
1496.3			
1946.9	21/2+	10.4 ns *8*	$T_{1/2}$: from (ce(L2) 133γ)(ce(K) 408γ)(t) (1985Ko13). Others: 15 ns *2* (1979Go15), 12 ns *2* (1974Tj02).
2079.8	25/2+	2.51 ns *13*	$T_{1/2}$: (ce(K) 245γ)(ce(L2) 133γ)(t) (1985Ko13).
2087.1[&]	21/2−		
2140.0	23/2(+)		
2172.7[@]	23/2−		
2324.7	27/2+	<0.2 ns	$T_{1/2}$: (ce(L2) 162γ)(ce(K) 245γ)(t) (1985Ko13).
2377.7[@]	27/2−	0.79 ns *8*	$T_{1/2}$: (ce(L2) 99γ)(ce(K) 205K)(t) (1985Ko13). Other:<3 ns (1979Go15). g-factor≤0.7 (1985Ko13); from integral perturbed angular distribution measurements with external magnetic fields.
2476.4[@]	31/2−	3.52 ns *18*	g-factor=0.3 *2* (1985Ko13) from integral perturbed angular distribution measurements with external magnetic fields. $T_{1/2}$: (ce(K) 225γ)(ce(L2) 99γ)(t) (1985Ko13). Other: 6 ns *2* (1979Go15).
2486.5[a]	31/2+	150 ns *50*	$T_{1/2}$: (ce(K) 244γ)γ(t) (1985Ko13). Other:≥100 ns (1979Go15).

Continued on next page (footnotes at end of table)

Ir(α,xnγ) 1979Go15,1985Ko13 (continued)

^{193}Au Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
2700.9[@]	35/2⁻	1.80 ns *9*	g-factor=0.13 *11* (1985Ko13); from integral perturbed angular distribution measurements with external magnetic fields. $T_{1/2}$: (ce(K) 225γ)(t) (1985Ko13).
2923.2[a]	35/2⁺		
3154.9[@]	39/2⁻	<0.5 ns	$T_{1/2}$: (ce(K) 454γ)(t) (1985Ko13).
3441.7[a]	39/2⁺		
3895.9[@]	43/2⁻		
4063.2[a]	43/2⁺		

[†] Rounded-off values from Adopted Levels.
[‡] From 1979Go15 and/or 1974Tj02, unless otherwise noted. Assignments are based on coincidence data and γ-ray multipolarities. 1985Ko13 state that their experimental conversion coefficients (not given) confirm the Jπ assignments of 1979Go15. Many assignments are the same as adopted values but given under parentheses.
[#] g.s. band.
[@] Favored h11/2 decoupled band.
[&] Unfavored h11/2 decoupled band.
[a] Rotation-aligned band based on 31/2⁺ level.
[b] From Adopted Levels.
[c] Jπ suggested by 1975StZE.

γ(^{193}Au)

Eγ[†]	Iγ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[§]	Comments
(32.21[&] *3*)		290.2	11/2⁻	258.0	5/2⁺		
(38.23[&] *2*)		38.2	(1/2)⁺	0.0	3/2⁺		
98.7 *3*	3 *1*	2476.4	31/2⁻	2377.7	27/2⁻	(E2)[b]	Mult.: A_2=+0.32 *11*, A_4=−0.06 *17* (1979Go15).
132.9 *3*	11 *1*	2079.8	25/2⁺	1946.9	21/2⁺	E2[b]	Mult.: A_2=+0.32 *3*, A_4=−0.02 *5* (1979Go15), A_2=+0.30 *5* (1975LaYS). Mult.: prompt decay of 2079.8 level (2.51 ns) consistent with E2 assignment.
161.8 *3*	7 *2*	2486.5	31/2⁺	2324.7	27/2⁺	(E2)[a]	Mult.: α(exp)=0.97 *20* (1979Go15); theory: α(E2)=0.792, α(E1)=0.123, α(M1)=1.84; A_2=+0.12 *4*, A_4=−0.01 *6* (1979Go15).
186.6[@]		224.8	(3/2)⁺	38.2	(1/2)⁺		Iγ(30°)/Iγ(90°)=0.74 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.109 (1974Tj02).
193.1 *3*	5 *2*	2140.0	23/2$^{(+)}$	1946.9	21/2⁺	D+Q	Mult.: A_2=−0.11 *5*, A_4=−0.04 *8* (1979Go15).
204.9 *3*	17 *2*	2377.7	27/2⁻	2172.7	23/2⁻	(E2)[b]	Mult.: A_2=+0.32 *4*, A_4=−0.04 *6* (1979Go15), A_2=+0.31 *4* (1975LaYS).
218.1[@]		508.3	7/2⁻	290.2	11/2⁻		Iγ(30°)/Iγ(90°)=1.03 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.307 (1974Tj02).
219.9[@]		258.0	5/2⁺	38.2	(1/2)⁺		Iγ(30°)/Iγ(90°)=1.03 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.116 (1974Tj02).
224.5 *3*	8 *1*	2700.9	35/2⁻	2476.4	31/2⁻	(E2)[b]	Mult.: A_2=+0.34 *4*, A_4=−0.06 *6* (1979Go15).
244.9 *3*	11 *3*	2324.7	27/2⁺	2079.8	25/2⁺	(M1)[a]	Mult.: α(exp)=0.72 *20* (1979Go15); theory: α(M1)=0.579, α(E2)=0.192; A_2=0.00 *3*, A_4=+0.02 *5* (1979Go15).
258.1[@]		258.0	5/2⁺	0.0	3/2⁺		Iγ(30°)/Iγ(90°)=0.87 (1974Tj02). I_γ: Iγ/Iγ(407.6)=2.89 (1974Tj02).

Continued on next page (footnotes at end of table)

Ir(α,xnγ) 1979Go15,1985Ko13 (continued)

γ(^{193}Au) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[§]	δ	Comments
269.2[#c]		808.6	9/2+	539.0	7/2+			γ not seen in ^{193}Hg decay.
281.5[@]		539.0	7/2+	258.0	5/2+			Iγ(30°)/Iγ(90°)=0.77 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.104 (1974Tj02).
281.6[#]		789.9	9/2−	508.3	7/2−			
298.0 *3*	7 *2*	2377.7	27/2−	2079.8	25/2+			A_2=−0.13 *4*, A_4=+0.02 *6* (1979Go15).
342.4[#]		1131.8	(11/2−)	789.9	9/2−			
344.1[#]		1153.5	11/2+	808.6	9/2+			
364.9[#]		1496.3		1131.8	(11/2−)			
382.2[@]		890.8	9/2−	508.3	7/2−			Iγ(30°)/Iγ(90°)=1.66 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.449 (1974Tj02).
394.5[#]		1284.8	11/2−	890.8	9/2−			
404.8[#]		1194.3	(13/2−)	789.9	9/2−			
407.6 *3*	100 *7*	697.8	15/2−	290.2	11/2−	(E2)[b]		Mult.: A_2=+0.28 *2*, A_4=−0.03 *3* (1979Go15), A_2=+0.28 *2* (1975LaYS); Iγ(30°)/Iγ(90°)=1.41 (1974Tj02).
436.7 *3*	7 *2*	2923.2	35/2+	2486.5	31/2+	(E2)[b]		Mult.: A_2=+0.39 *11*, A_4=−0.05 *17* (1979Go15).
454.0 *3*	6 *2*	3154.9	39/2−	2700.9	35/2−	(E2)[b]		Mult.: A_2=+0.39 *13*, A_4=−0.09 *19* (1979Go15).
500.0[#]		789.9	9/2−	290.2	11/2−			
518.5 *3*	3 *1*	3441.7	39/2+	2923.2	35/2+	(E2)[b]		Mult.: A_2=+0.21 *8*, A_4=−0.01 *12* (1979Go15).
527.9 *3*	42 *3*	1946.9	21/2+	1418.9	19/2−	E1		Mult.: from α(K)exp=0.0075 *15* (1975LaYS); theory: α(K)(E1)=0.00637; A_2=−0.07 *2*, A_4=+0.01 *3* (1979Go15); A_2=−0.26 *2* (1975LaYS); Iγ(30°)/Iγ(90°)=0.94 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.229 (1974Tj02).
535.7[@]		1398.5	(15/2−)	863.4	13/2−	M1+E2		Mult.: α(K)exp=0.065 *13* (1975LaYS); theory: α(K)(M1)=0.0583, α(K)(E2)=0.0162; A_2=+0.28 *5* (1975LaYS); Iγ(30°)/Iγ(90°)=1.19 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.143 (1974Tj02). δ: adopted δ=1.4 +*12*−*5* from ^{193}Hg decay.
539.3[@]		539.0	7/2+	0.0	3/2+			Iγ(30°)/Iγ(90°)=1.24 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.201 (1974Tj02).
551.2[@]		808.6	9/2+	258.0	5/2+			A_2=+0.22 *8* (1975LaYS); Iγ(30°)/Iγ(90°)=1.19 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.172 (1974Tj02).
572.9 *3*	6 *2*	863.4	13/2−	290.2	11/2−	M1+E2	+0.36 *7*	Mult.: α(K)exp=0.053 *11* (1975LaYS); theory: α(K)(M1)=0.0489 A_2=+0.18 *6*, A_4=+0.08 *9* (1977Go12,1979Go15); A_2=+0.25 *6* (1975LaYS); Iγ(30°)/Iγ(90°)=1.43 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.342 (1974Tj02). δ: from γ(θ) (1977Go12), δ not reported in 1979Go15.
600.9[@]		890.8	9/2−	290.2	11/2−			Iγ(30°)/Iγ(90°)≈1.7 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.08 (1974Tj02).
614.9[#]		1153.5	11/2+	539.0	7/2+			
621.5 *3*	2 *1*	4063.2	43/2+	3441.7	39/2+	(E2)[b]		Mult.: A_2=+0.22 *12*, A_4=−0.01 *18* (1979Go15).
668.2 *3*	5 *1*	2087.1	21/2−	1418.9	19/2−			Mult.: A_2=+0.18 *3*, A_4=−0.01 *5* (1979Go15); A_2=+0.21 *5* (1975LaYS).
669.8[@]		1478.4	(13/2+)	808.6	9/2+			Mult.: α(K)exp=0.043 *9* (1975LaYS); theory: α(K)(M1)=0.0326, α(K)(E2)=0.0102;

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Ir(α,xnγ) 1979Go15,1985Ko13 (continued)

γ(^{193}Au) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[§]	δ	Comments
								Iγ(30°)/Iγ(90°)=1.23 (1974Tj02). Data suggests a M1, ΔJ=1 transition, level scheme requires E2 multipolarity. Possibly a doublet with the major component the 668.2γ from the 2087-keV 21/2⁻ level. I_γ: Iγ/Iγ(407.6)=0.135 (1974Tj02).
674.8 *3*	6 *1*	1372.9	17/2⁻	697.8	15/2⁻	M1+E2	+0.39 *6*	Mult.: α(K)exp=0.035 *8* (1975LaYS); theory: α(K)(M1)=0.0320 A_2=+0.25 *5*, A_4=+0.05 *8* (1977Go12,1979Go15); A_2=+0.28 *5* (1975LaYS); Iγ(30°)/Iγ(90°)=1.49 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.068 (1974Tj02). δ: from γ(θ) (1977Go12) (mistakenly shown as δ of 720.0γ in table 1 of 1977Go12), δ not reported in 1979Go15. Adopted δ=1.5 *+10−5* from ^{193}Hg decay.
720.9 *3*	79 *8*	1418.9	19/2⁻	697.8	15/2⁻	E2		Mult.: α(K)exp=0.013 *3* (1975LaYS); theory: α(K)(E2)=0.00877, α(K)(M1)=0.0270; A_2=+0.27 *3*, A_4=−0.02 *5* (1979Go15); A_2=+0.26 *3* (1975LaYS); Iγ(30°)/Iγ(90°)=1.17 (1974Tj02). I_γ: Iγ/Iγ(407.6)=0.413 (1974Tj02).
741.0 *3*	3 *1*	3895.9	43/2⁻	3154.9	39/2⁻	(E2)[b]		Mult.: A_2=+0.37 *13*, A_4=−0.13 *19* (1979Go15).
753.8 *3*	25 *2*	2172.7	23/2⁻	1418.9	19/2⁻	(E2)		Mult.: α(K)exp=0.014 *3* (1975LaYS); theory: α(K)(E2)=0.00802, α(K)(M1)=0.0241; A_2=+0.32 *3*, A_4=−0.04 *5* (1979Go15); A_2=+0.33 *4* (1975LaYS).
777.5[#]		1284.8	11/2⁻	508.3	7/2⁻			
(994.61[&] *15*)		1284.8	11/2⁻	290.2	11/2⁻			
1249.3 *3*	11 *1*	1946.9	21/2⁺	697.8	15/2⁻	(E3)		Mult.: A_2=+0.31 *3*, A_4=+0.02 *5* (1979Go15). Stretched octupole character inferred from γ(θ). The partial $T_{1/2}$ for the 1947.0 level via 1249.3γ (=50 ns) is low relative to the Weisskopf single-particle estimate for E3 (=116 ns). E3 is nevertheless preferable to other assignments (1979Go15).

[†] From 1979Go15, unless otherwise noted.
[‡] From 1979Go15; arbitrary units, relative to Iγ(407.6γ)=100 in ^{193}Ir(α,4nγ), E(α)=51 MeV.
[§] I(ce)/Iγ normalized to α(K)(E2)=0.030 for the 407.6γ.
[&] From Adopted Gammas.
[@] From 1974Tj02; uncertainties estimated to be 0.3 keV, as in 1979Go15 (evaluator).
[#] From 1975StZE.
[a] α(exp) deduced from intensity balance in level scheme in delayed coin from the 2486.5 level ($T_{1/2}$=150 ns), with the assumption that I(γ+ce)(244.9γ)=I(γ+ce)(161.8γ)=I(γ+ce)(132.9γ,E2)=I(γ+ce)(407.6γ,E2).
[b] From γ-ray angular distributions in 1979Go15; stretched E2 assignments were based on large positive A_2, and intraband M1+E2 assignments on rotational structure and negative A_2.
[c] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Q(β^-)=−3585 *17*; S(n)=7122 *22*; S(p)=5579 *22*; Q(α)=2982 *18* 2017Wa10

2015Ju02: Measured ^{193m}Hg (11.8 h) production cross section, 17.91 mb *64*, bombarding Pb target with proton beam, E=250 MeV.

2016Ba25: Measured ^{193m}Hg and ^{193g}Hg production cross sections – 7.19 mb *80* and 3.3 mb *11*, respectively, bombarding ^{197}Au with deuteron beam, E=4.4 GeV.

^{193}Hg Levels

Cross Reference (XREF) Flags

A	^{193}Hg IT decay (11.8 h)	E	(HI,xnγ)
B	^{193}Tl ε decay (21.6 min)	F	(HI,xnγ):SD
C	^{193}Tl ε decay (2.11 min)		
D	Pt(α,xnγ)		

E(level)†	J$^\pi$‡#	T$_{1/2}$	XREF	Comments
0.0	3/2$^{(-)}$	3.80 h *15*	ABC	%ε+%β^+=100 μ=−0.62757 *18*; Q=−0.72 *38* μ: From optical pumping (1971Mo24,2014StZZ), with diamagnetic correction applied. Q: From collinear fast-beam laser spectroscopy, corrected for polarization effects (Sternheimer corrections) (1986Ul02,2014StZZ), Limit for possible α decay: <10^{-5}% (1963Ka17), 10^{-17}% (2001Mo07); other estimated value: <1×10^{-14}% (1997Mo25). J$^\pi$: spin from optical spectroscopy, optical level crossing (1976Fu06); parity from Schmidt diagram, μ. T$_{1/2}$: from 1974ViZS. Other values: 4 h (1958Ma50), 3.5 h *5* (1965KaZZ), 3 h (1966Ha47). RMS charge radius: 5.4239 fm *35*(2004An14). Isotope shift: Δ<r^2> = −0.234 fm^2 *8* (1986Ul02, relative to ^{198}Hg).
39.51 *3*	5/2$^{(-)}$	0.63 ns *3*	AB	J$^\pi$: M1 γ to 3/2$^{(-)}$; M4 γ from 13/2$^+$. T$_{1/2}$: from ^{193}Hg IT decay (11.8 h) (1969Ba42).
49.95 *14*	(1/2$^-$)		B	J$^\pi$: (M1) γ to 3/2$^{(-)}$; expected p1/2 level from shell model.
140.76& *5*	13/2$^{(+)}$	11.8 h *2*	A DE	%IT=7.2 *5*; %ε+%β^+=92.8 *5* μ=−1.0585 *8*; Q=+0.92 *2* μ: From 1973Re04, optical pumping, with diamagnetic correction applied. 2014StZZ list as −1.058430 *3*. Other: −1.0416 *3* (1971Mo24, optical pumping, no diamagnetic correction). Q: Re-evaluated value listed in 2014StZZ from 2013StZZ. 1986Ul02 report +0.916 *97*, collinear fast-beam laser spectroscopy, corrected for polarization effects (Sternheimer corrections). J$^\pi$: spin from optical spectroscopy (1976Fu06); parity from Schmidt diagram, μ. T$_{1/2}$: from ^{193}Hg IT decay (11.8 h) (1974ViZS). Other values: 11.1 h *5* (1970Pl01), 10.0 h *5* (1952Fi06), 11 h *1* (1958Br88). %IT: From ^{193}Hg IT decay (11.8 h). Isotope shift: Δ<r^2> = −0.2160 fm^2 *24* (1986Ul02, relative to ^{198}Hg).
207.74 *20*	(7/2$^-$)		B	J$^\pi$: (E2) γ to 3/2$^{(-)}$ g.s.; systematics of low-lying states in odd Hg isotopes.
324.36 *8*	(3/2$^-$,5/2$^-$)		B	J$^\pi$: (M1) γ to 5/2$^-$, (E2) γ to (1/2$^-$).
344.00 *10*	(1/2$^-$,3/2$^-$)		B	J$^\pi$: (M1) γ to (1/2$^-$).
374.61 *10*	(3/2$^-$,5/2$^-$,7/2$^-$)		B	J$^\pi$: (M1) γ to 5/2$^-$.
522.73& *19*	(17/2$^+$)		DE	

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Adopted Levels, Gammas (continued)

^{193}Hg Levels (continued)

E(level)[†]	J^π[‡#]	$T_{1/2}$	XREF	Comments
746.8[h] 4	(15/2+)		DE	
752.64 25	(1/2−,3/2−,5/2−)		B	J^π: (M1) γ to 3/2$^{(-)}$.
1026.4 6	(13/2+,15/2+)		E	
1145.4[&] 3	(21/2+)		DE	
1380.3[h] 3	(19/2+)		DE	
1523.1 5	(17/2+,19/2+)		DE	
1523.3 3	(1/2−,3/2−,5/2−)		B	J^π: (M1+E2) γ to (1/2−,3/2−,5/2−).
1580.10 21	(1/2−,3/2,5/2−)		B	J^π: γ to 5/2− level.
1735.8 7	(19/2+)		E	
1755.7[g] 3	(21/2−)		DE	
1884.3[&] 5	(25/2+)		DE	
1886.2[g] 5	(25/2−)	1.58 ns 6	DE	$T_{1/2}$: from (α,xnγ).
1890.9[a] 4	(23/2−)		DE	
2096.0[a] 5	(27/2−)		DE	
2189.2[g] 5	(29/2−)		DE	
2289.5 7	(27/2−)		E	
2351.8 7	(25/2+)		E	
2502.1[d] 6	(29/2+)		DE	
2583.7[a] 6	(31/2−)		DE	
2617.3 6	(29/2−)		E	
2641.7[&] 7	(29/2+)		E	
2695.6[d] 6	(33/2+)	0.57 ns 3	DE	$T_{1/2}$: from (α,xnγ).
2762.2[g] 6	(33/2−)		DE	
3176.2[d] 7	(37/2+)		DE	
3196.0 8	(33/2+)		E	
3202.5 7	(33/2−)		E	
3220.1 8	(33/2−)		E	
3223.6[a] 6	(35/2−)		DE	
3260.3[b] 8	(33/2+)		E	
3497.5[g] 6	(37/2−)		DE	
3570.2[b] 8	(37/2+)		E	
3727.1 7	(37/2−)		E	
3754.2 8	(37/2+)		E	
3811?			E	
3850.7 8	(37/2−)		E	
3880.5[d] 7	(41/2+)		DE	
3883.8[e] 6	(39/2−)		DE	
4119.7[c] 9	(39/2+)		E	
4120.5[b] 10	(41/2+)		E	
4150.8[f] 7	(41/2−)		E	
4198.0 8	(39/2−)		E	
4396.8[e] 7	(43/2−)		E	
4412.6[g] 7	(41/2−)		E	
4416.7 11			E	
4462.2 12			E	
4539.0 7	(41/2+)		E	
4674.1[f] 7	(45/2−)		E	
4683.8[c] 12	(43/2+)		E	

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Adopted Levels, Gammas (continued)

^{193}Hg Levels (continued)

E(level)[†]	Jπ[‡#]	XREF	Comments
4688.4[d] *9*	(45/2+)	E	
4720.6 *8*	(39/2−)	E	
4792.0 *7*	(41/2−)	E	
4864.9 *8*	(43/2−)	E	
4889.9[b] *13*	(45/2+)	E	
4958.5 *7*	(45/2−)	E	
4964.0 *13*	(43/2)	E	
5033.1 *12*		E	
5048.0[e] *9*	(47/2−)	E	
5117.4 *8*	(45/2−)	E	
5319.9 *8*	(43/2)	E	
5339.1 *8*	(47/2−)	E	
5361.7[c] *15*	(47/2+)	E	
5391.9 *9*	(43/2+)	E	
5400.3 *15*		E	
5411.5[f] *10*	(49/2−)	E	
5442.6 *7*	(45/2+)	E	
5547.6[k] *7*	(47/2+)	E	
5559.5[d] *12*	(49/2+)	E	
5560.5 *9*	(47/2−)	E	
5678.4 *8*	(49/2−)	E	
5698.1[b] *15*	(49/2+)	E	
5702.7 *9*	(49/2−)	E	
5714.8? *13*		E	
5747.5 *10*	(49/2−)	E	
5800.6 *9*	(49/2−)	E	
5832.1[k] *7*	(49/2+)	E	
5899.1[e] *12*	(51/2−)	E	
6017.1 *13*	(51/2−)	E	
6067.7[k] *8*	(51/2+)	E	
6103.9 *9*	(51/2−)	E	
6145.2 *9*	(51/2−)	E	
6163.6[c] *17*	(51/2+)	E	
6305.3 *9*	(53/2−)	E	
6394.9[f] *13*	(53/2−)	E	
6401.0[j] *18*	(53/2−)	E	The decay out of this level has not been observed.
6419.4[i] *9*	(53/2−)	E	
6428.5 *16*	(53/2+)	E	
6464.6[k] *8*	(53/2+)	E	
6496.9[d] *15*	(53/2+)	E	
6726.4[j] *17*	(55/2−)	E	
6832.3 *9*	(55/2+)	E	
6839.9[k] *8*	(55/2+)	E	
6913.4[e] *15*	(55/2−)	E	
6921.8 *16*		E	
6921.9[i] *10*	(55/2−)	E	
6978.6[j] *18*	(57/2−)	E	
7037.5[k] *9*	(57/2+)	E	
7038.1 *16*		E	
7133.3 *12*	(57/2+)	E	

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Adopted Levels, Gammas (continued)

^{193}Hg Levels (continued)

E(level)[†]	Jπ[‡#]	XREF	Comments
7186.7 *11*	(57/2⁻)	E	
7197.9[k] *10*	(59/2⁺)	E	
7245.7[j] *19*	(59/2⁻)	E	
7276.6[i] *10*	(57/2⁻)	E	
7281.6 *12*	(57/2⁺)	E	
7440.0 *14*		E	
7476.4[f] *16*	(57/2⁻)	E	
7492.3 *16*		E	
7555.2[k] *10*	(61/2⁺)	E	
7560.4[j] *19*	(61/2⁻)	E	
7681.2 *12*		E	
7699.5[i] *10*	(59/2⁻)	E	
7838.3[i] *10*	(61/2⁻)	E	
7920.0[j] *20*	(63/2⁻)	E	
7924.8[k] *10*	(63/2⁺)	E	
8137.0[i] *11*	(63/2⁻)	E	
8331.0[j] *20*	(65/2⁻)	E	
8388.8[k] *11*	(65/2⁺)	E	
8394.8[i] *11*	(65/2⁻)	E	
8751.0[i] *12*	(67/2⁻)	E	
8757.8[j] *21*	(67/2⁻)	E	
8886.8[k] *12*	(67/2⁺)	E	
8978.1 *13*		E	
9221.5[i] *12*	(69/2⁻)	E	
9409.1[k] *14*	(69/2⁺)	E	
9675.9[i] *13*	(71/2⁻)	E	
9923.1[k] *16*	(71/2⁺)	E	
10290.4[i] *14*	(73/2⁻)	E	
10853.6[i] *15*	(75/2⁻)	E	
x[l]	J	F	Jπ: J≈(19/2⁻). 1993Fa07 suggested that the lowest transition in this band is 192 keV, but 1993Jo09 do not seem to confirm this.
111.8+x[m] *4*	J+1	F	
233.20+x[l] *20*	J+2	F	
365.8+x[m] *4*	J+3	F	
507.4+x[l] *3*	J+4	F	
660.4+x[m] *4*	J+5	F	
821.3+x[l] *4*	J+6	F	
995.3+x[m] *4*	J+7	F	
1174.7+x[l] *4*	J+8	F	
1369.8+x[m] *4*	J+9	F	
1566.6+x[l] *4*	J+10	F	
1782.9+x[m] *5*	J+11	F	
1995.6+x[l] *5*	J+12	F	
2234.0+x[m] *5*	J+13	F	
2460.1+x[l] *5*	J+14	F	

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Adopted Levels, Gammas (continued)

^{193}Hg Levels (continued)

E(level)[†]	J^{π}[‡#]	$T_{1/2}$	XREF	Comments
2722.3+x[m] *5*	J+15		F	
2957.5+x[l] *5*	J+16		F	
3247.2+x[m] *6*	J+17		F	
3485.7+x[l] *6*	J+18	0.132[@] ps *14*	F	
3807.1+x[m] *6*	J+19		F	
4044.2+x[l] *6*	J+20	0.104[@] ps *7*	F	
4402.0+x[m] *6*	J+21		F	
4634.2+x[l] *6*	J+22	0.083[@] ps *+7−14*	F	
5030.8+x[m] *7*	J+23		F	
5256.8+x[l] *7*	J+24	0.062[@] ps *7*	F	
5692.5+x[m] *7*	J+25		F	
5912.5+x[l] *7*	J+26		F	
6386.6+x[m] *7*	J+27		F	
6601.0+x[l] *7*	J+28		F	
7112.2+x[m] *8*	J+29		F	
7322.3+x[l] *8*	J+30		F	
7868.8+x[m] *8*	J+31		F	
8075.5+x[l] *8*	J+32		F	
8656.1+x[m] *8*	J+33		F	
8860.4+x[l] *8*	J+34		F	
9473.8+x[m] *9*	J+35		F	
9677.0+x[l] *9*	J+36		F	
10321.3+x[m] *10*	J+37		F	
10524.8+x[l] *10*	J+38		F	
11197.4+x[m] *11*	J+39		F	
11405.7+x[l] *11*	J+40		F	
y[n]	J1		F	J^{π}: $J_1 \approx (19/2^+)$.
111.9+y[o] *4*	J1+1		F	
233.49+y[n] *20*	J1+2		F	
366.1+y[o] *4*	J1+3		F	
508.5+y[n] *3*	J1+4		F	
660.9+y[o] *4*	J1+5		F	
823.5+y[n] *4*	J1+6		F	
996.0+y[o] *4*	J1+7		F	
1178.3+y[n] *4*	J1+8		F	
1370.6+y[o] *4*	J1+9		F	
1572.1+y[n] *4*	J1+10		F	
1783.9+y[o] *4*	J1+11		F	
2004.2+y[n] *5*	J1+12		F	
2235.0+y[o] *5*	J1+13		F	
2474.0+y[n] *5*	J1+14		F	
2723.3+y[o] *5*	J1+15		F	
2980.2+y[n] *5*	J1+16		F	
3248.2+y[o] *6*	J1+17	0.146[@] ps *+14−21*	F	
3521.7+y[n] *6*	J1+18		F	

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Adopted Levels, Gammas (continued)

^{193}Hg Levels (continued)

E(level)[†]	Jπ[‡#]	$T_{1/2}$	XREF	Comments
3808.1+y[o] *6*	J1+19	0.076[@] ps *+7−14*	F	
4098.5+y[n] *6*	J1+20		F	
4403.0+y[o] *6*	J1+21	0.083[@] ps *7*	F	
4709.8+y[n] *7*	J1+22		F	
5031.8+y[o] *7*	J1+23		F	
5354.1+y[n] *7*	J1+24		F	
5693.5+y[o] *7*	J1+25		F	
6031.9+y[n] *7*	J1+26		F	
6387.5+y[o] *7*	J1+27		F	
6741.8+y[n] *7*	J1+28		F	
7113.1+y[o] *8*	J1+29		F	
7484.0+y[n] *8*	J1+30		F	
7869.7+y[o] *8*	J1+31		F	
8255.2+y[n] *8*	J1+32		F	
8657.0+y[o] *8*	J1+33		F	
9057.4+y[n] *9*	J1+34		F	
9474.7+y[o] *9*	J1+35		F	
9889.5+y[n] *11*	J1+36		F	
10322.3+y[o] *10*	J1+37		F	
10750.0+y[n] *12*	J1+38		F	
11198.4+y[o] *11*	J1+39		F	
z[p]	J2		F	Jπ: $J_2 \approx (27/2^-)$. 1998Li54 suggest J=25/2 for this level on the basis of the systematics for the bandhead moments of inertia.
291.00+z[p] *20*	J2+2		F	
619.8+z[p] *3*	J2+4		F	
986.4+z[p] *4*	J2+6		F	
1391.4+z[p] *4*	J2+8		F	
1835.6+z[p] *5*	J2+10		F	
2319.9+z[p] *5*	J2+12		F	
2845.8+z[p] *6*	J2+14		F	
3412.5+z[p] *6*	J2+16		F	
4017.5+z[p] *6*	J2+18		F	
4658.0+z[p] *7*	J2+20		F	
5332.5+z[p] *7*	J2+22		F	
6040.0+z[p] *7*	J2+24		F	
6779.3+z[p] *8*	J2+26		F	
7549.0+z[p] *9*	J2+28		F	
8350.3+z[p] *10*	J2+30		F	
9181.6+z[p] *11*	J2+32		F	
10042.6+z?[p]	J2+34		F	
u[q]	J3		F	Jπ: $J_3 \approx (21/2^-)$.
240.52+u[q] *20*	J3+2		F	
522.4+u[q] *3*	J3+4		F	
845.9+u[q] *4*	J3+6		F	

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Adopted Levels, Gammas (continued)

^{193}Hg Levels (continued)

E(level)[†]	Jπ[‡#]	XREF	E(level)[†]	Jπ[‡#]	XREF	E(level)[†]	Jπ[‡#]	XREF
1211.3+u[q] *4*	J3+8	F	3648.6+u[q] *6*	J3+18	F	7054.4+u[q] *8*	J3+28	F
1617.8+u[q] *5*	J3+10	F	4254.9+u[q] *7*	J3+20	F	7844.2+u[q] *8*	J3+30	F
2065.3+u[q] *5*	J3+12	F	4899.4+u[q] *7*	J3+22	F	8668.5+u[q] *9*	J3+32	F
2553.4+u[q] *6*	J3+14	F	5581.3+u[q] *7*	J3+24	F	9526.4+u[q] *10*	J3+34	F
3081.4+u[q] *6*	J3+16	F	6299.9+u[q] *8*	J3+26	F			

[†] From least-squares fit to Eγ.

[‡] From (HI,xnγ) data set, unless otherwise noted. Jπ assignments are based on multipolarities of transitions and fits of coincident γ rays into an interconnected set of rotational bands.

[#] For SD bands, the bandhead Jπ is from the (HI,xnγ):SD dataset and from least-squares fit to expansions relating second moment of inertia and angular frequency (1990Cu05).

[@] From line-shape analysis (1998Bu03).

[&] Band(A): Band (1) Proposed configuration: $\nu(i_{13/2})$ (1995Fo13).

[a] Band(B): Band (2) Proposed configuration: $\nu(i^2_{13/2}\ p_{3/2})$ (1995Fo13).

[b] Band(C): Band (3) Proposed configuration: $\nu(i^3_{13/2}\ p^2_{3/2})$ (1995Fo13).

[c] Band(D): Band (4) Proposed configuration: $\nu(i^3_{13/2}\ p_{3/2}\ h_{9/2})$ (1995Fo13).

[d] Band(E): Band (5) Proposed configuration: $\nu(i^3_{13/2})$ (1995Fo13).

[e] Band(F): Band (6) Proposed configuration: $\nu(i^4_{13/2}\ p_{3/2})$ (1995Fo13).

[f] Band(G): Band (7) Proposed configuration: $\nu(i^4_{13/2}\ p_{3/2})$ (1995Fo13).

[g] Band(H): Band (8) Proposed configuration: $\nu(i^2_{13/2}\ p_{3/2})$ (1995Fo13).

[h] Band(I): Band (9) Proposed configuration: $\nu(i_{13/2})$ (1995Fo13).

[i] Band(J): Dipole band (1).

[j] Band(K): Dipole band (2).

[k] Band(L): Dipole band (3).

[l] Band(M): SD-1 Band: Possible configuration: [512]5/2, α=−1/2 (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=18.4 *+8−9* (1998Bu03). Percent population=1.6 *3* (1990Cu05). g factor (intrinsic)=−0.65 *14* (1993Jo09). This is deduced from the ratio of interband (M1) and intraband (E2) transition intensities. Possible configuration: [512]5/2, α=−1/2 below Eγ≈400. and $j_{15/2}$ above Eγ≈600 keV.

[m] Band(N): SD-2 Band: Possible configuration: [512]5/2, α=+1/2 (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=17.3 *+11−9* (1998Bu03). Percent population=2.1 *3* (1990Cu05). The relative intensity of this band is anomalously high (≈2 times that of its signature partner SD-3 band) which leads to suggestion that this band may be composed of two SD bands, one of them being the signature partner of SD-3 band. Signature partner of SD-1 band.

[n] Band(O): SD-3 Band: Possible configuration: [624]9/2, α=−1/2 (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=16.1 *+15−14* (1998Bu03). Percent population=0.9 *3* (1990Cu05).

[o] Band(P): SD-4 Band: Possible configuration: [624]9/2, α=+1/2 (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=17.3 *+11−9* (1998Bu03). Signature partner of SD-3 band. SD-2 and SD-4 bands are unresolved but FWHM of lines is consistently greater than that for lines in SD-1 band (from (HI,xnγ):SD).

[p] Band(Q): SD-5 Band: configuration: (N=7,α=−1/2) (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=16.7 *10* (1998Bu03). Percent population=1.1 *3* (1990Cu05). $j_{15/2}$, α=−1/2 intruder band below Eγ≈400 keV and [512]5/2 α=−1/2 above Eγ≈600 keV. Configuration: (N=7,α=−1/2)(1994Jo10).

[q] Band(R): SD-6 Band: configuration: (N=7,α=+1/2) (1998Bu03,1994Jo10). Q(intrinsic)=16.7 *+14−13* (1998Bu03). Percent population ≈0.6 (1994Jo10). Configuration: (N=7,α=+1/2) (1994Jo10).

$\gamma(^{193}Hg)$

Some mixing ratios from ^{193}Tl ε decay and Pt(α,xnγ) data sets are listed in the Comments column. If no value is specified for this parameter a default δ=1.0 is assumed.

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[a]	δ[c]	α[d]	Comments
39.51	5/2$^{(-)}$	39.51[‡] 3	100	0.0	3/2$^{(-)}$	M1[‡]		21.7	B(M1)(W.u.)=0.0239 14
49.95	(1/2$^-$)	49.5[f][§] 11	100[f]	0.0	3/2$^{(-)}$	(M1)[§]		11.2 8	
140.76	13/2$^{(+)}$	101.25[‡] 4	100	39.51	5/2$^{(-)}$	M4[‡]		6.13×10^3	B(M4)(W.u.)=1.38 11
207.74	(7/2$^-$)	207.74[§] 20	100	0.0	3/2$^{(-)}$	(E2)[§]		0.343	
324.36	(3/2$^-$,5/2$^-$)	274.39[§] 14	13.5[§] 13	49.95	(1/2$^-$)	(E2)[§]		0.1395	
		284.89[§] 13	21.6[§] 10	39.51	5/2$^{(-)}$	(M1)[§]		0.415	
		324.37[§] 10	100[§]	0.0	3/2$^{(-)}$	(M1)[§]		0.292	
344.00	(1/2$^-$,3/2$^-$)	294.08[§] 25	10.3[§] 12	49.95	(1/2$^-$)	(M1)[§]		0.381	
		343.99[§] 10	100[§] 4	0.0	3/2$^{(-)}$	(M1+E2)[§]	1.7 +17−6	0.117 35	δ: from ^{193}Tl ε decay (21.6 min).
374.61	(3/2$^-$,5/2$^-$,7/2$^-$)	49.5[f][§] 11	40[f][§] 19	324.36	(3/2$^-$,5/2$^-$)	(M1)[§]		11.2 8	
		335.11[§] 10	100[§] 4	39.51	5/2$^{(-)}$	(M1)[§]		0.267	
		374.58[§] 22	29[§] 3	0.0	3/2$^{(-)}$	(E2)[§]		0.0566	
522.73	(17/2$^+$)	382.0 2	100	140.76	13/2$^{(+)}$	E2		0.0536	
746.8	(15/2$^+$)	606.0 4	100	140.76	13/2$^{(+)}$	(M1+E2)		0.036 20	
752.64	(1/2$^-$,3/2$^-$,5/2$^-$)	713.0[§] 4	52[§] 6	39.51	5/2$^{(-)}$	(E2)[§]		0.01204	
		752.5[§] 4	100[§] 15	0.0	3/2$^{(-)}$	(M1)[§]		0.0316	
1026.4	(13/2$^+$,15/2$^+$)	885.7 8	100	140.76	13/2$^{(+)}$				
1145.4	(21/2$^+$)	622.7 2	100	522.73	(17/2$^+$)	E2		0.01618	
1380.3	(19/2$^+$)	633.5 4	92.9 18	746.8	(15/2$^+$)	E2		0.01557	
		857.5 4	100 8	522.73	(17/2$^+$)	(M1+E2)	0.33 6	0.0212 6	δ: from Pt(α,xnγ).
1523.1	(17/2$^+$,19/2$^+$)	496.7 8	37.6 9	1026.4	(13/2$^+$,15/2$^+$)	Q			
		1000.4 4	100.0 18	522.73	(17/2$^+$)	D+Q			
1523.3	(1/2$^-$,3/2$^-$,5/2$^-$)	770.4[§] 4	100[§] 6	752.64	(1/2$^-$,3/2$^-$,5/2$^-$)	(M1+E2)[§]	0.9 +10−5	0.0210 66	δ: from ^{193}Tl ε decay (21.6 min).
		1484.1[§] 7	26[§] 8	39.51	5/2$^{(-)}$				
		1523.4[§] 4	62[§] 15	0.0	3/2$^{(-)}$				
1580.10	(1/2$^-$,3/2,5/2$^-$)	1205.4[§] 3	23[§] 3	374.61	(3/2$^-$,5/2$^-$,7/2$^-$)				
		1256.0[§] 3	23[§] 4	324.36	(3/2$^-$,5/2$^-$)				
		1539.4[§] 10	20[§] 4	39.51	5/2$^{(-)}$				
		1579.3[§] 10	100[§] 22	0.0	3/2$^{(-)}$				
1735.8	(19/2$^+$)	989.0 8	100	746.8	(15/2$^+$)	Q			
1755.7	(21/2$^-$)	(19.9 10)	<1	1735.8	(19/2$^+$)	[E1]		6.7 10	
		232.3 4	37.4 9	1523.1	(17/2$^+$,19/2$^+$)	D			
		375.2 4	100 3	1380.3	(19/2$^+$)	(E1)		0.01662	

$^{193}_{80}Hg_{113}$-8

γ(^{193}Hg) (continued)

E$_i$(level)	J^π_i	E$_γ$[†]	I$_γ$[@]	E$_f$	J^π_f	Mult.[a]	α[d]	Comments
1755.7	(21/2⁻)	610.5 *6*	29.7 *23*	1145.4	(21/2⁺)			
1884.3	(25/2⁺)	738.9 *4*	100	1145.4	(21/2⁺)	E2	0.01116	
1886.2	(25/2⁻)	130.5 *4*	100	1755.7	(21/2⁻)	E2	1.88 *4*	B(E2)(W.u.)=49.1 *23*
1890.9	(23/2⁻)	135.0 *10*	1.6 *6*	1755.7	(21/2⁻)	(M1+E2)	2.50 *86*	
		745.5 *4*	100 *6*	1145.4	(21/2⁺)	(E1+M2)	0.0048 *8*	
2096.0	(27/2⁻)	205.1 *4*	100.0 *25*	1890.9	(23/2⁻)	E2	0.359 *6*	
		209.6 *8*	4.1 *3*	1886.2	(25/2⁻)	[M1]	0.970 *17*	
		211.9 *8*	7.1 *5*	1884.3	(25/2⁺)	(E1)	0.0642 *11*	
2189.2	(29/2⁻)	93.4 *10*	0.9 *3*	2096.0	(27/2⁻)			
		302.9 *4*	100.0 *18*	1886.2	(25/2⁻)	E2	0.1035	
2289.5	(27/2⁻)	403.2 *8*	100	1886.2	(25/2⁻)			
2351.8	(25/2⁺)	1206.6 *8*	100	1145.4	(21/2⁺)			
2502.1	(29/2⁺)	150.5 *10*	1.20 *13*	2351.8	(25/2⁺)	Q		
		617.8 *4*	100 *5*	1884.3	(25/2⁺)	E2	0.01647	
2583.7	(31/2⁻)	394.7 *8*	4.7 *4*	2189.2	(29/2⁻)			
		487.7 *4*	100.0 *21*	2096.0	(27/2⁻)	E2	0.0286	
2617.3	(29/2⁻)	327.7 *6*	92.3 *26*	2289.5	(27/2⁻)	D		
		428.1 *8*	100 *13*	2189.2	(29/2⁻)			
		521.3 *10*	26 *5*	2096.0	(27/2⁻)			
		731.1 *8*	48.7 *26*	1886.2	(25/2⁻)			
2641.7	(29/2⁺)	757.5 *6*	100	1884.3	(25/2⁺)	(E2)	0.01059	
2695.6	(33/2⁺)	193.5 *4*	100	2502.1	(29/2⁺)	E2	0.438	B(E2)(W.u.)=38.3 *21*
2762.2	(33/2⁻)	573.0 *4*	100	2189.2	(29/2⁻)	E2	0.0195	
3176.2	(37/2⁺)	480.6 *4*	100	2695.6	(33/2⁺)	E2	0.0297	
3196.0	(33/2⁺)	500.3 *10*	<25	2695.6	(33/2⁺)			
		554.4 *7*	100 *24*	2641.7	(29/2⁺)	Q		
3202.5	(33/2⁻)	585.2 *8*	100 *4*	2617.3	(29/2⁻)			
		1013.4 *8*	59 *19*	2189.2	(29/2⁻)			
3220.1	(33/2⁻)	602.9 *8*	100	2617.3	(29/2⁻)			
3223.6	(35/2⁻)	461.4 *8*	10.7 *5*	2762.2	(33/2⁻)			
		640.0 *4*	100.0 *19*	2583.7	(31/2⁻)	E2	0.01522	
3260.3	(33/2⁺)	564.7 *10*	19 *3*	2695.6	(33/2⁺)			
		758.2 *8*	100 *6*	2502.1	(29/2⁺)	(E2)	0.01057	
3497.5	(37/2⁻)	735.2 *4*	100	2762.2	(33/2⁻)	E2	0.01128	
3570.2	(37/2⁺)	309.9 *8*	83.3 *24*	3260.3	(33/2⁺)	(E2)	0.0967 *16*	
		393.9 *8*	100.0 *24*	3176.2	(37/2⁺)			
3727.1	(37/2⁻)	507.0 *8*	80 *4*	3220.1	(33/2⁻)			
		524.5 *8*	100 *12*	3202.5	(33/2⁻)			
		965.0 *8*	52 *22*	2762.2	(33/2⁻)			
3754.2	(37/2⁺)	558.2 *8*	100 *30*	3196.0	(33/2⁺)	Q		
		1058.6 *10*	54 *8*	2695.6	(33/2⁺)			

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$\gamma(^{193}Hg)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[@]	E_f	J^{π}_f	Mult.[a]	α[d]
3811?		1115.0[g] *10*	100	2695.6	(33/2⁺)		
3850.7	(37/2⁻)	1088.5 *8*	100	2762.2	(33/2⁻)	Q	
3880.5	(41/2⁺)	704.3 *4*	100	3176.2	(37/2⁺)	(E2)	0.01236
3883.8	(39/2⁻)	660.2 *4*	100	3223.6	(35/2⁻)	(E2)	0.01422
4119.7	(39/2⁺)	549.5 *10*	21.1 *26*	3570.2	(37/2⁺)		
		943.5 *8*	100.0 *26*	3176.2	(37/2⁺)	(M1)	0.0177
4120.5	(41/2⁺)	550.3 *6*	100	3570.2	(37/2⁺)	(E2)	0.0214
4150.8	(41/2⁻)	653.3 *4*	100	3497.5	(37/2⁻)	(E2)	0.01455
4198.0	(39/2⁻)	314.2 *10*	83 *25*	3883.8	(39/2⁻)		
		974.4 *8*	100 *25*	3223.6	(35/2⁻)		
4396.8	(43/2⁻)	512.9 *4*	100	3883.8	(39/2⁻)	(E2)	0.0253
4412.6	(41/2⁻)	561.9 *8*	25 *4*	3850.7	(37/2⁻)	Q	
		685.7 *8*	19 *4*	3727.1	(37/2⁻)		
		915.1 *6*	100.0 *14*	3497.5	(37/2⁻)	(E2)	0.00720
4416.7		1240.5 *8*	100	3176.2	(37/2⁺)		
4462.2		1286.0 *10*	100	3176.2	(37/2⁺)		
4539.0	(41/2⁺)	784.8 *8*	100 *8*	3754.2	(37/2⁺)	Q	
		1362.8 *8*	54 *4*	3176.2	(37/2⁺)	Q	
4674.1	(45/2⁻)	523.2 *4*	100	4150.8	(41/2⁻)	(E2)	0.0242
4683.8	(43/2⁺)	564.1 *8*	100	4119.7	(39/2⁺)	(E2)	0.0202
4688.4	(45/2⁺)	807.9 *6*	100	3880.5	(41/2⁺)	(E2)	0.00926
4720.6	(39/2⁻)	993.6 *8*	100	3727.1	(37/2⁻)		
4792.0	(41/2⁻)	(71.3)		4720.6	(39/2⁻)		
		594.1 *8*	100 *4*	4198.0	(39/2⁻)		
		908.2 *8*	91 *13*	3883.8	(39/2⁻)	D	
		1064.8 *10*	39 *13*	3727.1	(37/2⁻)		
		1294.4 *10*	30 *13*	3497.5	(37/2⁻)		
4864.9	(43/2⁻)	(72.9)		4792.0	(41/2⁻)		
		144.5 *10*		4720.6	(39/2⁻)		
4889.9	(45/2⁺)	769.4 *8*	100	4120.5	(41/2⁺)	(E2)	0.01025
4958.5	(45/2⁻)	546.0 *6*	100.0 *13*	4412.6	(41/2⁻)	Q	
		561.4 *8*	44 *5*	4396.8	(43/2⁻)		
4964.0	(43/2)	843.5 *8*	100	4120.5	(41/2⁺)	D	
5033.1		1152.6 *10*	100	3880.5	(41/2⁺)		
5048.0	(47/2⁻)	651.2 *6*	100	4396.8	(43/2⁻)	Q	
5117.4	(45/2⁻)	252.5 *4*	100.0 *20*	4864.9	(43/2⁻)	D	
		325.5[g] *10*	5.4 *7*	4792.0	(41/2⁻)		
5319.9	(43/2)	1169.0 *8*	100	4150.8	(41/2⁻)		
5339.1	(47/2⁻)	221.7 *4*	100 *3*	5117.4	(45/2⁻)	D	
		474.2 *8*	52.3 *15*	4864.9	(43/2⁻)	Q	
5361.7	(47/2⁺)	677.9 *8*	100	4683.8	(43/2⁺)		

Adopted Levels, Gammas (continued)

γ(^{193}Hg) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.[a]	α[d]
5391.9	(43/2$^+$)	1511.5 8	100	3880.5	(41/2$^+$)	(D+Q)	
5400.3		716.5 8	100	4683.8	(43/2$^+$)	D	
5411.5	(49/2$^-$)	737.4 6	100	4674.1	(45/2$^-$)	(E2)	0.01121
5442.6	(45/2$^+$)	123.0 10	1.6 3	5319.9	(43/2)		
		903.5 6	100.0 15	4539.0	(41/2$^+$)	Q	
		1046.0 8	27.9 15	4396.8	(43/2$^-$)	D	
		1562.0 10	5.9 15	3880.5	(41/2$^+$)		
5547.6	(47/2$^+$)	105.2 8	2.4 3	5442.6	(45/2$^+$)	D	
		155.9 10	3.0 6	5391.9	(43/2$^+$)		
		227.4 8	15.2 15	5319.9	(43/2)		
		589.1 8	19.7 15	4958.5	(45/2$^-$)		
		873.4 6	100.0 15	4674.1	(45/2$^-$)	(E1)	0.00295
5559.5	(49/2$^+$)	871.1 8	100	4688.4	(45/2$^+$)	(E2)	0.00794
5560.5	(47/2$^-$)	443.2 6	100	5117.4	(45/2$^-$)		
5678.4	(49/2$^-$)	339.4 8	14 4	5339.1	(47/2$^-$)		
		719.8 6	100 9	4958.5	(45/2$^-$)		
5698.1	(49/2$^+$)	808.2 8	100	4889.9	(45/2$^+$)	(E2)	0.00926
5702.7	(49/2$^-$)	363.6 8	73 3	5339.1	(47/2$^-$)	D	
		744.4 8	100 17	4958.5	(45/2$^-$)		
5714.8?		375.8[g] 10	100	5339.1	(47/2$^-$)		
5747.5	(49/2$^-$)	789.0 10	100	4958.5	(45/2$^-$)		
5800.6	(49/2$^-$)	240.1 6	63 6	5560.5	(47/2$^-$)		
		461.5 6	100 9	5339.1	(47/2$^-$)		
5832.1	(49/2$^+$)	284.5 4	100.0 24	5547.6	(47/2$^+$)	M1	0.417
		389.6 8	7.8 6	5442.6	(45/2$^+$)	Q	
5899.1	(51/2$^-$)	851.1 8	100	5048.0	(47/2$^-$)		
6017.1	(51/2$^-$)	302.2[g] 10	86 29	5714.8?			
		678.0 10	100 14	5339.1	(47/2$^-$)	Q	
6067.7	(51/2$^+$)	235.6 4	100.0 19	5832.1	(49/2$^+$)	(M1)	0.701
		520.1 4	83.9 19	5547.6	(47/2$^+$)	(E2)	0.0245
6103.9	(51/2$^-$)	401.1 8	100 3	5702.7	(49/2$^-$)	D	
		425.5 8	48 10	5678.4	(49/2$^-$)		
		543.5 10	17 3	5560.5	(47/2$^-$)		
		765.0 8	62 7	5339.1	(47/2$^-$)		
6145.2	(51/2$^-$)	442.6 8	100 12	5702.7	(49/2$^-$)	[M1]	0.1266
		806.0 8	44 4	5339.1	(47/2$^-$)		
6163.6	(51/2$^+$)	801.9 8	100	5361.7	(47/2$^+$)		
6305.3	(53/2$^-$)	557.7 8	29 9	5747.5	(49/2$^-$)		
		626.8 6	100.0 17	5678.4	(49/2$^-$)		
6394.9	(53/2$^-$)	983.4 8	100	5411.5	(49/2$^-$)	(E2)	0.00624
6419.4	(53/2$^-$)	113.9 10	<7	6305.3	(53/2$^-$)		

$\gamma(^{193}Hg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.[a]	α[d]
6419.4	(53/2⁻)	274.2 *8*	29.3 *13*	6145.2	(51/2⁻)	D	
		315.6 *6*	55 *5*	6103.9	(51/2⁻)	D	
		618.7 *6*	100 *8*	5800.6	(49/2⁻)		
		716.7 *8*	27 *4*	5702.7	(49/2⁻)		
6428.5	(53/2⁺)	869.0 *10*	100	5559.5	(49/2⁺)		
6464.6	(53/2⁺)	397.0 *4*	100.0 *15*	6067.7	(51/2⁺)	(M1)	0.1692
		632.6 *6*	44 *4*	5832.1	(49/2⁺)	(E2)	0.01562
6496.9	(53/2⁺)	937.4 *8*	100	5559.5	(49/2⁺)		
6726.4	(55/2⁻)	325.4 *10*	78 *22*	6401.0	(53/2⁻)		
		709.3 *10*	100 *22*	6017.1	(51/2⁻)	Q	
6832.3	(55/2⁺)	367.8 *8*	57 *5*	6464.6	(53/2⁺)	D	
		764.6 *6*	100.0 *18*	6067.7	(51/2⁺)	Q	
6839.9	(55/2⁺)	375.4 *4*	57 *3*	6464.6	(53/2⁺)	(M1)	0.197
		772.2 *4*	100.0 *19*	6067.7	(51/2⁺)	(E2)	0.01017
6913.4	(55/2⁻)	1014.3 *8*	100	5899.1	(51/2⁻)		
6921.8		1022.7 *10*	100	5899.1	(51/2⁻)		
6921.9	(55/2⁻)	502.4 *8*	100.0 *25*	6419.4	(53/2⁻)	(M1)	0.0905
		818.2 *8*	95.0 *25*	6103.9	(51/2⁻)	Q	
6978.6	(57/2⁻)	252.3 *8*	73 *27*	6726.4	(55/2⁻)		
		577.6 *10*	100 *20*	6401.0	(53/2⁻)	(E2)	0.0192
7037.5	(57/2⁺)	197.6 *4*	100 *3*	6839.9	(55/2⁺)	(M1)	1.143
		205.1 *9*	14.3 *19*	6832.3	(55/2⁺)		
7038.1		1139.0 *10*	100	5899.1	(51/2⁻)		
7133.3	(57/2⁺)	293.4 *8*	100	6839.9	(55/2⁺)	D	
7186.7	(57/2⁻)	881.5 *8*	100	6305.3	(53/2⁻)		
7197.9	(59/2⁺)	160.4 *4*	100	7037.5	(57/2⁺)	(M1)	2.05 *4*
7245.7	(59/2⁻)	267.0 *8*	100	6978.6	(57/2⁻)	(M1)	0.496 *8*
7276.6	(57/2⁻)	354.7 *8*	50.6 *12*	6921.9	(55/2⁻)		
		857.1 *6*	100 *6*	6419.4	(53/2⁻)	(E2)	0.00821
7281.6	(57/2⁺)	449.3 *8*	100	6832.3	(55/2⁺)	D	
7440.0		306.7 *8*	100 *6*	7133.3	(57/2⁺)	D	
		600.2[g] *10*	24 *6*	6839.9	(55/2⁺)		
7476.4	(57/2⁻)	1081.5 *10*	100	6394.9	(53/2⁻)		
7492.3		1097.4 *10*	100	6394.9	(53/2⁻)		
7555.2	(61/2⁺)	357.3 *4*	100.0 *16*	7197.9	(59/2⁺)	(M1)	0.225
		517.6 *8*	13.7 *8*	7037.5	(57/2⁺)		
7560.4	(61/2⁻)	314.7 *8*	100 *4*	7245.7	(59/2⁻)	(M1)	0.317
		581.9 *10*	39 *8*	6978.6	(57/2⁻)		
7681.2		848.9 *8*	100	6832.3	(55/2⁺)		
7699.5	(59/2⁻)	422.9 *6*	100 *5*	7276.6	(57/2⁻)	(M1)	0.1430
		512.8 *10*	13.6 *15*	7186.7	(57/2⁻)		

$^{193}_{80}Hg_{113}$-12

$\gamma(^{193}Hg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.[a]	α[d]
7699.5	(59/2⁻)	777.6 *8*	77.3 *15*	6921.9	(55/2⁻)	(E2)	0.01003
7838.3	(61/2⁻)	138.8 *4*	47.6 *16*	7699.5	(59/2⁻)	(M1)	3.10
		561.8 *6*	100 *6*	7276.6	(57/2⁻)	(E2)	0.0204
7920.0	(63/2⁻)	359.6 *8*	100 *11*	7560.4	(61/2⁻)	(M1)	0.221 *4*
		674.1 *8*	92 *4*	7245.7	(59/2⁻)	(E2)	0.01358
7924.8	(63/2⁺)	369.7 *6*	100 *5*	7555.2	(61/2⁺)	(M1)	0.205
		726.9 *6*	95.2 *16*	7197.9	(59/2⁺)	(E2)	0.01155
8137.0	(63/2⁻)	298.7 *4*	100.0 *17*	7838.3	(61/2⁻)	(M1)	0.365
		437.5 *8*	11.9 *25*	7699.5	(59/2⁻)	(E2)	0.0376
8331.0	(65/2⁻)	411.0 *8*	86 *5*	7920.0	(63/2⁻)	(M1)	0.1543
		770.7 *8*	100 *5*	7560.4	(61/2⁻)	(E2)	0.01021
8388.8	(65/2⁺)	464.0 *8*	100 *10*	7924.8	(63/2⁺)	(M1)	0.1117
		833.6 *8*	97.6 *24*	7555.2	(61/2⁺)	(E2)	0.00869
8394.8	(65/2⁻)	257.8 *4*	100.0 *26*	8137.0	(63/2⁻)	(M1)	0.547
		556.5 *8*	58 *7*	7838.3	(61/2⁻)	(E2)	0.0209
8751.0	(67/2⁻)	356.1 *6*	100 *5*	8394.8	(65/2⁻)		0.226
		614.0 *8*	61 *8*	8137.0	(63/2⁻)	(E2)	0.01669
8757.8	(67/2⁻)	426.9 *8*	50 *5*	8331.0	(65/2⁻)		
		837.8 *8*	100 *5*	7920.0	(63/2⁻)		
8886.8	(67/2⁺)	497.9 *8*	52.6 *26*	8388.8	(65/2⁺)	(M1)	0.0927
		962.0 *8*	100.0 *26*	7924.8	(63/2⁺)	(E2)	0.00651
8978.1		1053.3 *8*	100	7924.8	(63/2⁺)		
9221.5	(69/2⁻)	470.6 *8*	100.0 *21*	8751.0	(67/2⁻)	(M1)	0.1076
		826.6 *8*	72.9 *21*	8394.8	(65/2⁻)	(E2)	0.00884
9409.1	(69/2⁺)	522.2[g]		8886.8	(67/2⁺)		
		1020.3 *8*	100 *7*	8388.8	(65/2⁺)		
9675.9	(71/2⁻)	454.4 *8*	57 *5*	9221.5	(69/2⁻)	(M1)	0.1181
		924.9 *8*	100 *5*	8751.0	(67/2⁻)	(E2)	0.00704
9923.1	(71/2⁺)	514.1[g]		9409.1	(69/2⁺)		
		1036.3 *10*	100 *13*	8886.8	(67/2⁺)		
10290.4	(73/2⁻)	614.5 *8*	100 *15*	9675.9	(71/2⁻)	(M1)	0.0534
		1068.9 *8*	63 *11*	9221.5	(69/2⁻)	(E2)	0.00530
10853.6	(75/2⁻)	563[g]		10290.4	(73/2⁻)		
		1177.7 *8*	100 *5*	9675.9	(71/2⁻)	Q	
233.20+x	J+2	121.1 *5*		111.8+x	J+1		
		233.2 *2*	0.37[#] *3*	x	J		
365.8+x	J+3	132.2[e] *5*		233.20+x	J+2		
		254.0[e] *2*	0.12[#] *5*	111.8+x	J+1		
507.4+x	J+4	141.6 *5*		365.8+x	J+3		
		274.2 *2*	0.48[#] *3*	233.20+x	J+2		

$^{193}_{80}Hg_{113}$-13

Adopted Levels, Gammas (continued)

$\gamma(^{193}Hg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.[a]	α[d]	Comments
660.4+x	J+5	152.9[e] *5*		507.4+x	J+4			
		294.6[e] *2*	0.38[#] *8*	365.8+x	J+3			
821.3+x	J+6	160.7 *5*		660.4+x	J+5			
		314.0 *2*	0.75[#] *5*	507.4+x	J+4			
995.3+x	J+7	173.7[e] *5*		821.3+x	J+6			
		334.9[e] *2*	0.61[#] *9*	660.4+x	J+5			
1174.7+x	J+8	179.3 *5*		995.3+x	J+7			
		353.4 *2*	0.90[#] *5*	821.3+x	J+6			
1369.8+x	J+9	374.5[e] *2*	0.73[#] *18*	995.3+x	J+7			
1566.6+x	J+10	196.9 *5*		1369.8+x	J+9			
		391.9 *2*	0.96[#] *5*	1174.7+x	J+8			
1782.9+x	J+11	413.1[e] *2*	1.00[#] *12*	1369.8+x	J+9			
1995.6+x	J+12	212.3 *5*		1782.9+x	J+11			This γ is a member of an unresolved doublet (the other member is 212.9 keV, from level 1783.9+y).
		429.0 *2*	1.00[#] *5*	1566.6+x	J+10			
2234.0+x	J+13	451.1[e] *2*		1782.9+x	J+11			
2460.1+x	J+14	226.4 *5*		2234.0+x	J+13			
		464.4 *2*	0.98[#] *3*	1995.6+x	J+12			
2722.3+x	J+15	488.3[e] *2*	0.96[#] *18*	2234.0+x	J+13			
2957.5+x	J+16	497.4 *2*	1.00[#] *3*	2460.1+x	J+14			
3247.2+x	J+17	524.9[e] *2*	0.98[#] *20*	2722.3+x	J+15			
3485.7+x	J+18	528.2 *2*	1.11[#] *10*	2957.5+x	J+16	[E2][b]	0.0236	B(E2)(W.u.)=1.57×10^3 *17*
3807.1+x	J+19	559.9[e] *2*	1.08[#] *10*	3247.2+x	J+17			
4044.2+x	J+20	558.5 *2*	0.94[#] *14*	3485.7+x	J+18	[E2][b]	0.0207	B(E2)(W.u.)=1.51×10^3 *11*
4402.0+x	J+21	594.9[e] *2*		3807.1+x	J+19			
4634.2+x	J+22	590.0 *2*	0.73[#] *20*	4044.2+x	J+20	[E2][b]	0.0183	B(E2)(W.u.)=1.44×10^3 *+25−13*
5030.8+x	J+23	628.8[e] *2*	0.85[#] *8*	4402.0+x	J+21			
5256.8+x	J+24	622.6 *2*		4634.2+x	J+22	[E2][b]	0.01618	B(E2)(W.u.)=1.47×10^3 *17*
5692.5+x	J+25	661.7[e] *2*	0.52[#] *12*	5030.8+x	J+23			
5912.5+x	J+26	655.7 *2*	0.40[#] *16*	5256.8+x	J+24			
6386.6+x	J+27	694.1[e] *2*	0.56[#] *15*	5692.5+x	J+25			
6601.0+x	J+28	688.5 *2*	0.18[#] *10*	5912.5+x	J+26			
7112.2+x	J+29	725.6[e] *2*	0.45[#] *19*	6386.6+x	J+27			
7322.3+x	J+30	721.3 *2*	0.39[#] *10*	6601.0+x	J+28			
7868.8+x	J+31	756.6[e] *2*	0.38[#] *10*	7112.2+x	J+29			
8075.5+x	J+32	753.2 *2*	0.55[#] *16*	7322.3+x	J+30			

$\gamma(^{193}Hg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.[a]	α[d]	Comments
8656.1+x	J+33	787.3[e] 2		7868.8+x	J+31			
8860.4+x	J+34	784.9 2		8075.5+x	J+32			
9473.8+x	J+35	817.7[e] 3		8656.1+x	J+33			
9677.0+x	J+36	816.6 3		8860.4+x	J+34			
10321.3+x	J+37	847.5[e] 4		9473.8+x	J+35			
10524.8+x	J+38	847.8 4		9677.0+x	J+36			
11197.4+x	J+39	876.1[e] 5		10321.3+x	J+37			
11405.7+x	J+40	880.9 5		10524.8+x	J+38			
233.49+y	J1+2	122.6 5		111.9+y	J1+1			
		233.5 2	0.21[#] 3	y	J1			
366.1+y	J1+3	132.2[e] 5		233.49+y	J1+2			
		254.0[e] 2	0.12[#] 5	111.9+y	J1+1			
508.5+y	J1+4	142.7 5		366.1+y	J1+3			
		275.2 2	0.30[#] 5	233.49+y	J1+2			
660.9+y	J1+5	152.9[e] 5		508.5+y	J1+4			
		294.6[e] 2	0.38[#] 8	366.1+y	J1+3			
823.5+y	J1+6	162.5 5		660.9+y	J1+5			
		315.2 2	0.53[#] 5	508.5+y	J1+4			
996.0+y	J1+7	173.7[e] 5		823.5+y	J1+6			
		334.9[e] 2	0.61[#] 9	660.9+y	J1+5			
1178.3+y	J1+8	182.6 5		996.0+y	J1+7			
		354.9 2	0.78[#] 5	823.5+y	J1+6			
1370.6+y	J1+9	192.3 5		1178.3+y	J1+8			
		374.5[e] 2	0.73[#] 16	996.0+y	J1+7			
1572.1+y	J1+10	201.9 5		1370.6+y	J1+9			
		393.8 2	0.95[#] 5	1178.3+y	J1+8			
1783.9+y	J1+11	212.9 5		1572.1+y	J1+10			This γ is a member of an unresolved doublet (the other member is 212.3 keV, from level 1995.6+X).
		413.1[e] 2	1.00[#] 12	1370.6+y	J1+9			
2004.2+y	J1+12	220.5 5		1783.9+y	J1+11			
		432.1 2	1.02[#] 8	1572.1+y	J1+10			
2235.0+y	J1+13	451.1[e] 2		1783.9+y	J1+11			
2474.0+y	J1+14	469.8 2	1.00[#] 8	2004.2+y	J1+12			
2723.3+y	J1+15	488.3[e] 2	0.96[#] 18	2235.0+y	J1+13			
2980.2+y	J1+16	506.2 2	1.00[#] 14	2474.0+y	J1+14			
3248.2+y	J1+17	524.9[e] 2	0.98[#] 20	2723.3+y	J1+15	[E2][b]	0.0240	B(E2)(W.u.)=1.47×10^3 +22−14
3521.7+y	J1+18	541.5 2	0.82[#] 32	2980.2+y	J1+16			

$\gamma(^{193}Hg)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[@]	E_f	J^{π}_f	Mult.[a]	α[d]	Comments
3808.1+y	J1+19	559.9[e] *2*	1.08[#] *10*	3248.2+y	J1+17	[E2][b]	0.0206	B(E2)(W.u.)=2.04×10^3 *+38−19*
4098.5+y	J1+20	576.8 *2*	0.63[#] *24*	3521.7+y	J1+18			
4403.0+y	J1+21	594.9[e] *2*		3808.1+y	J1+19	[E2][b]	0.0179	B(E2)(W.u.)=1.38×10^3 *12*
4709.8+y	J1+22	611.3 *2*	0.43[#] *28*	4098.5+y	J1+20			
5031.8+y	J1+23	628.8[e] *2*	0.85[#] *8*	4403.0+y	J1+21			
5354.1+y	J1+24	644.3 *2*		4709.8+y	J1+22			
5693.5+y	J1+25	661.7[e] *2*	0.52[#] *12*	5031.8+y	J1+23			
6031.9+y	J1+26	677.8 *2*		5354.1+y	J1+24			
6387.5+y	J1+27	694.1[e] *2*	0.56[#] *15*	5693.5+y	J1+25			
6741.8+y	J1+28	709.9 *2*		6031.9+y	J1+26			
7113.1+y	J1+29	725.6[e] *2*	0.45[#] *19*	6387.5+y	J1+27			
7484.0+y	J1+30	742.2 *2*		6741.8+y	J1+28			
7869.7+y	J1+31	756.6[e] *2*	0.38[#] *10*	7113.1+y	J1+29			
8255.2+y	J1+32	771.2 *3*		7484.0+y	J1+30			
8657.0+y	J1+33	787.3[e] *2*		7869.7+y	J1+31			
9057.4+y	J1+34	802.2 *4*		8255.2+y	J1+32			
9474.7+y	J1+35	817.7[e] *3*		8657.0+y	J1+33			
9889.5+y	J1+36	832.1 *5*		9057.4+y	J1+34			
10322.3+y	J1+37	847.5[e] *4*		9474.7+y	J1+35			
10750.0+y	J1+38	860.5 *5*		9889.5+y	J1+36			
11198.4+y	J1+39	876.1[e] *5*		10322.3+y	J1+37			
291.00+z	J2+2	291.0 *2*	0.17[#] *3*	z	J2			
619.8+z	J2+4	328.8 *2*	0.72[#] *4*	291.00+z	J2+2			
986.4+z	J2+6	366.6 *2*	0.87[#] *5*	619.8+z	J2+4			
1391.4+z	J2+8	405.0 *2*	0.98[#] *7*	986.4+z	J2+6			
1835.6+z	J2+10	444.2 *2*	1.00[#] *7*	1391.4+z	J2+8			
2319.9+z	J2+12	484.3 *2*	1.00[#] *5*	1835.6+z	J2+10			
2845.8+z	J2+14	525.9 *2*	0.98[#] *6*	2319.9+z	J2+12			
3412.5+z	J2+16	566.7 *2*	0.98[#] *8*	2845.8+z	J2+14			
4017.5+z	J2+18	605.0 *2*		3412.5+z	J2+16			
4658.0+z	J2+20	640.5 *2*	0.82[#] *7*	4017.5+z	J2+18			
5332.5+z	J2+22	674.5 *2*	0.80[#] *7*	4658.0+z	J2+20			
6040.0+z	J2+24	707.5 *2*	0.72[#] *7*	5332.5+z	J2+22			
6779.3+z	J2+26	739.3 *2*	0.61[#] *7*	6040.0+z	J2+24			
7549.0+z	J2+28	769.7 *4*	0.46[#] *4*	6779.3+z	J2+26			
8350.3+z	J2+30	801.3 *5*	0.36[#] *3*	7549.0+z	J2+28			

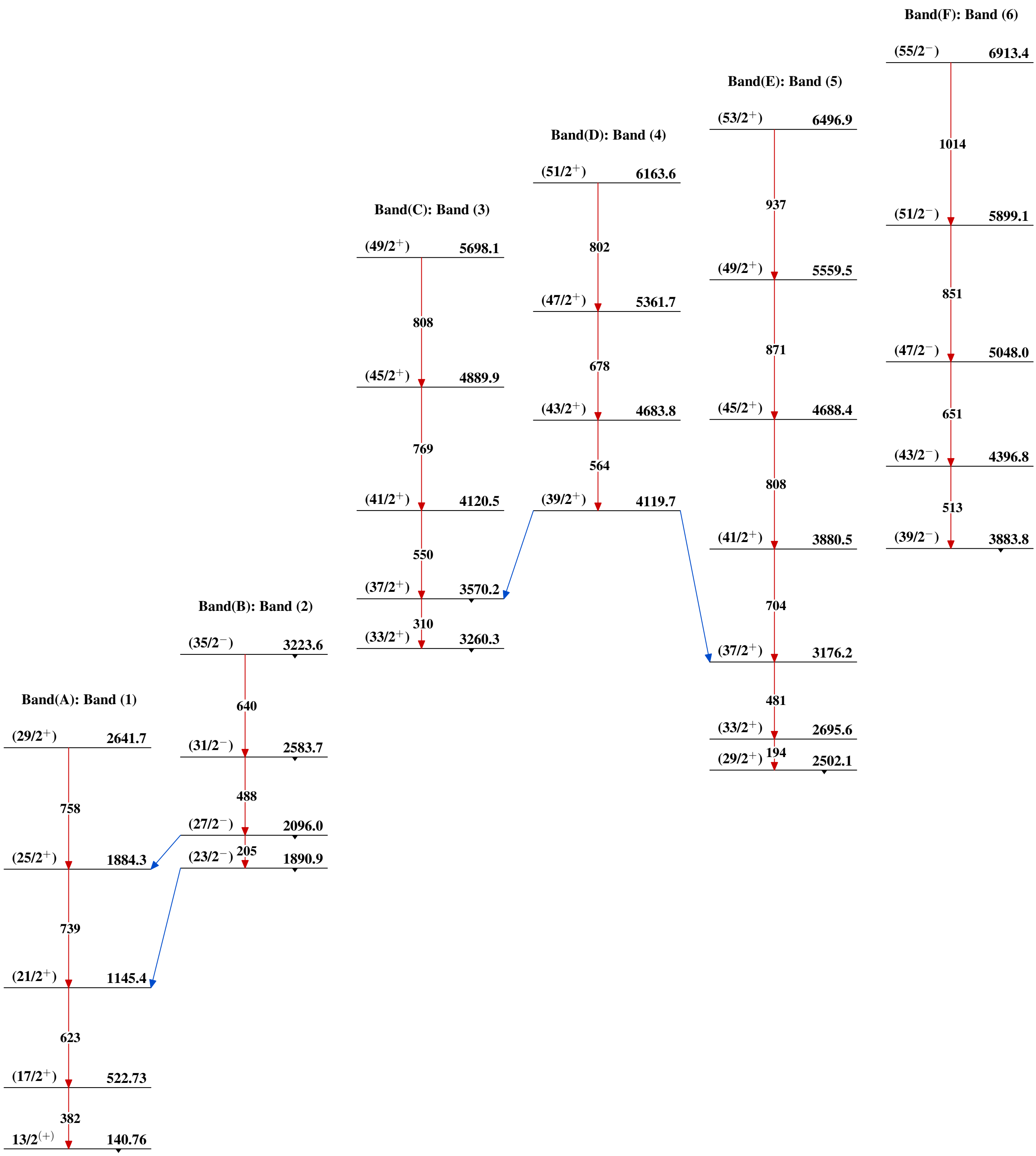
Adopted Levels, Gammas (continued)

$\gamma(^{193}Hg)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ @	E_f	J_f^π	E_i(level)	J_i^π	E_γ †	I_γ @	E_f	J_f^π
9181.6+z	J2+32	831.3 *5*	0.21# *4*	8350.3+z	J2+30	3648.6+u	J3+18	567.2 *2*	1.00# *6*	3081.4+u	J3+16
10042.6+z?	J2+34	861&g	0.15# *3*	9181.6+z	J2+32	4254.9+u	J3+20	606.3 *2*		3648.6+u	J3+18
240.52+u	J3+2	240.5 *2*	0.58# *5*	u	J3	4899.4+u	J3+22	644.5 *2*	0.90# *10*	4254.9+u	J3+20
522.4+u	J3+4	281.9 *2*	0.80# *5*	240.52+u	J3+2	5581.3+u	J3+24	681.9 *2*	0.70# *6*	4899.4+u	J3+22
845.9+u	J3+6	323.5 *2*	0.90# *5*	522.4+u	J3+4	6299.9+u	J3+26	718.6 *2*	0.60# *6*	5581.3+u	J3+24
1211.3+u	J3+8	365.4 *2*	1.00# *5*	845.9+u	J3+6	7054.4+u	J3+28	754.5 *2*		6299.9+u	J3+26
1617.8+u	J3+10	406.5 *2*	1.00# *5*	1211.3+u	J3+8	7844.2+u	J3+30	789.8 *2*	0.42# *5*	7054.4+u	J3+28
2065.3+u	J3+12	447.5 *2*	0.98# *5*	1617.8+u	J3+10	8668.5+u	J3+32	824.3 *3*	0.26# *5*	7844.2+u	J3+30
2553.4+u	J3+14	488.1 *2*	0.95# *5*	2065.3+u	J3+12	9526.4+u	J3+34	857.9 *5*	0.24# *5*	8668.5+u	J3+32
3081.4+u	J3+16	527.9 *2*	1.05# *6*	2553.4+u	J3+14						

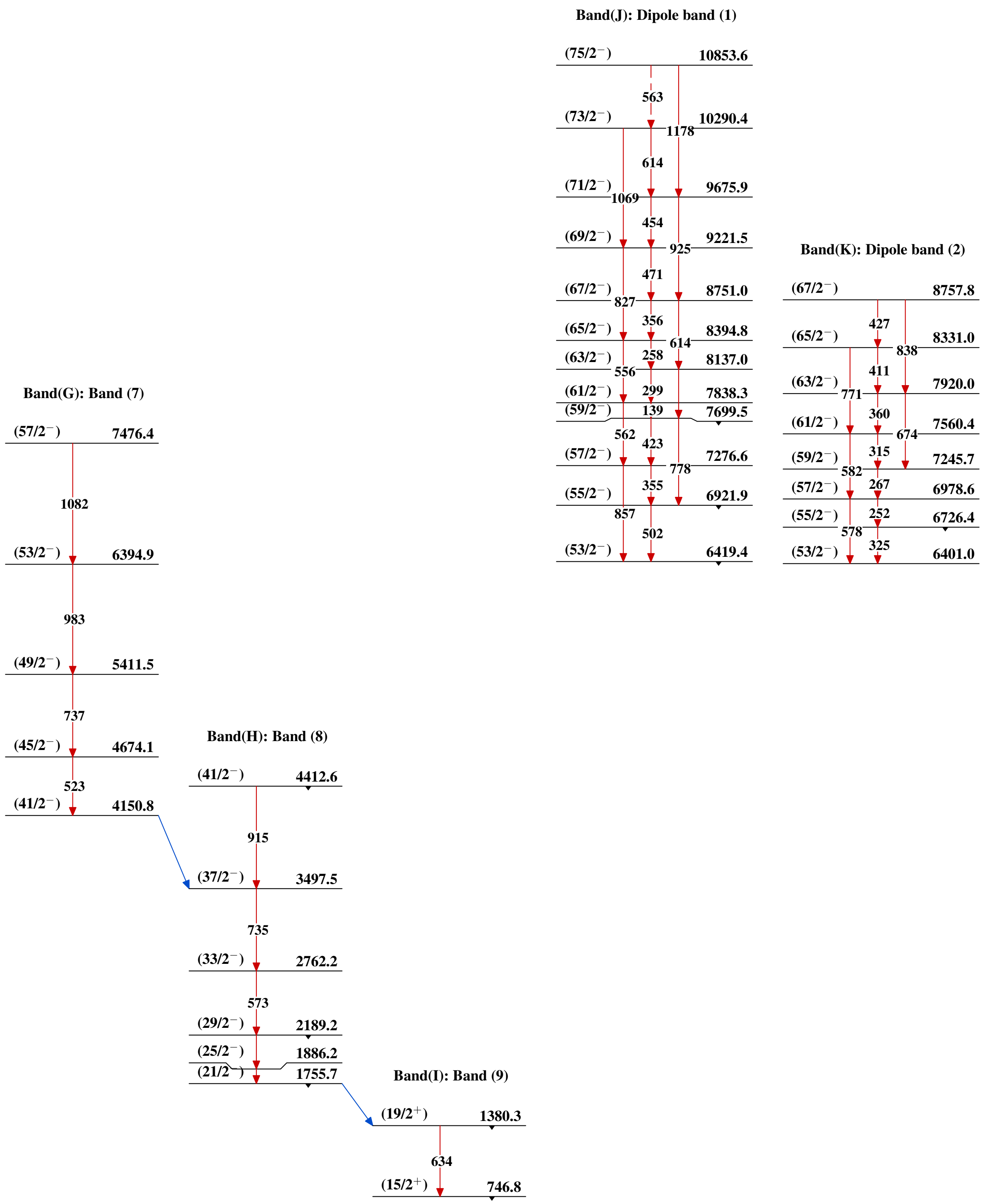
† From (HI,xnγ) data set for levels, unless otherwise noted. From (HI,xnγ):SD data set for γ's in superdeformed bands.
‡ From ^{193}Hg IT decay (11.8 h).
§ From ^{193}Tl ε decay (21.6 min).
& Estimated (1998Ar07) from intensity plot (fig.1 in 1994Jo10).
@ Relative photon branching from each level from (HI,xnγ), unless otherwise noted.
# Relative intensity within the SD band.
a From (HI,xnγ) and Pt(α,xnγ) data sets, unless otherwise noted.
b Multipolarity assumed by the evaluator on the basis of the band sequence, for the purpose of estimating transition probabilities for γ rays from levels with known half-life.
c If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
d Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
e Multiply placed.
f Multiply placed with undivided intensity.
g Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas



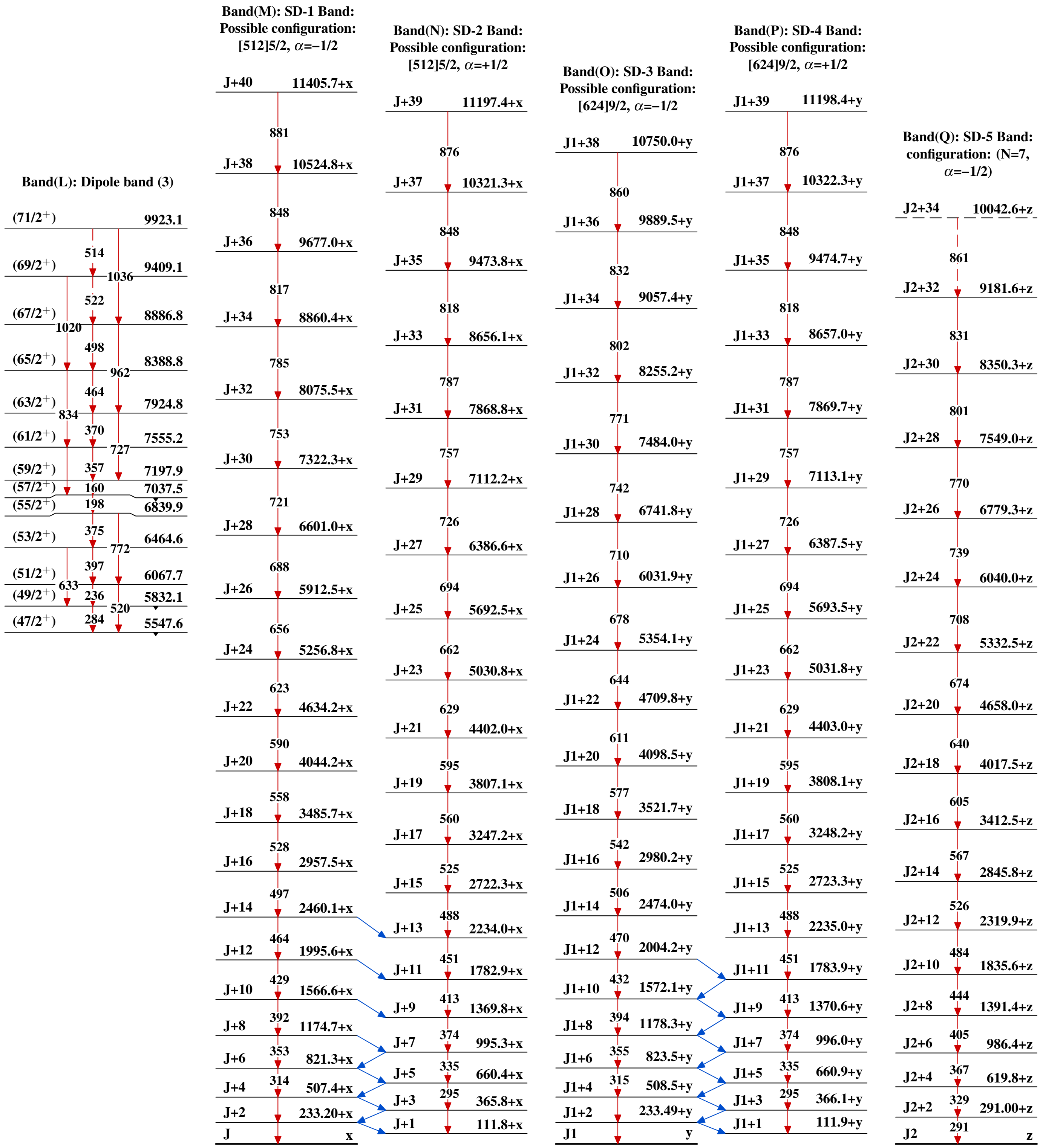
$^{193}_{80}Hg_{113}$

Adopted Levels, Gammas (continued)



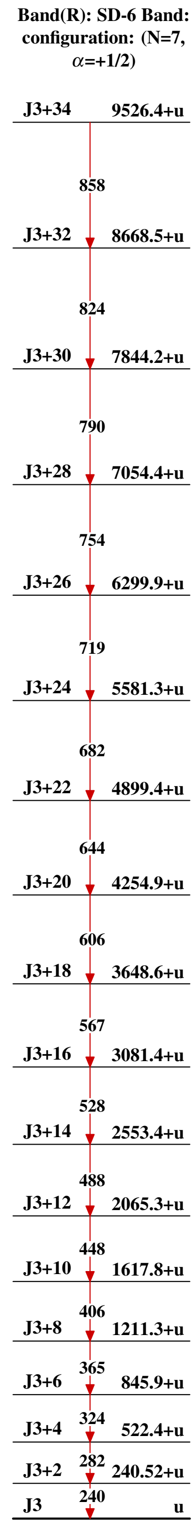
$^{193}_{80}Hg_{113}$

Adopted Levels, Gammas (continued)



$^{193}_{80}Hg_{113}$

Adopted Levels, Gammas (continued)



$^{193}_{80}Hg_{113}$

^{193}Hg IT decay (11.8 h) 1974ViZS

Parent: ^{193}Hg: E=140.76 *5*; J^π=13/2$^{(+)}$; $T_{1/2}$=11.8 h *2*; %IT decay=7.1 *7*

^{193}Hg-%IT decay: Deduced by evaluator using data from 1974ViZS: I(γ+ce)(isomeric decay)=8.5 *3* from weighted average of I(γ+ce)(39.51γ)=8.7 *5* and I(γ+ce)(101.25γ)=8.4 *3*; total $\varepsilon+\beta^+$ intensity from I(γ+ce)(to ^{193}Au 290 level)=111 *7* (from ^{193}Hg (11.8 h) decay). ^{193}Hg IT decay branching=[8.5 *3*/(8.5 *3*+111 *7*)]=0.071 *7*. I(γ+ce) normalization from Σ I(γ+ce) to g.s.=100.

Sources from (p,xn) reactions on gold, E(p)=70, 80 MeV, isotope separation; measured E(ce), Ice (Si(Li) (FWHM=1.2-2.5 keV), mag spect (resolution=0.1%)).

Others: 1969Ba42, 1962Di05, 1958Br88, 1957Br53, 1956Br04, 1955Br12, 1954Gi04.

^{193}Hg Levels

E(level)	J^π †	$T_{1/2}$	Comments
0.0	3/2$^{(-)}$	3.80 h *15*	
39.51 *3*	5/2$^{(-)}$	0.63 ns *3*	$T_{1/2}$: (ce)(ce)(t) (1969Ba42). Other value: 0.8 ns *1* ((ce)(ce)(t) (1961Re12)).
140.76 *5*	13/2$^{(+)}$	11.8 h *2*	%IT=7.1 *7* $T_{1/2}$: from resolution of complex decay curves for ce(K) peaks in combined ^{193}Hg (3.80 h) and ^{193}Hg (11.8 h) sources (1974ViZS). Other values: 10.0 h *5* (1952Fi06), 11 h *1* (1958Br88), 11.1 h *5* (1970Pl01).

† From Adopted Levels.

γ(^{193}Hg)

I(γ+ce) normalization: Deduced by evaluator using data from 1974ViZS: I(γ+ce)(isomeric decay)=8.5 *3* from weighted average of I(γ+ce)(39.51γ)=8.7 *5* and I(γ+ce)(101.25γ)=8.4 *3*; total $\varepsilon+\beta^+$ intensity from I(γ+ce)(to ^{193}Au 290 level)=111 *7* (from ^{193}Hg (11.8 h) decay). ^{193}Hg IT decay branching=[8.5 *3*/(8.5 *3*+111 *7*)]=0.071 *7*. I(γ+ce) normalization from Σ I(γ+ce) to g.s.=100.

All data are from 1974ViZS, unless otherwise noted. The Ice intensities have been normalized to the Iγ of ^{193}Hg ε decay (11.8 h). For normalization, see footnote on multipolarity in ^{193}Hg ε decay (11.8 h) data set.

E_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α ‡	$I_{(\gamma+ce)}$ †	Comments
39.51 *3*	39.51	5/2$^{(-)}$	0.0	3/2$^{(-)}$	M1	21.7	8.7 *5*	Mult.: L1/L2=8.2 *10*, M1/M2=7.6 *12* (1974ViZS). Theory: M1: L1/L2=9.7, M1/M2=8.9; E1: L1/L2=1.22, M1/M2=1.39; E2: L1/L2=0.0197, M1/M2=0.0213. $I_{(\gamma+ce)}$: From (Ice(L12) + Ice(M12)) expt. + Ice (other) theory + Iγ from Ice(L1)=5.6 *4* expt. (1974ViZS) and α(L1)=14.94 (theory).
101.25 *4*	140.76	13/2$^{(+)}$	39.51	5/2$^{(-)}$	M4	6.13×10^3	8.4 *3*	Mult.: L1:L2:L3=1.25 *7*: 0.24 *2*: 4.10 *16* (1974ViZS). Theory: L1:L2:L3=1.20: 0.24: 4.05. $I_{(\gamma+ce)}$: From (Ice(L) + Ice(M)) expt. + Ice (other) theory + Iγ deduce from from Ice(L)=5.59 *18* expt. (1974ViZS) and α(L)=4120.

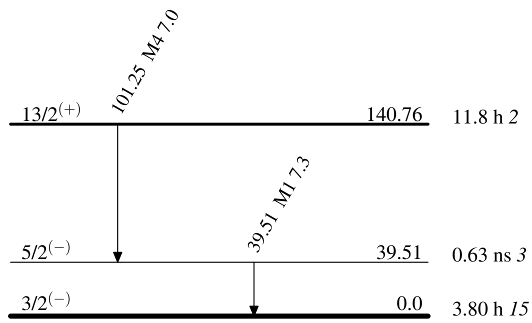
† For absolute intensity per 100 decays, multiply by 0.84 *8*.

‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{193}Hg IT decay (11.8 h) 1974ViZS

Decay Scheme

%IT=7.1 *7*



$^{193}_{80}Hg_{113}$

^{193}Tl ε decay (21.6 min) 1974Va23,1976GoZP

Parent: ^{193}Tl: E=0.0; $J^{\pi}=1/2^{(+)}$; $T_{1/2}$=21.6 min *8*; Q(ε)=3585 *17*; %ε+%β^+ decay=100
1976GoZP: measured γ, γγ, γ(ce).
1974Va23: produced by spallation of Pb+p, E(p)=600 MeV, chem, ms; measured γ (Ge(Li)), ce (Si(Li)), γγ.
Other: 1961An03.

^{193}Hg Levels

The decay scheme is that proposed by 1974Va23 with additional levels at 207.7 and 344.0 from 1976GoZP.

E(level)†	J^{π}†	$T_{1/2}$†
0.0	$3/2^{(-)}$	3.80 h *15*
39.51 *3*	$5/2^{(-)}$	
49.95 *14*	$(1/2^-)$	
207.74 *20*	$(7/2^-)$	
324.36 *8*	$(3/2^-,5/2^-)$	
344.00 *10*	$(1/2^-,3/2^-)$	
374.61 *10*	$(3/2^-,5/2^-,7/2^-)$	
752.63 *25*	$(1/2^-,3/2^-,5/2^-)$	
1523.3 *3*	$(1/2^-,3/2^-,5/2^-)$	
1580.10 *21*	$(1/2^-,3/2,5/2^-)$	

† From Adopted Levels.

γ(^{193}Hg)

All data are from 1974Va23, unless otherwise noted.

E_γ	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.[†]	δ[†&]	α[@]	Comments
(39.51[‡] *3*)		39.51	5/2$^{(-)}$	0.0	3/2$^{(-)}$	M1		21.7	E_γ,Mult.: from ^{193}Hg IT decay (11.8 h).
49.5[#] *11*	10.5[#§] *50*	49.95	(1/2$^-$)	0.0	3/2$^{(-)}$	(M1)[§]		11.2 *8*	Mult.: α(L)exp=21 *11*.
49.5[#] *11*	10.5[#§] *50*	374.61	(3/2$^-$,5/2$^-$,7/2$^-$)	324.36	(3/2$^-$,5/2$^-$)	(M1)[§]		11.2 *8*	Mult.: α(L)exp=21 *11*.
207.74 *20*	19.5 *10*	207.74	(7/2$^-$)	0.0	3/2$^{(-)}$	(E2)		0.343	Mult.: α(K)exp=0.16 *3*; K/L=1.5 *10*.
274.39 *14*	13.5 *13*	324.36	(3/2$^-$,5/2$^-$)	49.95	(1/2$^-$)	(E2)		0.1395	Mult.: α(K)exp=0.15 *10*. δ: ≤62% M1 (1974Va23).
284.89 *13*	21.6 *10*	324.36	(3/2$^-$,5/2$^-$)	39.51	5/2$^{(-)}$	(M1)		0.415	Mult.: α(K)exp=0.30 *7*, K/L=5.2 *17*. δ: ≤44% E2 (1974Va23).
294.08 *25*	4.3 *5*	344.00	(1/2$^-$,3/2$^-$)	49.95	(1/2$^-$)	(M1)		0.381	Mult.: α(K)exp=0.31 *12*. δ: ≤48% E2 (1974Va23).
324.37 *10*	100	324.36	(3/2$^-$,5/2$^-$)	0.0	3/2$^{(-)}$	(M1)		0.292	Mult.: α(K)exp=0.22 *3*, K/L=5.8 *14*. δ: ≤22% E2 (1974Va23).
335.11 *10*	26.1 *11*	374.61	(3/2$^-$,5/2$^-$,7/2$^-$)	39.51	5/2$^{(-)}$	(M1)		0.267	Mult.: α(K)exp=0.21 *4*, K/L=4.8 *15*. δ: ≤34% E2 (1974Va23).
343.99 *10*	41.7 *18*	344.00	(1/2$^-$,3/2$^-$)	0.0	3/2$^{(-)}$	(M1+E2)	1.7 *+17−6*	0.12 *4*	Mult.,δ: From α(K)exp=0.089 *30*, K/L=4.3 *16*.
^{x}369.8 *5*	1.6 *8*								
374.58 *22*	7.6 *9*	374.61	(3/2$^-$,5/2$^-$,7/2$^-$)	0.0	3/2$^{(-)}$	(E2)		0.0566	Mult.: α(K)exp=0.025 *13*; theory: α(K)=0.0375. δ: ≤1% M1 (1974Va23).
^{x}398.6 *4*	6.9 *10*					(M1,E2)		0.11 *6*	Mult.: α(K)exp=0.11 *10*.
^{x}493.52 *15*	12.1 *7*					(E2)		0.0278	Mult.: α(K)exp=0.020 *10*. δ: ≤19% M1 (1974Va23).
^{x}543.3 *7*	3.8 *9*					(M1,E2)		0.05 *3*	Mult.: α(K)exp=0.053 *24*.
^{x}574.9 *5*	3.8 *6*								
^{x}636.4 *3*	18 *7*					(M1)		0.0488	Mult.: α(K)exp=0.040 *17*; K/L=3.3 *13*.
^{x}652.9 *3*	10 *4*								
^{x}655.0 *5*	7 *4*								
^{x}676.10 *19*	48 *4*					(M1)		0.0417	Mult.: α(K)exp=0.031 *6*; K/L=4.9 *15*. δ: ≤35% E2 (1974Va23).
^{x}692.3 *4*	20.9 *16*					(M1)		0.0392	Mult.: α(K)exp=0.027 *6*. δ: ≤52% E2 (1974Va23).
713.0 *4*	6.0 *7*	752.63	(1/2$^-$,3/2$^-$,5/2$^-$)	39.51	5/2$^{(-)}$	(E2)		0.01204	Mult.: α(K)exp=0.011 *10*. δ: ≤54% M1.
^{x}720.0 *5*	1.7 *8*								Mult.: α(K)exp=0.050 *46*; theory: α(K)(M1)=0.0292 *5*, α(K)(E2)=0.00915 *13*.
752.5 *4*	11.6 *17*	752.63	(1/2$^-$,3/2$^-$,5/2$^-$)	0.0	3/2$^{(-)}$	(M1)		0.0316	Mult.: α(K)exp=0.028 *13*. δ: ≤63% E2.

γ(^{193}Hg) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	δ†&	α@	Comments
^{x}759.1 *7*	6.5 *15*					(M1,E2)		0.021 *11*	Mult.: α(K)exp=0.022 *18*.
770.4 *4*	12.9 *8*	1523.3	($1/2^-$,$3/2^-$,$5/2^-$)	752.63	($1/2^-$,$3/2^-$,$5/2^-$)	(M1+E2)	1.2 *10*	0.021 *7*	Mult.,δ: From α(K)exp=0.018 *6*. δ deduced by evaluator, BriccMixing gives 0.8 *8* and 0.8 *+10−7*.
^{x}773.9 *6*	1.6 *7*								
^{x}783.0 *15*	4.0 *16*								
^{x}821.2 *2*	9.4 *5*					(M1+E2)	1.1 *6*	0.016 *5*	Mult.,δ: From α(K)exp=0.013 *4*. δ from BriccMixing, other value it gives 1.1 *+13−6*.
^{x}942.1 *5*	1.8 *8*								
^{x}994.75 *25*	11.0 *11*								
^{x}1014.4 *3*	8.9 *10*								
^{x}1044.7 *3*	59 *6*								
^{x}1064.3 *4*	7.1 *5*								
^{x}1086.2 *6*	1.6 *8*								
^{x}1130.3 *3*	12.3 *13*								
^{x}1145.8 *4*	4.2 *8*								
^{x}1152.0 *4*	4.9 *9*								
1205.4 *3*	10.2 *12*	1580.10	($1/2^-$,3/2,$5/2^-$)	374.61	($3/2^-$,$5/2^-$,$7/2^-$)				
^{x}1229.2 *6*	2.5 *10*								
^{x}1236.1 *4*	4.6 *12*								
1256.0 *3*	10.3 *19*	1580.10	($1/2^-$,3/2,$5/2^-$)	324.36	($3/2^-$,$5/2^-$)				
^{x}1337.6 *4*	5.6 *10*								
^{x}1360.8 *4*	4.8 *9*								
^{x}1430.7 *4*	4.5 *9*								
^{x}1474.7 *7*	2.6 *10*								
1484.1 *7*	3.4 *10*	1523.3	($1/2^-$,$3/2^-$,$5/2^-$)	39.51	$5/2^{(-)}$				
1523.4 *4*	8.0 *19*	1523.3	($1/2^-$,$3/2^-$,$5/2^-$)	0.0	$3/2^{(-)}$				
1539.4 *10*	8.8 *20*	1580.10	($1/2^-$,3/2,$5/2^-$)	39.51	$5/2^{(-)}$				
1579.3 *10*	45 *10*	1580.10	($1/2^-$,3/2,$5/2^-$)	0.0	$3/2^{(-)}$				

† From α(K)exp and/or α(L)exp. 1974Va23 have normalized the ce-intensities to the photon intensities so that α(K)exp and α(L)exp for the 284.9γ, 324.4γ, 335.1γ, 344.0γ and 676.1γ gave the same multipolarities as their respective K/L ratios. This normalization gives α(K)exp(207.7γ)=0.16 *3* which is in agreement with proposed E2 multipolarity for this γ (expected α(K)(E2)=0.156). However, several γ's which are expected to be [M1,E2] have α(K)exp or α(L)exp outside the range of expected values e.g. α(L)exp(636.4γ), α(K)exp(374.6γ) thus suggesting that although the multipolarities have been established, the mixing ratios should be considered tentative.

‡ Presence suggested by decay scheme and constant energy differences between pairs of γ rays.

§ Based on α(L)exp, only 12% *11* of the undivided intensity can come from an E2 transition.

& If no value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

\# Multiply placed with undivided intensity.

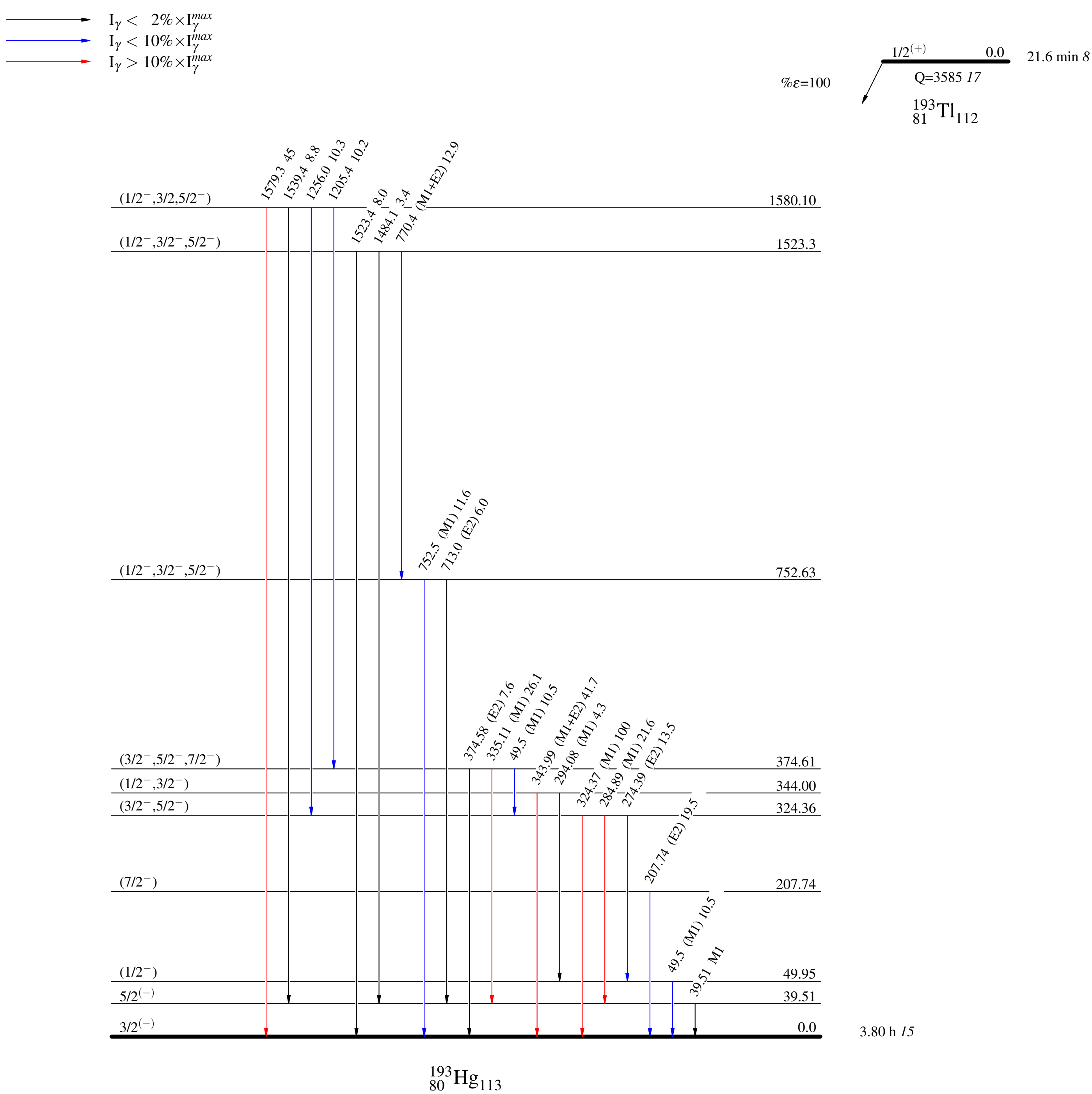
^{x} γ ray not placed in level scheme.

$^{193}_{80}$Hg$_{113}$-26

^{193}Tl ε decay (21.6 min) 1974Va23,1976GoZP

Decay Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given



^{193}Tl ε decay (2.11 min) 1976GoZP

Parent: ^{193}Tl: E=365.2+x; $J^{\pi}=9/2^{-}$; $T_{1/2}$=2.11 min *15*; Q(ε)=3585 *17*; %ε+%β^{+} decay≥25
1976GoZP: measured γ, $\gamma\gamma$, γ(ce). No level scheme has been proposed.

Pt(α,xnγ) 1975Li16,1978Me11

1975Li16: ^{195}Pt(α,^{6}nγ), E(α)=80 MeV; ^{196}Pt(α,^{7}nγ), E(α)=90 MeV; ^{194}Pt(α,^{5}nγ), E(α)=65 MeV. Enriched Pt targets.
Measured Eγ, Iγ (Ge(Li)), γγ coin, γγ(t), γ-ray angular distributions (θ from 90° to 165° in 15° steps); used rotation-alignment model to interpret level structure. Earlier report: 1974Be11.
1978Me11: ^{192}Pt,^{194}Pt,^{198}Pt(α,xnγ), E(α)=31-57 MeV. Enriched Pt targets. Measured ce(t).

^{193}Hg Levels

The level scheme is that proposed by 1975Li16.

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Comments
140.76[@] *5*	13/2$^{(+)}$	11.8 h *2*	E(level),$T_{1/2}$: From Adopted Levels.
522.7[@] *3*	17/2^{+}		
747.1[&] *3*	15/2^{+}		
1145.0[@] *4*	21/2^{+}		
1380.3[&] *3*	19/2^{+}		
1523.3 *4*	19/2$^{(+)}$		
1755.5[a] *4*	21/2$^{(-)}$		
1883.6[@] *5*	25/2^{+}		
1886.0[a] *5*	25/2$^{(-)}$	1.58 ns *6*	
1890.3 *4*	23/2$^{(-)}$		
2095.2 *5*	27/2$^{(-)}$		
2188.5[a] *6*	29/2$^{(-)}$		
2501.3[@] *6*	29/2^{+}		
2582.7 *6*	31/2$^{(-)}$		
2694.5[@] *7*	33/2^{+}	573 ps *30*	
2761.4[a] *7*	33/2$^{(-)}$		
3175.2[@] *7*	37/2^{+}		
3222.3 *7*	35/2$^{(-)}$		
3496.1[a] *7*	37/2$^{(-)}$		
3879.6[@] *8*	41/2^{+}		
3882.1 *7*	39/2$^{(-)}$		

[†] From least-squares fit to γ-ray energies, except otherwise noted.
[‡] From 1975Li16, based on multipolarities of transitions and fits of coincident γ rays into an interconnected set of rotational bands.
[#] ce(t) (1978Me11), except otherwise noted.
[@] Member of i13/2 favored decoupled band.
[&] Member of i13/2 unfavored decoupled band.
[a] Member of π=- side band 1.

γ(^{193}Hg)

All γ data are from 1975Li16.

Eγ	E_i(level)	J^{π}_{i}	E_f	J^{π}_{f}	Mult.[†]	$I_{(\gamma+ce)}$[‡]	Comments
130.5 *3*	1886.0	25/2$^{(-)}$	1755.5	21/2$^{(-)}$	E2	37 *8*	Mult.: A_2=+0.28 *2*, A_4=−0.05 *3*.
134.6 *3*	1890.3	23/2$^{(-)}$	1755.5	21/2$^{(-)}$	(D+Q)	8 *4*	Mult.: A_2=−0.02 *10*, A_4=+0.14 *15*; contains contribution of contaminating 133.0 keV line in ^{192}Hg.

Continued on next page (footnotes at end of table)

Pt(α,xnγ) 1975Li16,1978Me11 (continued)

γ(^{193}Hg) (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	$I_{(\gamma+ce)}$[‡]	Comments
193.2 *3*	2694.5	33/2$^+$	2501.3	29/2$^+$	E2		28 *5*	Mult.: A_2=+0.26 *2*, A_4=−0.07 *3*.
204.9 *3*	2095.2	27/2$^{(-)}$	1890.3	23/2$^{(-)}$	E2		20 *6*	Mult.: A_2=+0.32 *2*, A_4=−0.07 *3*.
232.2 *3*	1755.5	21/2$^{(-)}$	1523.3	19/2$^{(+)}$	(D)		11 *6*	Mult.: A_2=−0.33 *8*, A_4=+0.06 *12*. $I_{(\gamma+ce)}$: includes contribution from 232.8γ in ^{194}Hg.
302.5 *3*	2188.5	29/2$^{(-)}$	1886.0	25/2$^{(-)}$	E2		23 *4*	Mult.: A_2=+0.31 *2*, A_4=−0.04 *3*.
375.2 *3*	1755.5	21/2$^{(-)}$	1380.3	19/2$^+$	(D)		20 *5*	Mult.: A_2=−0.22 *2*, A_4=−0.01 *3*.
382.0 *3*	522.7	17/2$^+$	140.76	13/2$^{(+)}$	E2		100 *8*	Mult.: A_2=+0.29 *2*, A_4=−0.05 *3*.
480.7 *3*	3175.2	37/2$^+$	2694.5	33/2$^+$	E2		23 *5*	Mult.: A_2=+0.32 *3*, A_4=−0.08 *4*.
487.5 *3*	2582.7	31/2$^{(-)}$	2095.2	27/2$^{(-)}$	E2		12 *5*	Mult.: A_2=+0.37 *4*, A_4=−0.10 *5*.
572.9 *3*	2761.4	33/2$^{(-)}$	2188.5	29/2$^{(-)}$	E2		19 *5*	Mult.: A_2=+0.15 *3*, A_4=−0.08 *4*; contains contribution from contaminating line.
606.3 *3*	747.1	15/2$^+$	140.76	13/2$^{(+)}$	D+Q		9 *4*	Mult.,δ: A_2=−0.74 *5*, A_4=+0.15 *7*; A_2 does not agree with A_2 measured in (HI,xnγ) experiment.
617.7 *3*	2501.3	29/2$^+$	1883.6	25/2$^+$	E2		26 *4*	Mult.: A_2=+0.34 *3*, A_4=−0.07 *4*.
622.4 *3*	1145.0	21/2$^+$	522.7	17/2$^+$	E2		61 *5*	Mult.: A_2=+0.29 *2*, A_4=−0.05 *3*.
633.1 *3*	1380.3	19/2$^+$	747.1	15/2$^+$	E2		10 *4*	Mult.: A_1=+0.38 *6*, A_4=−0.04 *9*. $I_{(\gamma+ce)}$: includes contributions from 633.1γ and 634.8γ in ^{192}Hg.
639.6 *3*	3222.3	35/2$^{(-)}$	2582.7	31/2$^{(-)}$	E2		11 *4*	Mult.: A_2=+0.35 *6*, A_4=+0.02 *9*.
659.8 *3*	3882.1	39/2$^{(-)}$	3222.3	35/2$^{(-)}$	E2		7 *3*	Mult.: A_2=+0.39 *7*, A_4=−0.09 *10*.
704.4 *3*	3879.6	41/2$^+$	3175.2	37/2$^+$	E2		6 *3*	Mult.: A_2=+0.36 *7*, A_4=−0.08 *10*.
734.7 *3*	3496.1	37/2$^{(-)}$	2761.4	33/2$^{(-)}$	E2		11 *4*	Mult.: A_2=+0.28 *4*, A_4=−0.04 *6*.
738.6 *3*	1883.6	25/2$^+$	1145.0	21/2$^+$	E2		39 *4*	Mult.: A_2=+0.32 *2*, A_4=−0.05 *3*.
745.4 *3*	1890.3	23/2$^{(-)}$	1145.0	21/2$^+$	(D)		16 *8*	Mult.: A_2=−0.23 *6*, A_4=+0.01 *8*; γ(θ) from ^{194}Pt(α,5nγ) at 65 MeV. $I_{(\gamma+ce)}$: includes contribution from 745.4γ in ^{192}Hg.
857.5 *3*	1380.3	19/2$^+$	522.7	17/2$^+$	D+Q	0.33 *6*	14 *3*	Mult.,δ: A_2=−0.76 *4*, A_4=+0.15 *6*.
1000.5 *3*	1523.3	19/2$^{(+)}$	522.7	17/2$^+$	(D+Q)		9 *3*	Mult.: A_2=−0.16 *12*, A_4=+0.16 *18*.

† From γ-ray angular distributions; stretched E2 assignments were based on large positive A_2. 1975Li16 assume probable E1 to pure dipole transitions, and M1+E2 to D+Q transitions, however, evaluator list those as D and D+Q.
‡ From 1975Li16 – relative to I(γ+ce)=100 for 382.0γ.

(HI,xnγ):SD 1993Jo09,1994Jo10,1998Bu03

1998Bu03: ^{176}Yb(^{22}Ne,5nγ) E=118 MeV. Measured γ, $\gamma\gamma$, lifetimes. Deduced SD bands and intrinsic quadrupole moments.
1994Jo10, 1993Jo09, 1992ShZR, 1990Cu05, 1990Cu06: ^{150}Nd(^{48}Ca,5nγ) E=205, 213 MeV. Measured γ, $\gamma\gamma$. Deduced SD bands and transitions.
1993Fa07: ^{176}Yb(^{22}Ne,5nγ) E=116 MeV. Measured γ, $\gamma\gamma$. Deduced SD bands and interband transitions. Intraband transitions from 1993Jo09, 1992ShZR. See also 1997Fa15.
Others: 1990He09 used reactions ^{176}Yb(^{22}Ne,5nγ) E=116 MeV and ^{150}Nd(^{48}Ca,5nγ) E=195-210 MeV to identify SD-2 and SD-3 bands in ^{193}Hg (see 1990He23 for analysis of results); 2000Zw03 attempt to determine whether the relative yields for the population of superdeformed states in HI-induced reactions could be enhanced by selecting the (HI,αxn) channel, rather than the pure neutron evaporation channel. The results show that the yield for those states is actually about 4 times lower in the former case.
Measured Kα x ray yield (1993Cu02).

^{193}Hg Levels

SD-1, SD-2 and SD-3 bands assigned on the basis of $\gamma\gamma$ evidence with known transitions (in normal bands) in ^{193}Hg. SD-4 band assigned on the basis of excitation functions.

E(level)	J^π	$T_{1/2}$ †	Comments
x‡	J		J^π: J≈(19/2$^-$). 1993Fa07 suggested that the lowest transition in this band is 192 keV, but 1993Jo09 do not seem to confirm this.
111.8+x# *4*	J+1		
233.20+x‡ *20*	J+2		
365.8+x# *4*	J+3		
507.4+x‡ *3*	J+4		
660.4+x# *4*	J+5		
821.4+x‡ *4*	J+6		
995.3+x# *4*	J+7		
1174.7+x‡ *4*	J+8		
1369.8+x# *4*	J+9		
1566.6+x‡ *4*	J+10		
1782.9+x# *5*	J+11		
1995.6+x‡ *5*	J+12		
2234.0+x# *5*	J+13		
2460.1+x‡ *5*	J+14		
2722.3+x# *5*	J+15		
2957.5+x‡ *5*	J+16		
3247.2+x# *6*	J+17		
3485.7+x‡ *6*	J+18	0.132 ps *14*	
3807.1+x# *6*	J+19		
4044.2+x‡ *6*	J+20	0.104 ps *7*	
4402.0+x# *6*	J+21		
4634.2+x‡ *6*	J+22	0.083 ps *+7−14*	
5030.8+x# *7*	J+23		
5256.8+x‡ *7*	J+24	0.062 ps *7*	
5692.5+x# *7*	J+25		
5912.5+x‡ *7*	J+26		
6386.6+x# *7*	J+27		
6601.0+x‡ *7*	J+28		
7112.2+x# *8*	J+29		

Continued on next page (footnotes at end of table)

(HI,xnγ):SD 1993Jo09,1994Jo10,1998Bu03 (continued)

^{193}Hg Levels (continued)

E(level)	Jπ	T1/2[†]	Comments
7322.3+x[‡] *8*	J+30		
7868.8+x[#] *8*	J+31		
8075.5+x[‡] *8*	J+32		
8656.1+x[#] *8*	J+33		
8860.4+x[‡] *8*	J+34		
9473.8+x[#] *9*	J+35		
9677.0+x[‡] *9*	J+36		
10321.3+x[#] *10*	J+37		
10524.8+x[‡] *10*	J+38		
11197.4+x[#] *11*	J+39		
11405.7+x[‡] *11*	J+40		
y[@]	J1		Jπ: $J_1 \approx (19/2^+)$.
111.9+y[&] *4*	J1+1		
233.50+y[@] *20*	J1+2		
366.1+y[&] *4*	J1+3		
508.5+y[@] *3*	J1+4		
660.9+y[&] *4*	J1+5		
823.5+y[@] *4*	J1+6		
996.0+y[&] *4*	J1+7		
1178.3+y[@] *4*	J1+8		
1370.6+y[&] *4*	J1+9		
1572.1+y[@] *4*	J1+10		
1783.9+y[&] *4*	J1+11		
2004.2+y[@] *5*	J1+12		
2235.0+y[&] *5*	J1+13		
2474.0+y[@] *5*	J1+14		
2723.3+y[&] *5*	J1+15		
2980.2+y[@] *5*	J1+16		
3248.2+y[&] *6*	J1+17	0.146 ps *+14−21*	
3521.7+y[@] *6*	J1+18		
3808.1+y[&] *6*	J1+19	0.076 ps *+7−14*	
4098.5+y[@] *6*	J1+20		
4403.0+y[&] *6*	J1+21	0.083 ps *7*	
4709.8+y[@] *7*	J1+22		
5031.8+y[&] *7*	J1+23		
5354.1+y[@] *7*	J1+24		
5693.5+y[&] *7*	J1+25		
6031.9+y[@] *7*	J1+26		
6387.6+y[&] *7*	J1+27		
6741.8+y[@] *7*	J1+28		
7113.2+y[&] *8*	J1+29		
7484.0+y[@] *8*	J1+30		
7869.8+y[&] *8*	J1+31		
8255.2+y[@] *8*	J1+32		
8657.1+y[&] *8*	J1+33		

Continued on next page (footnotes at end of table)

(HI,xnγ):SD 1993Jo09,1994Jo10,1998Bu03 (continued)

^{193}Hg Levels (continued)

E(level)	J^π	Comments
9057.4+y[@] *9*	J1+34	
9474.8+y[&] *9*	J1+35	
9889.5+y[@] *11*	J1+36	
10322.3+y[&] *10*	J1+37	
10750.0+y[@] *12*	J1+38	
11198.4+y[&] *11*	J1+39	
z[a]	J2	J^π: J_2≈(27/2⁻).
291.00+z[a] *20*	J2+2	
619.8+z[a] *3*	J2+4	
986.4+z[a] *4*	J2+6	
1391.4+z[a] *4*	J2+8	
1835.6+z[a] *5*	J2+10	
2319.9+z[a] *5*	J2+12	
2845.8+z[a] *6*	J2+14	
3412.5+z[a] *6*	J2+16	
4017.5+z[a] *6*	J2+18	
4658.0+z[a] *7*	J2+20	
5332.5+z[a] *7*	J2+22	
6040.0+z[a] *7*	J2+24	
6779.3+z[a] *8*	J2+26	
7549.0+z[a] *9*	J2+28	
8350.3+z[a] *10*	J2+30	
9181.6+z[a] *11*	J2+32	
10042.6+z?[a]	J2+34	
u[b]	J3	J^π: J_3≈(21/2⁻), from 1994Jo10.
240.51+u[b] *20*	J3+2	
522.4+u[b] *3*	J3+4	
845.9+u[b] *4*	J3+6	
1211.3+u[b] *4*	J3+8	
1617.8+u[b] *5*	J3+10	
2065.3+u[b] *5*	J3+12	
2553.4+u[b] *6*	J3+14	
3081.4+u[b] *6*	J3+16	
3648.6+u[b] *6*	J3+18	
4254.9+u[b] *7*	J3+20	
4899.4+u[b] *7*	J3+22	
5581.3+u[b] *7*	J3+24	
6299.9+u[b] *8*	J3+26	
7054.4+u[b] *8*	J3+28	
7844.2+u[b] *8*	J3+30	
8668.5+u[b] *9*	J3+32	
9526.4+u[b] *10*	J3+34	

† From line-shape analysis (1998Bu03).

‡ Band(A): SD-1 Band (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=18.4 *+8−9* (1998Bu03). Percent population=1.6 *3* (1990Cu05). g factor (intrinsic)=−0.65 *14* (1993Jo09). This is deduced from the ratio of interband (M1) and intraband (E2)

Continued on next page (footnotes at end of table)

(HI,xnγ):SD 1993Jo09,1994Jo10,1998Bu03 (continued)

^{193}Hg Levels (continued)

transition intensities. Possible configuration: [512]5/2$^-$, α=−1/2 below E$\gamma\approx$400 and $j_{15/2}$ above E$\gamma\approx$600 keV.

[#] Band(B): SD-2 Band (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=17.3 *+11−9* (1998Bu03). Percent population=2.1 *3*(1990Cu05). The relative intensity of this band is anomalously high (≈2 times that of its signature partner SD-3 band) which leads to suggestion that this band may be composed of two SD bands, the other being the signature partner of SD-3 band. Possible configuration: [512]5/2$^-$, α=+1/2. Signature partner of SD-1 band.

[@] Band(C): SD-3 Band (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=16.1 *+15−14* (1998Bu03). Percent population=0.9 *3* (1990Cu05) Possible configuration: [624]9/2$^+$, α=−1/2.

[&] Band(D): SD-4 Band (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=17.3 *+11−9* (1998Bu03). Possible configuration: [624]9/2$^+$, α=+1/2. Signature partner of SD-3 band. SD-2 and SD-4 bands are unresolved but FWHM of lines is consistently greater than that for lines in SD-1 band (from (HI,xnγ):SD).

[a] Band(E): SD-5 Band (1998Bu03,1994Jo10,1993Jo09,1990Cu05). Q(intrinsic)=16.7 *10* (1998Bu03). Percent population=1.1 *3* (1990Cu05). $j_{15/2}$, α=−1/2 intruder band below E$\gamma\approx$400 keV and [512]5/2 α=−1/2 above E$\gamma\approx$600 keV. Configuration: (N=7,α=−1/2)(1994Jo10).

[b] Band(F): SD-6 Band (1998Bu03,1994Jo10). Q(intrinsic)=16.7 *+14−13* (1998Bu03). Percent population ≈0.6 (1994Jo10). Configuration: (N=7,α=+1/2), unfavored signature partner (1994Jo10).

γ(^{193}Hg)

Eγ[†]	Iγ[‡]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Comments
121.1[§] *5*		233.20+x	J+2	111.8+x	J+1	
122.6[§] *5*		233.50+y	J1+2	111.9+y	J1+1	
132.2[&§] *5*		365.8+x	J+3	233.20+x	J+2	
132.2[&§] *5*		366.1+y	J1+3	233.50+y	J1+2	
141.6[§] *5*		507.4+x	J+4	365.8+x	J+3	
142.7[§] *5*		508.5+y	J1+4	366.1+y	J1+3	
152.9[&§] *5*		660.4+x	J+5	507.4+x	J+4	
152.9[&§] *5*		660.9+y	J1+5	508.5+y	J1+4	
160.7[§] *5*		821.4+x	J+6	660.4+x	J+5	
162.5[§] *5*		823.5+y	J1+6	660.9+y	J1+5	
173.7[&§] *5*		995.3+x	J+7	821.4+x	J+6	
173.7[&§] *5*		996.0+y	J1+7	823.5+y	J1+6	
179.3[§] *5*		1174.7+x	J+8	995.3+x	J+7	
182.6[§] *5*		1178.3+y	J1+8	996.0+y	J1+7	
192.3[§] *5*		1370.6+y	J1+9	1178.3+y	J1+8	1993Fa07 suggested that this transition is also the lowest member of SD-1 band, but results of 1993Jo09 do not seem to confirm this placement.
196.9[§] *5*		1566.6+x	J+10	1369.8+x	J+9	
201.9[§] *5*		1572.1+y	J1+10	1370.6+y	J1+9	
212.3[§] *5*		1995.6+x	J+12	1782.9+x	J+11	This γ is a member of an unresolved doublet (the other member is 212.9 keV, from level 1783.9+y).
212.9[§] *5*		1783.9+y	J1+11	1572.1+y	J1+10	This γ is a member of an unresolved doublet (the other member is 212.3 keV, from level 1995.6+X).
220.5[§] *5*		2004.2+y	J1+12	1783.9+y	J1+11	
226.4[§] *5*		2460.1+x	J+14	2234.0+x	J+13	
233.2 *2*	0.37 *3*	233.20+x	J+2	x	J	
233.5 *2*	0.21 *3*	233.50+y	J1+2	y	J1	
240.5 *2*	0.58 *5*	240.51+u	J3+2	u	J3	

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(HI,xnγ):SD 1993Jo09,1994Jo10,1998Bu03 (continued)

γ(^{193}Hg) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J^π_i	E_f	J^π_f
254.0[@] *2*	0.12[@] *5*	365.8+x	J+3	111.8+x	J+1
254.0[@] *2*	0.12[@] *5*	366.1+y	J1+3	111.9+y	J1+1
274.2 *2*	0.48 *3*	507.4+x	J+4	233.20+x	J+2
275.2 *2*	0.30 *5*	508.5+y	J1+4	233.50+y	J1+2
281.9 *2*	0.80 *5*	522.4+u	J3+4	240.51+u	J3+2
291.0 *2*	0.17 *3*	291.00+z	J2+2	z	J2
294.6[@] *2*	0.38[@] *8*	660.4+x	J+5	365.8+x	J+3
294.6[@] *2*	0.38[@] *8*	660.9+y	J1+5	366.1+y	J1+3
314.0 *2*	0.75 *5*	821.4+x	J+6	507.4+x	J+4
315.2 *2*	0.53 *5*	823.5+y	J1+6	508.5+y	J1+4
323.5 *2*	0.90 *5*	845.9+u	J3+6	522.4+u	J3+4
328.8 *2*	0.72 *4*	619.8+z	J2+4	291.00+z	J2+2
334.9[@] *2*	0.61[@] *9*	995.3+x	J+7	660.4+x	J+5
334.9[@] *2*	0.61[@] *9*	996.0+y	J1+7	660.9+y	J1+5
353.4 *2*	0.90 *5*	1174.7+x	J+8	821.4+x	J+6
354.9 *2*	0.78 *5*	1178.3+y	J1+8	823.5+y	J1+6
365.4 *2*	1.00 *5*	1211.3+u	J3+8	845.9+u	J3+6
366.6 *2*	0.87 *5*	986.4+z	J2+6	619.8+z	J2+4
374.5[@] *2*	0.73[@] *18*	1369.8+x	J+9	995.3+x	J+7
374.5[@] *2*	0.73[@] *16*	1370.6+y	J1+9	996.0+y	J1+7
391.9 *2*	0.96 *5*	1566.6+x	J+10	1174.7+x	J+8
393.8 *2*	0.95 *5*	1572.1+y	J1+10	1178.3+y	J1+8
405.0 *2*	0.98 *7*	1391.4+z	J2+8	986.4+z	J2+6
406.5 *2*	1.00 *5*	1617.8+u	J3+10	1211.3+u	J3+8
413.1[@] *2*	1.00[@] *12*	1782.9+x	J+11	1369.8+x	J+9
413.1[@] *2*	1.00[@] *12*	1783.9+y	J1+11	1370.6+y	J1+9
429.0 *2*	1.00 *5*	1995.6+x	J+12	1566.6+x	J+10
432.1 *2*	1.02 *8*	2004.2+y	J1+12	1572.1+y	J1+10
444.2 *2*	1.00 *7*	1835.6+z	J2+10	1391.4+z	J2+8
447.5 *2*	0.98 *5*	2065.3+u	J3+12	1617.8+u	J3+10
451.1[&] *2*		2234.0+x	J+13	1782.9+x	J+11
451.1[&] *2*		2235.0+y	J1+13	1783.9+y	J1+11
464.4 *2*	0.98 *3*	2460.1+x	J+14	1995.6+x	J+12
469.8 *2*	1.00 *8*	2474.0+y	J1+14	2004.2+y	J1+12
484.3 *2*	1.00 *5*	2319.9+z	J2+12	1835.6+z	J2+10
488.1 *2*	0.95 *5*	2553.4+u	J3+14	2065.3+u	J3+12
488.3[@] *2*	0.96[@] *18*	2722.3+x	J+15	2234.0+x	J+13
488.3[@] *2*	0.96[@] *18*	2723.3+y	J1+15	2235.0+y	J1+13
497.4 *2*	1.00 *3*	2957.5+x	J+16	2460.1+x	J+14
506.2 *2*	1.00 *14*	2980.2+y	J1+16	2474.0+y	J1+14
524.9[@] *2*	0.98[@] *20*	3247.2+x	J+17	2722.3+x	J+15
524.9[@] *2*	0.98[@] *20*	3248.2+y	J1+17	2723.3+y	J1+15
525.9 *2*	0.98 *6*	2845.8+z	J2+14	2319.9+z	J2+12
527.9 *2*	1.05 *6*	3081.4+u	J3+16	2553.4+u	J3+14
528.2 *2*	1.11 *10*	3485.7+x	J+18	2957.5+x	J+16
541.5 *2*	0.82 *32*	3521.7+y	J1+18	2980.2+y	J1+16
558.5 *2*	0.94 *14*	4044.2+x	J+20	3485.7+x	J+18
559.9[@] *2*	1.08[@] *10*	3807.1+x	J+19	3247.2+x	J+17
559.9[@] *2*	1.08[@] *10*	3808.1+y	J1+19	3248.2+y	J1+17
566.7 *2*	0.98 *8*	3412.5+z	J2+16	2845.8+z	J2+14
567.2 *2*	1.00 *6*	3648.6+u	J3+18	3081.4+u	J3+16

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(HI,xnγ):SD 1993Jo09,1994Jo10,1998Bu03 (continued)

γ(^{193}Hg) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π
576.8 *2*	0.63 *24*	4098.5+y	J1+20	3521.7+y	J1+18
590.0 *2*	0.73 *20*	4634.2+x	J+22	4044.2+x	J+20
594.9[&] *2*		4402.0+x	J+21	3807.1+x	J+19
594.9[&] *2*		4403.0+y	J1+21	3808.1+y	J1+19
605.0 *2*		4017.5+z	J2+18	3412.5+z	J2+16
606.3 *2*		4254.9+u	J3+20	3648.6+u	J3+18
611.3 *2*	0.43 *28*	4709.8+y	J1+22	4098.5+y	J1+20
622.6 *2*		5256.8+x	J+24	4634.2+x	J+22
628.8[@] *2*	0.85[@] *8*	5030.8+x	J+23	4402.0+x	J+21
628.8[@] *2*	0.85[@] *8*	5031.8+y	J1+23	4403.0+y	J1+21
640.5 *2*	0.82 *7*	4658.0+z	J2+20	4017.5+z	J2+18
644.3 *2*		5354.1+y	J1+24	4709.8+y	J1+22
644.5 *2*	0.90 *10*	4899.4+u	J3+22	4254.9+u	J3+20
655.7 *2*	0.40 *16*	5912.5+x	J+26	5256.8+x	J+24
661.7[@] *2*	0.52[@] *12*	5692.5+x	J+25	5030.8+x	J+23
661.7[@] *2*	0.52[@] *12*	5693.5+y	J1+25	5031.8+y	J1+23
674.5 *2*	0.80 *7*	5332.5+z	J2+22	4658.0+z	J2+20
677.8 *2*		6031.9+y	J1+26	5354.1+y	J1+24
681.9 *2*	0.70 *6*	5581.3+u	J3+24	4899.4+u	J3+22
688.5 *2*	0.18 *10*	6601.0+x	J+28	5912.5+x	J+26
694.1[@] *2*	0.56[@] *15*	6386.6+x	J+27	5692.5+x	J+25
694.1[@] *2*	0.56[@] *15*	6387.6+y	J1+27	5693.5+y	J1+25
707.5 *2*	0.72 *7*	6040.0+z	J2+24	5332.5+z	J2+22
709.9 *2*		6741.8+y	J1+28	6031.9+y	J1+26
718.6 *2*	0.60 *6*	6299.9+u	J3+26	5581.3+u	J3+24
721.3 *2*	0.39 *10*	7322.3+x	J+30	6601.0+x	J+28
725.6[@] *2*	0.45[@] *19*	7112.2+x	J+29	6386.6+x	J+27
725.6[@] *2*	0.45[@] *19*	7113.2+y	J1+29	6387.6+y	J1+27
739.3 *2*	0.61 *7*	6779.3+z	J2+26	6040.0+z	J2+24
742.2 *2*		7484.0+y	J1+30	6741.8+y	J1+28
753.2 *2*	0.55 *16*	8075.5+x	J+32	7322.3+x	J+30
754.5 *2*		7054.4+u	J3+28	6299.9+u	J3+26
756.6[@] *2*	0.38[@] *10*	7868.8+x	J+31	7112.2+x	J+29
756.6[@] *2*	0.38[@] *10*	7869.8+y	J1+31	7113.2+y	J1+29
769.7 *4*	0.46 *4*	7549.0+z	J2+28	6779.3+z	J2+26
771.2 *3*		8255.2+y	J1+32	7484.0+y	J1+30
784.9 *2*		8860.4+x	J+34	8075.5+x	J+32
787.3[&] *2*		8656.1+x	J+33	7868.8+x	J+31
787.3[&] *2*		8657.1+y	J1+33	7869.8+y	J1+31
789.8 *2*	0.42 *5*	7844.2+u	J3+30	7054.4+u	J3+28
801.3 *5*	0.36 *3*	8350.3+z	J2+30	7549.0+z	J2+28
802.2 *4*		9057.4+y	J1+34	8255.2+y	J1+32
816.6 *3*		9677.0+x	J+36	8860.4+x	J+34
817.7[&] *3*		9473.8+x	J+35	8656.1+x	J+33
817.7[&] *3*		9474.8+y	J1+35	8657.1+y	J1+33
824.3 *3*	0.26 *5*	8668.5+u	J3+32	7844.2+u	J3+30
831.3 *5*	0.21 *4*	9181.6+z	J2+32	8350.3+z	J2+30
832.1 *5*		9889.5+y	J1+36	9057.4+y	J1+34
847.5[&] *4*		10321.3+x	J+37	9473.8+x	J+35
847.5[&] *4*		10322.3+y	J1+37	9474.8+y	J1+35
847.8 *4*		10524.8+x	J+38	9677.0+x	J+36

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(HI,xnγ):SD 1993Jo09,1994Jo10,1998Bu03 (continued)

γ(^{193}Hg) (continued)

E_γ †	I_γ ‡	E_i(level)	J^π_i	E_f	J^π_f	Comments
857.9 *5*	0.24 *5*	9526.4+u	J3+34	8668.5+u	J3+32	
860.5 *5*		10750.0+y	J1+38	9889.5+y	J1+36	
861#	0.15 *3*	10042.6+z?	J2+34	9181.6+z	J2+32	E_γ: estimated (1998Ar07) from intensity plot (fig.1 in 1994Jo10).
876.1& *5*		11197.4+x	J+39	10321.3+x	J+37	
876.1& *5*		11198.4+y	J1+39	10322.3+y	J1+37	
880.9 *5*		11405.7+x	J+40	10524.8+x	J+38	

† From 1994Jo10, unless otherwise noted.
‡ Relative intensity within each band, read off intensity plots given by 1992ShZR for SD-1 to SD-4 and by 1994Jo10 for SD-5 and SD-6.
§ From 1993Jo09.
& Multiply placed.
@ Multiply placed with undivided intensity.
# Placement of transition in the level scheme is uncertain.

(HI,xnγ) 1995Fo13,1993De42,1993Ro03

1999We04,1998We19,1998We23: ^{150}Nd(^{48}Ca,5nγ), E=203 MeV; GAMMASPHERE array. Measure perturbed angular correlation; obtain angular correlation coefficients A2/A4, and average g-factors from precession in transient magnetic fields using target with Gd ferromagnetic layer.

1995Fo13, 1997FoZX: ^{150}Nd(^{48}Ca,5nγ), E=213 MeV; measured Eγ, Iγ, γγ, DCO ratios; EUROGAM detector array. Cranked Shell Model interpretation.

1993De42: ^{150}Nd(^{48}Ca,5nγ), E=210 MeV; 97.4% ^{150}Nd target; measured Eγ, Iγ, γγ coin (3-fold or higher), DCO ratios.

1993Ro03: ^{176}Yb(^{22}Ne,4nγ), E=110 MeV; HERA Ge-detector array; measured Eγ, Iγ, γγ coin (3-fold or higher), DCO ratios.

1986Hu02: ^{184}W(^{13}C,4nγ), ^{186}W(^{13}C,6nγ), E=84-87 MeV; measured Eγ, Iγ (Compton-suppressed germanium (high purity) detectors), γγ coin, γ-ray angular distributions; used cranked shell model to interpret level structure.

Others:

1999We02 study the time-decay history for normal-deformed bands at high spin in the ^{150}Nd(^{48}Ca,5n) reaction, by measuring the relative fraction of recoil fragments stopped in-flight, using a layered target.

^{193}Hg Levels

The level scheme adopted is that proposed by 1995Fo13. With a few minor corrections, it confirms, and adds to, the level schemes proposed by 1986Hu02, 1993De42 and 1993Ro03.

The level scheme consists of three sections: the lower part contains a number of rotational bands and is described as a collective oblate nucleus; the intermediate region is of single-particle character and may be described as non-collective prolate; and the upper region, which contains three dipole bands in a nucleus described as triaxial near-oblate (1995Fo13). For further discussion, and comparison with other Hg nuclei, see 1995Fo13.

The average g-factor from the M1/E2 transitions at high excitation energies is 0.23 *6* (1998We23).

E(level)[†]	J^{π}[‡]	$T_{1/2}$	Comments
140.76[@] *5*	13/2$^{(+)}$	11.8 h *2*	E(level),J^{π},$T_{1/2}$: from Adopted Levels.
522.75[@] *19*	17/2$^+$		
746.8[g] *4*	15/2$^+$		
1026.5 *6*	(13/2$^+$,15/2$^+$)		
1145.4[@] *3*	21/2$^+$		
1380.3[g] *4*	19/2$^+$		
1523.2 *4*	(17/2$^+$,19/2$^+$)		
1735.8 *7*	(19/2$^+$)		
1755.6[f] *4*	21/2$^-$		
1884.3[@] *5*	25/2$^+$		
1886.2[f] *5*	25/2$^-$		
1890.9[&] *4*	23/2$^-$		
2096.0[&] *5*	27/2$^-$		
2189.1[f] *5*	29/2$^-$		
2289.5 *8*	27/2$^-$		
2351.9 *7*	25/2$^+$		
2502.1[c] *6*	29/2$^+$		
2583.7[&] *6*	31/2$^-$		
2617.3 *6*	(29/2$^-$)		
2641.7[@] *7*	29/2$^+$		
2695.6[c] *6*	33/2$^+$		
2762.2[f] *6*	33/2$^-$		
3176.2[c] *7*	37/2$^+$		
3196.0[#] *8*	(33/2$^+$)		
3202.5 *7*	(33/2$^-$)		
3220.1 *8*	(33/2$^-$)		

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(HI,xnγ) 1995Fo13,1993De42,1993Ro03 (continued)

^{193}Hg Levels (continued)

E(level)[†]	Jπ[‡]	Comments
3223.6[&] *6*	35/2−	
3260.3[a] *8*	33/2+	
3497.5[f] *6*	37/2−	
3570.2[a] *8*	37/2+	
3727.0 *7*	(37/2−)	
3754.2[#] *8*	(37/2+)	
3811?		Level proposed by 1993De42, 1993Ro03 but not confirmed by 1995Fo13.
3850.7 *8*	37/2−	
3880.5[c] *7*	41/2+	
3883.8[d] *7*	39/2−	
4119.7[b] *9*	39/2+	
4120.5[a] *10*	41/2+	
4150.8[e] *7*	41/2−	
4198.0 *8*	(39/2−)	
4396.8[d] *7*	43/2−	
4412.6[f] *7*	41/2−	
4416.7 *11*		
4462.2 *12*		
4539.1[#] *7*	(41/2+)	
4674.1[e] *7*	45/2−	
4683.8[b] *12*	43/2+	
4688.4[c] *10*	45/2+	
4720.6 *8*	(39/2−)	
4792.0 *7*	41/2−	
4864.9 *8*	(43/2−)	
4889.9[a] *13*	45/2+	
4958.5 *7*	45/2−	
4964.0 *13*	43/2	
5033.1 *13*		
5048.0[d] *9*	47/2−	
5117.4 *9*	(45/2−)	
5319.9 *8*	(43/2)	
5339.1 *8*	(47/2−)	
5361.7[b] *15*	47/2+	
5391.9 *9*		
5400.3 *15*		
5411.5[e] *10*	49/2−	
5442.6 *7*	45/2(+)	
5547.6[j] *7*	47/2(+)	
5559.5[c] *13*	49/2+	
5560.5 *9*	(47/2−)	
5678.4 *8*	(49/2−)	
5698.1[a] *15*	49/2+	
5702.7 *9*	(49/2−)	
5714.8? *13*		
5747.5 *10*	(49/2−)	
5800.6 *9*	(49/2−)	
5832.1[j] *7*	49/2(+)	
5899.1[d] *12*	51/2−	

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(HI,xnγ) 1995Fo13,1993De42,1993Ro03 (continued)

^{193}Hg Levels (continued)

E(level)[†]	Jπ[‡]	Comments
6017.1 *13*	(51/2⁻)	
6067.7[j] *8*	51/2⁽⁺⁾	
6103.9 *9*	(51/2⁻)	
6145.2 *9*	(51/2⁻)	
6163.6[b] *17*	(51/2⁺)	
6305.2 *9*	(53/2⁻)	
6394.9[e] *13*	53/2⁻	
6401.0[i] *18*	(53/2⁻)	The decay out of this level has not been observed.
6419.4[h] *9*	(53/2⁻)	
6428.5 *16*	(53/2⁺)	
6464.6[j] *8*	53/2⁽⁺⁾	
6496.9[c] *15*	(53/2⁺)	
6726.4[i] *17*	(55/2⁻)	
6832.4 *9*	55/2⁽⁺⁾	
6839.9[j] *8*	55/2⁽⁺⁾	
6913.4[d] *15*	(55/2⁻)	
6921.8 *16*		
6921.9[h] *10*	(55/2⁻)	
6978.7[i] *18*	(57/2⁻)	
7037.5[j] *9*	57/2⁽⁺⁾	
7038.1 *16*		
7133.3 *12*	(57/2⁺)	
7186.7 *11*	(57/2⁻)	
7197.9[j] *10*	59/2⁽⁺⁾	
7245.7[i] *19*	(59/2⁻)	
7276.6[h] *10*	(57/2⁻)	
7281.7 *12*	57/2⁽⁺⁾	
7440.0 *14*		
7476.4[e] *16*	(57/2⁻)	
7492.3 *16*		
7555.2[j] *10*	61/2⁽⁺⁾	
7560.4[i] *19*	(61/2⁻)	
7681.3 *12*		
7699.5[h] *10*	(59/2⁻)	
7838.3[h] *10*	(61/2⁻)	
7920.0[i] *20*	(63/2⁻)	
7924.8[j] *10*	63/2⁽⁺⁾	
8137.0[h] *11*	(63/2⁻)	
8331.0[i] *20*	(65/2⁻)	
8388.8[j] *11*	65/2⁽⁺⁾	
8394.8[h] *11*	(65/2⁻)	
8750.9[h] *12*	(67/2⁻)	
8757.9[i] *21*	(67/2⁻)	
8886.8[j] *12*	67/2⁽⁺⁾	
8978.1 *13*		
9221.5[h] *12*	(69/2⁻)	
9409.1[j] *14*	(69/2⁺)	

Continued on next page (footnotes at end of table)

(HI,xnγ) 1995Fo13,1993De42,1993Ro03 (continued)

^{193}Hg Levels (continued)

E(level)[†]	Jπ[‡]
9675.9[h] *13*	(71/2$^-$)
9923.1[j] *16*	(71/2$^+$)
10290.4[h] *14*	(73/2$^-$)
10853.6[h] *15*	(75/2$^-$)

[†] From least squares fit to Eγ, except otherwise noted.

[‡] Jπ and band assignments are from 1995Fo13. The assignments in the lower part of the level scheme confirm those proposed by earlier researchers. The assignments are based on γ multipolarities, coincidence results, band structure and the assumption that J increases with increasing E(level).

[#] Level assigned to band (1) by 1993De42, 1993Ro03. This band assignment has not been adopted by 1995Fo13 for levels above the 29/2$^+$ level in this ΔJ=2 level sequence.

[@] Band(A): Band (1).

[&] Band(B): Band (2) Average g-factor for Bands (2+6) is 0.200 *18* (1999We04).

[a] Band(C): Band (3).

[b] Band(D): Band (4).

[c] Band(E): Band (5) Average g-factor for this band is 0.188 *14* (1999We04).

[d] Band(F): Band (6) See comment for Band (2).

[e] Band(G): Band (7) Average g-factor for Bands (7+8) is 0.176 *14* (1999We04).

[f] Band(H): Band (8) See comment for Band (7).

[g] Band(I): Band (9).

[h] Band(J): Dipole band (1) This band is part of Structure 1 in the level scheme as defined in 1995Fo13.

[i] Band(K): Dipole band (2) This band is part of Structure 2 in the level scheme as defined in 1995Fo13.

[j] Band(L): Dipole band (3) This band is part of Structure 3 in the level scheme as defined in 1995Fo13.

$\gamma(^{193}Hg)$

The main sources for energies and intensities for this table are 1995Fo13 and 1997FoZX. DCO ratios are from 1995Fo13, except when indicated otherwise. A_2 and A_4 values are from 1986Hu02 and 1998We23.

Intensities: The γ and total intensities listed below are from 1995Fo13 and 1997FoZX. Note that the authors (same group in both references) provide a single intensity list about which they state that the values are derived from coincidence data, and that for the cases where the multipolarity of the transitions could be confirmed, the quoted numbers have been corrected for internal conversion. The evaluator, based on this comment, have recalculated the Iγ when that condition was applicable. Unfortunately this procedure could not be applied with certainty for many cases, as the definition of when a multipolarity was confirmed or not is not always clear cut. Therefore the resulting Iγ values should be used with caution whenever confirming evidence for the multipolarity is not available (see also footnote for the multipolarity column at the end of the γ-ray table). For transitions where the authors of the mentioned references could not establish a multipolarity, their intensity value is listed below in the Iγ column, with no I(γ+ce) data. Some intensities from 1986Hu02 and 1993Ro03 are quoted in the Comments column.

E_γ [†]	I_γ [§]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [&]	α [b]	$I_{(\gamma+ce)}$ [‡]	Comments
(19.9 *10*)	<0.2	1755.6	21/2⁻	1735.8	(19/2⁺)	[E1] [@]	6.7 *10*		Iγ from 1997FoZX. Unobserved transition, existence required from observed coincidences of 989-keV γ with members of Band (8) (1995Fo13).
(71.3)		4792.0	41/2⁻	4720.6	(39/2⁻)				Transition uncertain due to low statistics and overlap with Hg x-rays. Existence required from observed coincidence data.
72.9		4864.9	(43/2⁻)	4792.0	41/2⁻				Transition uncertain due to low statistics and overlap with Hg x-rays. Existence required from observed coincidences of transitions above the (43/2⁻) level with those below the 41/2⁻ level (1995Fo13).
93.4 *10*	0.3 *1*	2189.1	29/2⁻	2096.0	27/2⁻	(M1)	9.6 *4*		Mult.: DCO=0.43 *10* (1997FoZX).
105.2 *8*	0.16 *2*	5547.6	47/2⁽⁺⁾	5442.6	45/2⁽⁺⁾	D		1.2 *1*	Mult.: DCO=0.48 *7*.
113.9 *10*	<0.5	6419.4	(53/2⁻)	6305.2	(53/2⁻)				
123.0 *10*	0.11 *2*	5442.6	45/2⁽⁺⁾	5319.9	(43/2)			0.6 *1*	Mult.: DCO=0.62 *20*.
130.5 *4*	15.2 *2*	1886.2	25/2⁻	1755.6	21/2⁻	E2	1.88 *4*	41.4 *5*	Iγ=12 (1986Hu02). Mult.: A_2=+0.30 *3*, A_4=−0.11 *4* (1986Hu02). DCO=0.96 *2* (1997FoZX); band structure.
135.0 *10*	0.45 *16*	1890.9	23/2⁻	1755.6	21/2⁻	(M1+E2)	2.50 *86*	1.5 *1*	Iγ=2.9 (1986Hu02). Mult.: A_2=+0.02 *30* (1986Hu02). DCO=0.53 *10* (1997FoZX).
138.8 *4*	3.0 *1*	7838.3	(61/2⁻)	7699.5	(59/2⁻)	(M1)	3.10	11.7 *3*	Mult.: DCO=0.52 *6*.
144.5 [#] *10*	0.4 *1*	4864.9	(43/2⁻)	4720.6	(39/2⁻)				
150.5 *10*	0.46 *5*	2502.1	29/2⁺	2351.9	25/2⁺	(Q)		0.9 *1*	Iγ=0.8 (1986Hu02). Mult.: A_2=+0.11 *20* (1986Hu02); DCO=1.12 *30*; ΔJπ from level scheme.
155.9 *10*	0.20 *4*	5547.6	47/2⁽⁺⁾	5391.9				0.6 *1*	Mult.: DCO=1.23 *30* (gate ΔJ=1) (1997FoZX) indicates D, no assignment for final level in this dataset, Adopted Level (47/2⁺) to (43/2⁺) suggest Q.

γ(^{193}Hg) (continued)

E_γ[†]	I_γ[§]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	α[b]	$I_{(\gamma+ce)}$[‡]	Comments
[x]159.8[a] *10*									Iγ=0.4 (1986Hu02). A_2=−0.09 *50* (1986Hu02).
160.4 *4*	7.7 *2*	7197.9	59/2$^{(+)}$	7037.5	57/2$^{(+)}$	M1	2.05 *4*	22.4 *5*	Iγ=3.25 (1993Ro03). Mult.: DCO=0.50 *10*; M1 from DCO and intensity balance (1993De42). 1998We23 report A_2=−0.39 *2*, A_4=0.14 *2* for an M1/E2 transition of 160.1 keV at high excitation energies.
193.5 *4*	23.9 *5*	2695.6	33/2$^+$	2502.1	29/2$^+$	E2	0.438	32.5 *6*	Iγ=14 (1986Hu02). Mult.: A_2=+0.43 *4*, A_4=−0.10 *5* (1986Hu02), DCO=1.02 *2* (1997FoZX); band structure.
[x]197.1[a] *4*									From 1986Hu02; complex line, no intensity determination possible. Mult.: A_2=−0.23 *4*, A_4=+0.01 *5* (1986Hu02). Other: A_2=−0.44 *2*, A_4=+0.02 *1* is quoted by 1998We23 for an 197.3 keV γ ray (see also the 197.6 keV γ ray deexciting the 7037.5 keV level: the quoted A_2 and A_4 values could possibly belong to that γ ray).
197.6 *4*	10.5 *3*	7037.5	57/2$^{(+)}$	6839.9	55/2$^{(+)}$	M1	1.143	21.3 *5*	Iγ=4.94 (1993Ro03). Mult.: DCO=0.49 *3*; M1 from DCO and intensity balance (1993De42). 1998We23 report A_2=−0.44 *2*, A_4=0.02 *1* for an M1/E2 transition of 197.3 keV at high excitation energies (see also the 197.1 keV γ ray: the quoted A_2 and A_4 values could possibly belong to that γ ray).
205.1[a] *4*	19.7 *5*	2096.0	27/2$^-$	1890.9	23/2$^-$	E2	0.359 *6*	25.3 *6*	Iγ=12 (1986Hu02). Mult.: A_2=0.32 *2*, A_4=−0.10 *2* (1998We23). Other: A_2=+0.40 *3*, A_4=−0.12 *4* (1986Hu02). DCO=1.01 *2* (1997FoZX); band structure.
205.1 *8*	1.5 *2*	7037.5	57/2$^{(+)}$	6832.4	55/2$^{(+)}$	[M1][@]	1.030 *19*	2.8 *4*	Iγ=1.03 (1993Ro03).
209.6 *8*	0.80 *6*	2096.0	27/2$^-$	1886.2	25/2$^-$	(M1)	0.970 *17*	1.5 *1*	1986Hu02 report a complex line, Iγ=0.9 estimated from coincidence spectra. Mult.: DCO=0.68 *7* (1997FoZX).
211.9 *8*	1.4 *1*	2096.0	27/2$^-$	1884.3	25/2$^+$	(E1)	0.0642 *11*	1.4 *1*	1986Hu02 report a complex line, Iγ=0.7 estimated from coincidence spectra. Mult.: A_2=−0.30 *15* (1986Hu02). DCO=0.47 *6*. Δπ=yes from level scheme.
[x]221.5[a]									
221.7 *4*	6.5 *2*	5339.1	(47/2$^-$)	5117.4	(45/2$^-$)	D		11.3 *3*	Mult.: DCO=0.50 *3*.
227.4 *8*	1.0 *1*	5547.6	47/2$^{(+)}$	5319.9	(43/2)			1.2 *1*	
232.3 *4*	8.2 *2*	1755.6	21/2$^-$	1523.2	(17/2$^+$,19/2$^+$)	D		13.5 *3*	Mult.: DCO=0.66 *1* (1997FoZX); D, ΔJ=1 from γ(θ) in (α,xnγ).
235.6 *4*	16.1 *3*	6067.7	51/2$^{(+)}$	5832.1	49/2$^{(+)}$	M1	0.701	25.9 *5*	Iγ=7.26 (1993Ro03).

$^{193}_{80}Hg_{113}$-43

$\gamma(^{193}Hg)$ (continued)

E_γ[†]	I_γ[§]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[b]	$I_{(\gamma+ce)}$[‡]	Comments
									Mult.: DCO=0.46 *1*; M1 from DCO and intensity balance (1993De42).
[x]235.9[a]									Complex line.
240.1 *6*	3.4 *3*	5800.6	(49/2⁻)	5560.5	(47/2⁻)	[M1][@]	0.665 *11*	5.4 *5*	
252.3 *8*	0.73 *27*	6978.7	(57/2⁻)	6726.4	(55/2⁻)	[M1][@]	0.580 *10*	1.1 *4*	
252.5 *4*	14.8 *3*	5117.4	(45/2⁻)	4864.9	(43/2⁻)	D		22.1 *4*	Mult.: DCO=0.51 *2*. 1986Hu02 lists an unplaced γ with Eγ=252.4 *3*, Iγ=4 (deduced from coincidences), A_2=−0.6 *4* possibly corresponding to this γ.
257.8 *4*	7.6 *2*	8394.8	(65/2⁻)	8137.0	(63/2⁻)	(M1)	0.547	11.2 *2*	Mult.: DCO=0.62 *2*.
267.0 *8*	3.3 *2*	7245.7	(59/2⁻)	6978.7	(57/2⁻)	(M1)	0.496 *8*	4.7 *2*	Mult.: DCO=0.61 *4*.
[x]274.1									From 1993De42. Tentatively placed from 5832 level; however, placement not confirmed by 1993Ro03, 1995Fo13. Possibly the 274.2γ from 6419.4 level.
274.2 *8*	2.2 *1*	6419.4	(53/2⁻)	6145.2	(51/2⁻)	D		3.0 *1*	Mult.: DCO=0.43 *6*.
284.5 *4*	16.6 *4*	5832.1	49/2$^{(+)}$	5547.6	47/2$^{(+)}$	M1	0.417	22.3 *5*	Iγ=7.81 (1993Ro03). Mult.: DCO=0.48 *2*; M1 from DCO and intensity balance (1993De42). 1998We23 report A_2=−0.38 *2*, A_4=−0.05 *2* for an M1/E2 transition of 284.2 keV at high excitation energies.
293.4 *8*	2.6 *1*	7133.3	(57/2⁺)	6839.9	55/2$^{(+)}$	D	0.383	3.4 *1*	Mult.: DCO=0.65 *6*.
[x]298.6									From 1993De42. γ placed from a level at 5256.9 keV, however, the level was not confirmed by 1993Ro03, 1995Fo13.
298.7 *4*	11.8 *2*	8137.0	(63/2⁻)	7838.3	(61/2⁻)	(M1)	0.365	15.3 *2*	Mult.: DCO=0.54 *3*.
302.2[#c] *10*	0.6 *2*	6017.1	(51/2⁻)	5714.8?					
302.9 *4*	32.6 *6*	2189.1	29/2⁻	1886.2	25/2⁻	E2	0.1035	34.1 *6*	Iγ=25 (1986Hu02). Mult.: A_2=0.33 *1*, A_4=−0.10 *1* (1998We23). Other: A_2=+0.40 *3*, A_4=−0.14 *4* (1986Hu02). DCO=0.91 *1* (1997FoZX); band structure.
306.7 *8*	3.3 *2*	7440.0		7133.3	(57/2⁺)	D			Mult.: DCO=0.57 *10*. DCO indicates stretched E1,M1. Parent level Jπ unspecified.
309.9 *8*	3.5 *1*	3570.2	37/2⁺	3260.3	33/2⁺	E2	0.0967 *16*	3.6 *1*	Iγ=2.8 (1986Hu02). Mult.: A_2=+0.20 *17* (1986Hu02), DCO=1.00 *8* (1997FoZX); band structure.
314.2 *10*	1.0 *3*	4198.0	(39/2⁻)	3883.8	39/2⁻				
314.7 *8*	2.6 *1*	7560.4	(61/2⁻)	7245.7	(59/2⁻)	(M1)	0.317	3.2 *1*	Mult.: DCO=1.06 *7* (gate ΔJ=1).
315.6 *6*	4.1 *4*	6419.4	(53/2⁻)	6103.9	(51/2⁻)	D		5.1 *5*	Mult.: DCO=0.51 *2*.
325.4 *10*	0.7 *2*	6726.4	(55/2⁻)	6401.0	(53/2⁻)	[M1][@]	0.289 *5*	0.9 *2*	
325.5[#c] *10*	0.8 *1*	5117.4	(45/2⁻)	4792.0	41/2⁻				
327.7 *8*	3.6 *1*	2617.3	(29/2⁻)	2289.5	27/2⁻	D		4.4 *1*	Mult.: DCO=0.59 *20*.

$^{193}_{80}Hg_{113}$-44

$\gamma(^{193}Hg)$ (continued)

E_γ[†]	I_γ[§]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	α[b]	$I_{(\gamma+ce)}$[‡]	Comments
[x]328.2[a] 10						(Q)			From 1986Hu02: complex line, Iγ=1.0 estimated from coincidence spectra. Mult.: A_2=+0.27 10 (1986Hu02).
339.4 10	0.8 2	5678.4	(49/2⁻)	5339.1	(47/2⁻)	[M1][@]	0.258 5	1.0 2	
354.7 8	4.1 1	7276.6	(57/2⁻)	6921.9	(55/2⁻)	[M1]	0.229	4.8 1	Mult.: DCO(354.7γ+356.1γ)=0.47 20.
356.1 6	6.7 3	8750.9	(67/2⁻)	8394.8	(65/2⁻)	[M1]	0.227	7.8 3	Mult.: DCO(354.7γ+356.1γ)=0.47 20.
357.3 4	12.4 2	7555.2	61/2⁽⁺⁾	7197.9	59/2⁽⁺⁾	M1	0.225	14.4 2	Iγ=5.17 (1993Ro03). Mult.: DCO=0.48 2; M1, ΔJ=1 from DCO and intensity balance (1993De42). 1998We23 report A_2=−0.43 2, A_4=0.12 1 for an M1/E2 transition of 357.1 keV at high excitation energies.
359.6 8	2.4 3	7920.0	(63/2⁻)	7560.4	(61/2⁻)	(M1)	0.221 4	2.8 3	Mult.: DCO=0.39 8.
363.6 8	2.2 1	5702.7	(49/2⁻)	5339.1	(47/2⁻)	D		2.5 1	Mult.: DCO=0.35 7.
367.8 8	3.2 3	6832.4	55/2⁽⁺⁾	6464.6	53/2⁽⁺⁾	D		3.7 3	Iγ=1.82 (1993Ro03). Mult.: DCO=1.25 30 (gate ΔJ=1).
369.7 6	6.2 3	7924.8	63/2⁽⁺⁾	7555.2	61/2⁽⁺⁾	M1	0.205	7.1 3	Iγ=2.25 (1993Ro03). Mult.: DCO=0.31 10; M1, ΔJ=1 from DCO and intensity balance (1993De42).
375.2 4	21.9 6	1755.6	21/2⁻	1380.3	19/2⁺	(E1)	0.01662	21.1 6	Iγ=23 (1986Hu02). Mult.: A_2=−0.30 1, A_4=0.05 1 (1998We23). Other: A_2=−0.16 3, A_4=−0.09 4 (1986Hu02). DCO=0.51 1 (1997FoZX); band structure.
375.4 4	9.2 5	6839.9	55/2⁽⁺⁾	6464.6	53/2⁽⁺⁾	(M1)	0.197	10.4 6	Iγ=5.31 (1993Ro03). Mult.: DCO=1.10 4 (gate ΔJ=1).
375.8[#c] 10	<0.5	5714.8?		5339.1	(47/2⁻)				
382.0 2	100	522.75	17/2⁺	140.76	13/2⁽⁺⁾	E2	0.0536	100	Mult.: A_2=0.30 1, A_4=−0.10 1 (1998We23). Other: A_2=+0.37 3, A_4=−0.12 4 (1986Hu02). DCO=0.98 1.
389.6 8	1.3 1	5832.1	49/2⁽⁺⁾	5442.6	45/2⁽⁺⁾	Q		1.3 1	Mult.: DCO=0.91 10.
393.9 8	4.2 1	3570.2	37/2⁺	3176.2	37/2⁺			4.2 1	Iγ=4 (1986Hu02). Mult.: A_2=+0.35 8, A_4=−0.09 10 (1986Hu02), DCO=0.95 2 (1997FoZX). Its a 37/2⁺ to 37/2⁺ transition.
394.7 8	1.1 1	2583.7	31/2⁻	2189.1	29/2⁻	[M1]	0.172	1.2 1	
[x]396.8[a] 8						D,Q			Iγ=1.6 (1986Hu02). Mult.: A_2=−0.66 2, A_4=0.16 2 (1998We23). Other: A_2=−0.57 25 (1986Hu02).
397.0 4	13.0 2	6464.6	53/2⁽⁺⁾	6067.7	51/2⁽⁺⁾	M1	0.1692	14.4 2	Iγ=5.8 (1993Ro03). Mult.: DCO=0.50 2; M1 from DCO and intensity balance (1993De42).
401.1 8	2.9 1	6103.9	(51/2⁻)	5702.7	(49/2⁻)	D		3.2 1	Mult.: DCO=0.59 8.
403.2 8	3.4 1	2289.5	27/2⁻	1886.2	25/2⁻	D		3.7 1	Mult.: DCO=1.22 10 (gate ΔJ=1).
411.0 8	1.8 1	8331.0	(65/2⁻)	7920.0	(63/2⁻)	(M1)	0.1543	2.0 1	Mult.: DCO=0.56 4.

$\gamma(^{193}Hg)$ (continued)

E_γ[†]	I_γ[§]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[b]	$I_{(\gamma+ce)}$[‡]	Comments
422.9 *6*	6.6 *3*	7699.5	(59/2⁻)	7276.6	(57/2⁻)	(M1)	0.1430	7.2 *3*	Mult.: DCO=0.46 *3* (1997FoZX).
425.5 *8*	1.4 *3*	6103.9	(51/2⁻)	5678.4	(49/2⁻)	[M1][@]	0.1406	1.5 *3*	
426.9 *8*	1.1 *1*	8757.9	(67/2⁻)	8331.0	(65/2⁻)	[M1][@]	0.1394	1.2 *1*	
428.1 *8*	3.9 *5*	2617.3	(29/2⁻)	2189.1	29/2⁻				
437.5 *8*	1.4 *3*	8137.0	(63/2⁻)	7699.5	(59/2⁻)	(E2)	0.0376	1.4 *3*	Mult.: DCO=2.57 *70* (gate ΔJ=1).
[x]440.0[a] *8*									From 1986Hu02; complex line, Iγ=1.7 estimated from coincidence spectra.
442.6 *8*	2.5 *3*	6145.2	(51/2⁻)	5702.7	(49/2⁻)	[M1]	0.1266	2.7 *3*	Mult.: DCO(442.6γ+443.2γ)=0.49 *4*.
443.2 *6*	5.1 *5*	5560.5	(47/2⁻)	5117.4	(45/2⁻)	[M1]	0.1262	5.5 *5*	Mult.: DCO(442.6γ+443.2γ)=0.49 *4*.
449.3 *8*	2.8 *1*	7281.7	57/2⁽⁺⁾	6832.4	55/2⁽⁺⁾	D		3.0 *1*	Mult.: DCO=0.47 *6*.
454.4 *8*	1.2 *1*	9675.9	(71/2⁻)	9221.5	(69/2⁻)	(M1)	0.1181	1.3 *1*	Mult.: DCO=1.02 *10* (gate ΔJ=1).
461.4 *8*	2.2 *1*	3223.6	35/2⁻	2762.2	33/2⁻	[M1][@]	0.1134	2.3 *1*	
461.5 *6*	5.4 *5*	5800.6	(49/2⁻)	5339.1	(47/2⁻)	[M1][@]	0.1133	5.7 *5*	
464.0 *8*	4.1 *4*	8388.8	65/2⁽⁺⁾	7924.8	63/2⁽⁺⁾	(M1)	0.1117	4.3 *4*	Iγ=1.34 (1993Ro03). Mult.: DCO=0.46 *20*.
470.6 *8*	4.8 *1*	9221.5	(69/2⁻)	8750.9	(67/2⁻)	(M1)	0.1076	5.0 *1*	Mult.: DCO=0.49 *8*.
[x]472.3 *10*	0.4 *1*								γ is related to Structure (2) (1995Fo13).
474.2 *8*	3.4 *1*	5339.1	(47/2⁻)	4864.9	(43/2⁻)	Q		3.3 *1*	Mult.: DCO=1.15 *20*.
480.6 *4*	29.6 *6*	3176.2	37/2⁺	2695.6	33/2⁺	E2	0.0297	28.9 *6*	Iγ=15 (1986Hu02). Mult.: A_2=0.29 *3*, A_4=−0.09 *3* (1998We23). Other: A_2=+0.46 *6*, A_4=−0.16 *9* (1986Hu02). DCO=1.07 *2* (1997FoZX); band structure.
487.7 *4*	23.3 *5*	2583.7	31/2⁻	2096.0	27/2⁻	E2	0.0286	22.8 *5*	Iγ=14 (1986Hu02). Mult.: A_2=0.36 *2*, A_4=−0.10 *2* (1998We23). Other: A_2=+0.33 *4*, A_4=−0.08 *6* (1986Hu02). DCO=1.15 *3* (1997FoZX); band structure.
496.7 *8*	4.1 *1*	1523.2	(17/2⁺,19/2⁺)	1026.5	(13/2⁺,15/2⁺)	Q		4.0 *1*	Iγ=3 (1986Hu02). Mult.: A_2=+0.52 *10*, A_4=−0.21 *12* (1986Hu02), DCO=0.91 *9* (1997FoZX).
497.9 *8*	2.0 *1*	8886.8	67/2⁽⁺⁾	8388.8	65/2⁽⁺⁾	(M1)	0.0927	2.1 *1*	Mult.: DCO=0.62 *8*.
500.3 *10*	<0.5	3196.0	(33/2⁺)	2695.6	33/2⁺				
502.4 *8*	4.0 *1*	6921.9	(55/2⁻)	6419.4	(53/2⁻)	(M1)	0.0905	4.1 *1*	Mult.: DCO=0.54 *7* (1997FoZX).
507.0 *8*	2.0 *1*	3727.0	(37/2⁻)	3220.1	(33/2⁻)				
512.8 *10*	0.9 *1*	7699.5	(59/2⁻)	7186.7	(57/2⁻)	[M1][@]	0.0858	0.9 *1*	
512.9 *4*	12.4 *2*	4396.8	43/2⁻	3883.8	39/2⁻	E2	0.0253	12.1 *2*	Mult.: A_2=0.32 *2*, A_4=−0.14 *2* (1998We23). DCO=0.98 *3* (1997FoZX); band structure.
514.1[#c]		9923.1	(71/2⁺)	9409.1	(69/2⁺)				
517.6 *8*	1.7 *1*	7555.2	61/2⁽⁺⁾	7037.5	57/2⁽⁺⁾	[E2][@]	0.0248	1.7 *1*	
[x]519.4 *10*						Q			Iγ=0.6 (1986Hu02). Mult.: A_2=0.23 *2*, A_4=0.01 *2* (1998We23). Other: A_2=−0.3 *3* (1986Hu02).

γ(^{193}Hg) (continued)

E_γ [†]	I_γ [§]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [&]	α [b]	$I_{(\gamma+ce)}$ [‡]	Comments
520.1 *4*	13.5 *3*	6067.7	51/2$^{(+)}$	5547.6	47/2$^{(+)}$	E2	0.0245	13.1 *3*	Iγ=6.9 (1993Ro03). Mult.: DCO=0.93 *9*; ΔJ=2 from DCO (1993De42).
521.3 *10*	1.0 *2*	2617.3	(29/2$^-$)	2096.0	27/2$^-$	[M1] [@]	0.0822	1.0 *2*	
522.2 [#c]		9409.1	(69/2$^+$)	8886.8	67/2$^{(+)}$				
523.2 *4*	19.1 *4*	4674.1	45/2$^-$	4150.8	41/2$^-$	E2	0.0242	18.6 *4*	Iγ=4 (1986Hu02). Mult.: A_2=0.34 *1*, A_4=−0.11 *1* (1998We23). Other: A_2=+0.41 *8* (1986Hu02); band structure. DCO=0.93 *3* (1997FoZX).
^{x}524.0									From 1993De42. Tentative γ placed from 5832 level; however, placement not confirmed by 1993Ro03, 1995Fo13. Possibly the 524.5γ from 3727.0 level.
524.5 *8*	2.5 *3*	3727.0	(37/2$^-$)	3202.5	(33/2$^-$)	[E2] [@]	0.0240	2.4 *3*	
543.5 *10*	0.5 *1*	6103.9	(51/2$^-$)	5560.5	(47/2$^-$)	[E2] [@]	0.0221		
546.0 *6*	7.8 *1*	4958.5	45/2$^-$	4412.6	41/2$^-$	Q		7.6 *1*	Mult.: DCO=1.08 *10* (1997FoZX).
549.5 *10*	0.8 *1*	4119.7	39/2$^+$	3570.2	37/2$^+$	[M1]	0.0715	0.8 *1*	
550.3 *6*	5.9 *3*	4120.5	41/2$^+$	3570.2	37/2$^+$	E2	0.0214	5.7 *3*	Iγ=4 (1986Hu02). Mult.: A_2=+0.42 *7*, A_4=−0.16 *9* (1986Hu02), DCO=1.02 *7* (1997FoZX); band structure.
554.4 *8*	2.1 *5*	3196.0	(33/2$^+$)	2641.7	29/2$^+$	Q		2.0 *5*	1986Hu02 report a complex line, Iγ=2.0 estimated from coincidence spectra. Mult.: A_2=+0.28 *10*, A_4=0.00 *12* (1986Hu02), DCO=1.41 *20* (1997FoZX).
556.5 *8*	4.4 *5*	8394.8	(65/2$^-$)	7838.3	(61/2$^-$)	E2	0.0209	4.3 *5*	Mult.: DCO=2.16 *20* (gate ΔJ=1).
557.7 *8*	1.7 *5*	6305.2	(53/2$^-$)	5747.5	(49/2$^-$)	[E2] [@]	0.0208	1.6 *5*	
558.2 *8*	1.3 *4*	3754.2	(37/2$^+$)	3196.0	(33/2$^+$)	Q		1.3 *4*	Iγ=2.0 (1986Hu02). Mult.: DCO=0.97 *10* (1997FoZX).
561.4 *8*	3.4 *4*	4958.5	45/2$^-$	4396.8	43/2$^-$				
^{x}561.7									From 1993De42. γ placed from a level at 5818.6 keV; however, the level was not confirmed by 1993Ro03, 1995Fo13. Possibly the 561.9γ from 4412.5 level, or 561.8γ from 7838.3 level.
561.8 *6*	6.3 *4*	7838.3	(61/2$^-$)	7276.6	(57/2$^-$)	E2	0.0204	6.1 *4*	Mult.: DCO=1.10 *4*.
561.9 *8*	1.8 *3*	4412.6	41/2$^-$	3850.7	37/2$^-$	Q		1.7 *3*	Mult.: DCO=1.10 *4*.
563.0 [#c] *10*		10853.6	(75/2$^-$)	10290.4	(73/2$^-$)				
564.1 *8*	3.6 *1*	4683.8	43/2$^+$	4119.7	39/2$^+$	E2	0.0202	3.5 *1*	Mult.: DCO=0.82 *20*; band structure.
564.7 *10*	0.6 *1*	3260.3	33/2$^+$	2695.6	33/2$^+$				
573.0 *4*	35.0 *7*	2762.2	33/2$^-$	2189.1	29/2$^-$	E2	0.0195	33.9 *7*	Iγ=22 (1986Hu02). Mult.: A_2=0.29 *1*, A_4=−0.09 *1* (1998We23). Other: A_2=+0.26 *3*, A_4=−0.09 *4* (1986Hu02). DCO=0.99 *1* (1997FoZX); band structure.
577.6 *10*	1.0 *2*	6978.7	(57/2$^-$)	6401.0	(53/2$^-$)	E2	0.0192	1.0 *2*	Mult.: DCO=2.24 *50* (gate ΔJ=1).
581.9 *10*	1.0 *2*	7560.4	(61/2$^-$)	6978.7	(57/2$^-$)	[E2] [@]	0.0189	1.0 *2*	

$^{193}_{80}$Hg$_{113}$-47

γ(^{193}Hg) (continued)

E_γ[†]	I_γ[§]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[b]	$I_{(\gamma+ce)}$[‡]	Comments
585.2 8	2.7 1	3202.5	(33/2⁻)	2617.3	(29/2⁻)	[E2][@]	0.0186	2.6 1	
589.1 8	1.3 1	5547.6	47/2^(+)	4958.5	45/2⁻				
594.1 8	2.3 1	4792.0	41/2⁻	4198.0	(39/2⁻)	[E2][@]	0.0180	2.2 1	
600.2[c] 10	0.8 2	7440.0		6839.9	55/2^(+)				
602.9 8	2.2 1	3220.1	(33/2⁻)	2617.3	(29/2⁻)	[E2][@]	0.01739	2.1 1	
606.0 4	11.3 4	746.8	15/2⁺	140.76	13/2^(+)	(M1+E2)	0.036 20	11.1 2	1986Hu02 report a complex line, Iγ=9.0 estimated from coincidence spectra. Mult.: A_2=−0.34 3, A_4=−0.09 5 (1986Hu02), does not agree with γ(θ) in (α,xnγ); DCO=0.33 4 (1997FoZX).
ˣ606.1 10	0.6 1								γ is related to Structure (2) (1995Fo13).
610.5 6	6.5 5	1755.6	21/2⁻	1145.4	21/2⁺				DCO=0.95 7 (1997FoZX).
614.0 8	4.1 5	8750.9	(67/2⁻)	8137.0	(63/2⁻)	E2	0.01669	4.0 5	Mult.: DCO=0.96 30.
614.5 8	2.7 4	10290.4	(73/2⁻)	9675.9	(71/2⁻)	(M1)	0.0534	2.7 4	Mult.: DCO=0.99 20 (gate ΔJ=1).
617.8 4	38.3 21	2502.1	29/2⁺	1884.3	25/2⁺	E2	0.01647	37.0 20	Iγ=28 (1986Hu02). Mult.: A_2=0.30 2, A_4=−0.06 4 (1998We23). Other: A_2=+0.40 3, A_4=−0.16 4 (1986Hu02). DCO=0.99 2 (1997FoZX).
618.7 6	7.5 6	6419.4	(53/2⁻)	5800.6	(49/2⁻)	[E2][@]	0.01641	7.2 6	I(γ+ce) from 1995Fo13. 1997FoZX quote I(γ+ce)=6.7 7.
622.7 2	83.8 11	1145.4	21/2⁺	522.75	17/2⁺	E2	0.01618	80.8 10	Iγ=61 (1986Hu02). Mult.: A_2=0.33 1, A_4=−0.10 1 (1998We23). Other: A_2=+0.38 3, A_4=−0.11 4 (1986Hu02). DCO=1.07 1 (1997FoZX); band structure.
626.8 6	5.9 1	6305.2	(53/2⁻)	5678.4	(49/2⁻)	[E2][@]	0.01594	5.7 1	
632.6 6	5.7 5	6464.6	53/2^(+)	5832.1	49/2^(+)	E2	0.01562	5.5 5	Iγ=1.36 (1993Ro03). Mult.: DCO=1.15 20.
633.5 4	10.5 2	1380.3	19/2⁺	746.8	15/2⁺	E2	0.01557	10.1 2	Iγ=12 (1986Hu02). Mult.: A_2=+0.29 10, A_4=−0.01 14 (1986Hu02), DCO=1.10 2 (1997FoZX).
ˣ634.0									γ seen by 1993De42. Tentative placement from a level at 5307 keV; however, the level was not confirmed by 1993Ro03, 1995Fo13.
640.0 4	20.6 4	3223.6	35/2⁻	2583.7	31/2⁻	E2	0.01522	19.9 4	1986Hu02 report a complex line, Iγ=10.0 estimated from coincidence spectra. E_γ: 1998We23 report Eγ=639.6 keV. Mult.: A_2=0.38 2, A_4=0.00 2 (1998We23). Other: A_2=+0.37 10, A_4=−0.14 14 (1986Hu02). DCO=1.02 2 (1997FoZX); band structure.
651.2 6	5.8 8	5048.0	47/2⁻	4396.8	43/2⁻	Q		5.7 7	Iγ=2.4 (1986Hu02). Mult.: A_2=+0.67 15 (1986Hu02), DCO=0.97 6 (1997FoZX); band structure.
653.3 4	25.5 11	4150.8	41/2⁻	3497.5	37/2⁻	(E2)	0.01455	24.6 10	Iγ=10 (1986Hu02).

γ(^{193}Hg) (continued)

E_γ[†]	I_γ[§]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	α[b]	$I_{(\gamma+ce)}$[‡]	Comments
									Mult.: A_2=0.27 *1*, A_4=−0.06 *1* (1998We23). Other: A_2=+0.35 *5*, A_4=−0.09 *6* (1986Hu02). DCO=0.94 *1* (1997FoZX).
660.2 *4*	20.1 *4*	3883.8	39/2$^-$	3223.6	35/2$^-$	(E2)	0.01422	19.4 *4*	Iγ=7 (1986Hu02). Mult.: A_2=0.34 *2*, A_4=−0.10 *2* (1998We23). Other: A_2=+0.45 *5*, A_4=−0.10 *7* (1986Hu02). DCO=1.07 *3* (1997FoZX).
674.1 *8*	2.2 *1*	7920.0	(63/2$^-$)	7245.7	(59/2$^-$)	E2	0.01358	2.1 *1*	Mult.: DCO=2.50 *30* (gate ΔJ=1).
677.9 *8*	2.9 *1*	5361.7	47/2$^+$	4683.8	43/2$^+$	E2	0.01342	2.8 *1*	Mult.: DCO=0.84 *30*.
678.0 *10*	0.7 *1*	6017.1	(51/2$^-$)	5339.1	(47/2$^-$)	Q		0.7 *1*	DCO=2.3 *6* (gate ΔJ=1).
685.7 *8*	1.4 *3*	4412.6	41/2$^-$	3727.0	(37/2$^-$)				
704.3 *4*	12.9 *2*	3880.5	41/2$^+$	3176.2	37/2$^+$	E2	0.01236	12.4 *2*	Iγ= 5 (1986Hu02). Mult.: A_2=0.31 *5*, A_4=−0.20 *6* (1998We23). Other: A_2=+0.45 *9*, A_4=−0.14 *13* (1986Hu02). DCO=0.93 *2* (1997FoZX); band structure.
709.3 *10*	0.9 *2*	6726.4	(55/2$^-$)	6017.1	(51/2$^-$)	Q		0.9 *2*	Mult.: DCO=2.1 *7* (gate ΔJ=1).
716.5 *8*	1.5 *1*	5400.3		4683.8	43/2$^+$	D			Mult.: DCO=0.68 *10*.
716.7 *8*	2.0 *3*	6419.4	(53/2$^-$)	5702.7	(49/2$^-$)	[E2]	0.01191	1.9 *3*	
719.8 *6*	5.7 *5*	5678.4	(49/2$^-$)	4958.5	45/2$^-$	[E2][@]	0.01180	5.5 *5*	1993De42 places a 719.6γ from a 6538.2 level. Level not confirmed by 1993Ro03, 1995Fo13.
726.9 *6*	5.9 *1*	7924.8	63/2$^{(+)}$	7197.9	59/2$^{(+)}$	E2	0.01155	5.7 *1*	Iγ=2.57 (1993Ro03). DCO=0.92 *1*; ΔJ=2 from DCO (1993De42).
731.1 *8*	1.9 *1*	2617.3	(29/2$^-$)	1886.2	25/2$^-$	[E2][@]	0.01141	1.8 *1*	
735.2 *4*	35.4 *7*	3497.5	37/2$^-$	2762.2	33/2$^-$	E2	0.01128	34.0 *7*	1986Hu02 report a complex line, Iγ=15.0 estimated from coincidence spectra. Mult.: A_2=0.37 *1*, A_4=−0.10 *1* (1998We23). Other: A_2=+0.49 *11*, A_4=−0.17 *13* (1986Hu02). DCO=1.07 *2* (1997FoZX); band structure.
737.4 *6*	9.6 *4*	5411.5	49/2$^-$	4674.1	45/2$^-$	E2	0.01121	9.2 *4*	Mult.: DCO=0.99 *1*; band structure.
738.9 *4*	47.8 *11*	1884.3	25/2$^+$	1145.4	21/2$^+$	E2	0.01116	45.9 *10*	Iγ=41 (1986Hu02). Mult.: A_2=0.29 *2*, A_4=−0.11 *2* (1998We23). Other: A_2=+0.39 *6*, A_4=−0.10 *10* (1986Hu02). DCO=0.95 *1* (1997FoZX); band structure.
744.4 *8*	3.0 *5*	5702.7	(49/2$^-$)	4958.5	45/2$^-$	[E2][@]	0.01099	2.9 *5*	
745.5 *4*	27.7 *17*	1890.9	23/2$^-$	1145.4	21/2$^+$	(E1+M2)	0.0048 *8*	27.5 *6*	Iγ=14 (1986Hu02). Mult.: A_2=−0.07 *2*, A_4=−0.06 *3* (1998We23). Other: A_2=−0.19 *6*, A_4=−0.09 *10* (1986Hu02). DCO=0.75 *2* (1997FoZX).
757.5 *6*	8.0 *1*	2641.7	29/2$^+$	1884.3	25/2$^+$	E2	0.01059	7.7 *1*	1986Hu02 report a complex line, Iγ=5.0 estimated from coincidence spectra. Mult.: A_2(757.4γ+757.8γ)=+0.42 *20* (1986Hu02), DCO=1.19 *9* (1997FoZX); band structure.
758.2 *8*	3.2 *2*	3260.3	33/2$^+$	2502.1	29/2$^+$	(E2)	0.01057	3.0 *2*	1986Hu02 report a complex line, Iγ=3.0 estimated from coincidence spectra.

γ(^{193}Hg) (continued)

E_γ[†]	I_γ[§]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[b]	$I_{(\gamma+ce)}$[‡]	Comments
									Mult.: A_2(757.4γ+757.7γ)=+0.42 *10* (1986Hu02), DCO=1.01 *5* (1997FoZX).
764.6 *6*	5.6 *1*	6832.4	$55/2^{(+)}$	6067.7	$51/2^{(+)}$	Q		5.4 *1*	Iγ=2.69 (1993Ro03). Mult.: DCO=1.06 *7*.
765.0 *8*	1.8 *2*	6103.9	$(51/2^-)$	5339.1	$(47/2^-)$	[E2][@]	0.01037	1.7 *2*	
769.4 *8*	3.8 *2*	4889.9	$45/2^+$	4120.5	$41/2^+$	E2	0.01025	3.6 *2*	Mult.: DCO=1.11 *8* (1997FoZX); band structure.
770.7 *8*	2.1 *1*	8331.0	$(65/2^-)$	7560.4	$(61/2^-)$	E2	0.01021	2.0 *1*	Mult.: DCO=2.55 *60* (gate ΔJ=1).
772.2 *4*	16.1 *3*	6839.9	$55/2^{(+)}$	6067.7	$51/2^{(+)}$	E2	0.01017	15.4 *3*	Iγ=8.88 (1993Ro03). Mult.: DCO=1.02 *6*; ΔJ=2 from DCO (1993De42). 1998We23 report A_2=0.26 *3*, A_4=−0.06 *2* for an E2 transition of 772.0 keV at high excitation energies.
[x]772.3[a] *8*						(Q)			Iγ=2.7 (1986Hu02). Mult.: A_2=+0.50 *12* (1986Hu02).
[x]774.6[a] *8*						(Q)			From 1986Hu02; complex line, Iγ=1.4 estimated from coincidence spectra. Mult.: A_2=+0.43 *15* (1986Hu02).
777.6 *8*	5.1 *1*	7699.5	$(59/2^-)$	6921.9	$(55/2^-)$	E2	0.01003	4.9 *1*	Mult.: DCO=1.91 *20* (gate ΔJ=1).
784.8 *8*	2.6 *2*	4539.1	$(41/2^+)$	3754.2	$(37/2^+)$	Q		2.5 *2*	Mult.: DCO=1.02 *10* (1997FoZX).
789.0 *10*	1.0 *1*	5747.5	$(49/2^-)$	4958.5	$45/2^-$				
801.9 *8*	1.1 *1*	6163.6	$(51/2^+)$	5361.7	$47/2^+$	[E2]	0.00941	1.1 *1*	
806.0 *8*	1.1 *1*	6145.2	$(51/2^-)$	5339.1	$(47/2^-)$				
807.9 *6*	6.8 *1*	4688.4	$45/2^+$	3880.5	$41/2^+$	E2	0.00926	6.5 *1*	Iγ=4 (1986Hu02). Mult.: A_2=+0.31 *9*, A_4=−0.10 *11* (1986Hu02), DCO=0.91 *6* (1997FoZX); band structure.
808.2 *8*	2.4 *1*	5698.1	$49/2^+$	4889.9	$45/2^+$	E2	0.00926	2.3 *1*	Mult.: DCO=1.11 *10*; band structure.
818.2 *8*	3.8 *1*	6921.9	$(55/2^-)$	6103.9	$(51/2^-)$	Q		3.6 *1*	Mult.: DCO=1.11 *9*.
826.6 *8*	3.5 *1*	9221.5	$(69/2^-)$	8394.8	$(65/2^-)$	E2	0.00884	3.4 *1*	DCO=0.89 *8*.
833.6 *8*	4.0 *1*	8388.8	$65/2^{(+)}$	7555.2	$61/2^{(+)}$	E2	0.00869	3.8 *1*	Iγ=2.56 (1993Ro03). Mult.: DCO=2.14 *20* (gate ΔJ=1).
837.8 *8*	2.2 *1*	8757.9	$(67/2^-)$	7920.0	$(63/2^-)$				Mult.: D+Q from DCO=1.55 *20* (gate ΔJ=1). However, it is a $(67/2^-)$ to $(63/2^-)$ transition.
843.5 *8*	2.2 *1*	4964.0	43/2	4120.5	$41/2^+$	D			Mult.: DCO=0.55 *6*. a 844γ was seen by 1986Hu02, but not placed in level scheme.
848.9 *8*	3.3 *9*	7681.3		6832.4	$55/2^{(+)}$				
851.1 *8*	3.9 *8*	5899.1	$51/2^-$	5048.0	$47/2^-$				Iγ=1.0 (1986Hu02). Mult.: DCO=0.86 *8* (1997FoZX).
857.1 *6*	8.1 *5*	7276.6	$(57/2^-)$	6419.4	$(53/2^-)$	E2	0.00821	7.8 *5*	Mult.: DCO=0.96 *5*.
857.5 *4*	11.3 *9*	1380.3	$19/2^+$	522.75	$17/2^+$	(M1+E2)	0.0154 *72*	11.0 *8*	Iγ=18 (1986Hu02). Mult.: A_2=−0.66 *2*, A_4=0.13 *1* (1998We23). Other: A_2=−0.67 *5*, A_4=+0.02 *7* (1986Hu02).

(HI,xnγ) 1995Fo13,1993De42,1993Ro03 (continued)

γ(^{193}Hg) (continued)

E_γ[†]	I_γ[§]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[b]	$I_{(\gamma+ce)}$[‡]	Comments
869.0 *10*	1.0 *3*	6428.5	(53/2$^+$)	5559.5	49/2$^+$				
871.1 *8*	3.8 *8*	5559.5	49/2$^+$	4688.4	45/2$^+$	E2	0.00794	3.6 *8*	1986Hu02 report a 868.8γ with Iγ=1.0, part of a complex line, from this level. Iγ=1.0 (1986Hu02). Mult.: A_2=+0.21 *13*, A_4=−0.14 *18* (1986Hu02), DCO=1.04 *8* (1997FoZX); band structure.
873.4 *6*	6.6 *1*	5547.6	47/2$^{(+)}$	4674.1	45/2$^-$	(E1)	0.00295	6.3 *1*	1986Hu02 report a 873.1γ with Iγ=1.4, but, based on very weak arguments. suggest an (E2) multipolarity. Mult.: DCO=0.53 *1*; $\Delta\pi$=yes from level scheme (1995Fo13).
881.5 *8*	3.9 *1*	7186.7	(57/2$^-$)	6305.2	(53/2$^-$)	[E2][@]	0.00776	3.7 *1*	
[x]881.7 *8*	1.9 *5*								γ is related to Structure (2) (1995Fo13).
885.7 *8*	3.8 *1*	1026.5	(13/2$^+$,15/2$^+$)	140.76	13/2$^{(+)}$	Q		3.6 *1*	1986Hu02 report a complex line, Iγ=4.0 estimated from coincidence spectra. Mult.: DCO=0.93 *20* (1997FoZX).
[x]898.7 *10*	0.8 *1*								
[x]902.4[a] *10*									From 1986Hu02; complex line, Iγ=0.7 estimated from coincidence spectra.
903.5 *6*	6.8 *1*	5442.6	45/2$^{(+)}$	4539.1	(41/2$^+$)	Q		6.5 *1*	Mult.: DCO=1.08 *6* (1997FoZX).
908.2 *8*	2.1 *3*	4792.0	41/2$^-$	3883.8	39/2$^-$	D		2.0 *3*	Mult.: DCO=0.61 *9*.
915.1 *6*	7.3 *1*	4412.6	41/2$^-$	3497.5	37/2$^-$	E2	0.00720	7.0 *1*	1986Hu02 report a complex line, Iγ=1.7 estimated from coincidence spectra. Mult.: DCO=1.05 *20* (1997FoZX).
924.9 *8*	2.1 *1*	9675.9	(71/2$^-$)	8750.9	(67/2$^-$)	E2	0.00704	2.0 *1*	Mult.: DCO=2.03 *20* (gate ΔJ=1).
937.4 *8*	1.2 *1*	6496.9	(53/2$^+$)	5559.5	49/2$^+$				
[x]938.0 *8*	1.3 *2*								γ is related to Structure (2) (1995Fo13).
[x]942.7[a] *8*									Iγ=2.3 (1986Hu02). Transition feeds 37/2$^+$ level, but exact placement not determined.
943.5 *8*	3.8 *1*	4119.7	39/2$^+$	3176.2	37/2$^+$	(M1)	0.0177	3.7 *1*	Mult.: DCO=0.40 *4*.
962.0 *8*	3.8 *1*	8886.8	67/2$^{(+)}$	7924.8	63/2$^{(+)}$	E2	0.00651	3.6 *1*	Iγ=1.88 (1993Ro03). Mult.: DCO=1.04 *20*; ΔJ=2 from DCO (1993De42).
965.0 *8*	1.3 *5*	3727.0	(37/2$^-$)	2762.2	33/2$^-$	[E2][@]	0.00647	1.2 *5*	
974.4 *8*	1.2 *3*	4198.0	(39/2$^-$)	3223.6	35/2$^-$				Iγ=1.5 (1986Hu02).
983.4 *8*	2.5 *1*	6394.9	53/2$^-$	5411.5	49/2$^-$	E2	0.00624	2.4 *1*	Mult.: DCO=0.91 *8* (1995Fo13); band structure.
989.0 *8*	2.4 *1*	1735.8	(19/2$^+$)	746.8	15/2$^+$	Q		2.3 *1*	Mult.: DCO=1.01 *10*. 988.4γ seen in coin with 606.4γ by 1986Hu02.
993.6 *8*	2.5 *3*	4720.6	(39/2$^-$)	3727.0	(37/2$^-$)				
1000.4 *4*	10.9 *2*	1523.2	(17/2$^+$,19/2$^+$)	522.75	17/2$^+$	D+Q		10.5 *2*	Iγ=9 (1986Hu02). Mult.: A_2=−0.09 *4*, A_4=+0.16 *6* (1986Hu02), DCO=1.03 *4* (1997FoZX).

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γ(^{193}Hg) (continued)

E_γ [†]	I_γ [§]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [&]	α [b]	$I_{(\gamma+ce)}$ [‡]	Comments
1013.4 *8*	1.6 *5*	3202.5	(33/2⁻)	2189.1	29/2⁻				
1014.3 *8*	1.7 *1*	6913.4	(55/2⁻)	5899.1	51/2⁻				Mult.: DCO=0.73 *9*.
1020.3 *8*	3.0 *2*	9409.1	(69/2⁺)	8388.8	65/2$^{(+)}$				
[x]1021.6 *8*	1.7 *5*								γ is related to Structure (1) (1995Fo13).
1022.7 *10*	0.5 *2*	6921.8		5899.1	51/2⁻				
[x]1026.0 *10*	<0.5								γ is related to Structure (2) (1995Fo13).
1036.3 *10*	0.8 *1*	9923.1	(71/2⁺)	8886.8	67/2$^{(+)}$				
1046.0 *8*	1.9 *1*	5442.6	45/2$^{(+)}$	4396.8	43/2⁻	D		1.8 *1*	Mult.: DCO=0.46 *6* (1997FoZX); Δπ=yes from level scheme.
1053.3 *8*	2.0 *1*	8978.1		7924.8	63/2$^{(+)}$				
1058.6 *10*	0.7 *1*	3754.2	(37/2⁺)	2695.6	33/2⁺				
1064.8 *10*	0.9 *3*	4792.0	41/2⁻	3727.0	(37/2⁻)				
1068.9 *8*	1.7 *3*	10290.4	(73/2⁻)	9221.5	(69/2⁻)	E2	0.00530	1.6 *3*	Mult.: DCO=2.01 *50* (gate ΔJ=1).
1081.5 *10*	1.0 *1*	7476.4	(57/2⁻)	6394.9	53/2⁻				Mult.: DCO=0.82 *20*.
1088.5 *8*	1.8 *1*	3850.7	37/2⁻	2762.2	33/2⁻	Q		1.7 *1*	Mult.: DCO=1.17 *20*.
1097.4 *10*	0.7 *1*	7492.3		6394.9	53/2⁻				Mult.: DCO=1.30 *20* (1997FoZX).
1115.0[c] *10*	1.0 *1*	3811?		2695.6	33/2⁺				
1139.0 *10*	1.0 *1*	7038.1		5899.1	51/2⁻				
[x]1145.0 *8*	1.5 *5*								γ is related to Structure (1) (1995Fo13).
[x]1149.0 *8*	2.4 *5*								γ is related to Structure (1) (1995Fo13).
1152.6 *10*	1.0 *1*	5033.1		3880.5	41/2⁺				Mult.: DCO=0.47 *9* (1997FoZX).
1169.0 *8*	1.5 *1*	5319.9	(43/2)	4150.8	41/2⁻				Mult.: DCO=0.48 *10* (1997FoZX).
1177.7 *8*	2.0 *1*	10853.6	(75/2⁻)	9675.9	(71/2⁻)	Q			Mult.: DCO=2.06 *30* (gate ΔJ=1).
1206.6 *8*	2.3 *1*	2351.9	25/2⁺	1145.4	21/2⁺				
[x]1232.2 *8*	2.1 *1*								
1240.5 *8*	2.3 *1*	4416.7		3176.2	37/2⁺				
1286.0 *10*	0.5 *1*	4462.2		3176.2	37/2⁺				
1294.4 *10*	0.7 *3*	4792.0	41/2⁻	3497.5	37/2⁻				
1362.8 *8*	1.4 *1*	4539.1	(41/2⁺)	3176.2	37/2⁺	Q			Mult.: DCO=1.25 *20* (1997FoZX).
1511.5 *8*	1.2 *1*	5391.9		3880.5	41/2⁺	(D+Q)			Mult.: DCO=1.35 *30* (1997FoZX).
1562.0 *10*	0.4 *1*	5442.6	45/2$^{(+)}$	3880.5	41/2⁺				

[†] From 1995Fo13, unless indicated otherwise. γ-ray energy uncertainties have been assigned by the evaluator, based on the estimates according to their intensities, as suggested in 1995Fo13.

[‡] Total intensity from 1995Fo13, 1997FoZX, for transitions for which they could establish a definite multipolarity (see Note at beginning of γ-ray table). These authors state that they have corrected the measured Iγ for internal conversion, if the multipolarity of the γ is confirmed. The distinction, whether the intensity given in those references is Iγ or I(γ+ce) is based on this comment. All intensities are relative to I(382.0γ)=100.

[§] The Iγ values are either from 1995Fo13, when they could not confirm the transition multipolarity, or has been calculated by the evaluator from the I(γ+ce) quoted in that reference, and the corresponding conversion coefficient, for those transitions with confirmed multipolarities (see also Note at beginning of the γ-ray table). All γ intensities are relative to Iγ=100 for the 382.0γ.

[&] Deduced from γ-ray angular distributions (1986Hu02, 1998We23) and DCO ratios (1995Fo13,1997FoZX). The DCO ratios are measured as

(HI,xnγ) 1995Fo13,1993De42,1993Ro03 (continued)

γ(^{193}Hg) (continued)

(Iγ(158°)I(gate,90°))/Iγ(90°)I(gate,158°). With a gate on a ΔJ=2 Q transition a DCO≈1.0 indicates a ΔJ=2, Q γ, while a DCO≈0.5 indicates a ΔJ=1, D γ. With a gate on a ΔJ=1 D transition, a value of DCO≈2.0 indicates a ΔJ=2, Q γ, and, finally, a value of DCO≈1.0 indicates a ΔJ=1, D γ. Unless otherwise noted, all DCO ratios were measured gating on a ΔJ=2 γ. For intraband and interband transitions, evaluator assumed sign of the multipolarity based on the decay scheme.

[@] Multipolarity assumed by evaluator on the only basis of the ΔJπ of the connected levels in the proposed level scheme.

[#] Uncertain transition due to low statistics (1995Fo13).

[a] γ-ray seen by 1986Hu02; uncertainty assigned by the evaluator depending on intensity.

[b] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[c] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

Adopted Levels, Gammas

Q(β^-)=−5280 *50*; S(n)=9680 *30*; S(p)=2755 *17*; Q(α)=3680 *21* 2017Wa10

^{193}Tl Levels

The level scheme, the bands, and the band labeling are those proposed by 1992Re08. The level scheme has been constructed with the help of coincidence relationships, energy sums and intensity ratios, and γ directional correlation (DCO) ratios. For a discussion of the structure of levels and bands, see 1992Re08.

Cross Reference (XREF) Flags

A	^{193}Tl IT decay (2.11 min)	D	(HI,xnγ)
B	^{193}Pb ε decay (5.8 min)	E	(HI,xnγ):SD
C	^{197}Bi α decay (5.15 min)		

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0	1/2$^{(+)}$	21.6 min *8*	ABCD	%ε+%β^+=100 μ=+1.591 *2* Limit for possible α decay: <2×10^{-4}% (1963Ka17). 1961Fo06 assign a 5800-keV α group to either ^{193}Tl or ^{194}Tl. μ: from collinear fast atom beam laser spectroscopy (1987Bo44,2014StZZ). J$^\pi$: J from atomic beam (1976Ek03); parity from shell model, μ. (3s1/2 level is the only J=1/2 level available for Z=81). $T_{1/2}$: weighted average of 22.6 min *10* (1961An03) and 21.0 min *8* (1974Va23). Other values: 30 min *3* (1960Ch05), 25 min *3* (1963Di10). Isotope shift: Δ<r^2> =−0.465 *55* fm^2, relative to ^{205}Tl (1989MeZZ). RMS charge radius: 5.4302 *58* fm (2004An14).
365.2	3/2$^{(+)}$		AB D	J$^\pi$: M1+E2 γ to 1/2$^+$.
365.2+x[#]	(9/2$^-$)	2.11 min *15*	AB D	%ε+%β^+≥25; %IT≤75 μ=+3.948 *4*; Q=−2.20 *2* μ: From 1987Bo44,2014StZZ: collinear fast atom beam laser spectroscopy. Other value: +3.82 *3* (2014StZZ,2012Ba32). Q: From 1987Bo44,2014StZZ: collinear fast atom beam laser spectroscopy. E(level): x<13 from IT decay. J$^\pi$: Long half-life indicates high-spin state. From shell model and measured μ the g9/2 level is the only available level for Z=81 (one proton-hole nucleus). μ also agrees with near-prolate nucleus described by 9/2[505] with β(2)=0.15, β(4)=−0.02 and γ=−0.55° (1992Re08). Systematics of ^{191}Tl, ^{195}Tl, ^{197}Tl, ^{199}Tl. $T_{1/2}$: from 1963Di10. %IT: deduced from relative I(γ+ce) values for transitions in ^{193}Hg and ^{193}Tl (1976GoZP). Isotope shift: Δ<r^2> =−0.395 *46* fm^2, relative to ^{205}Tl (1989MeZZ).
757.51+x[#] *24*	(11/2$^-$)		B D	J$^\pi$: M1+E2 γ to 9/2$^-$ level; band structure.
1081.10+x[#] *24*	(13/2$^-$)		B D	J$^\pi$: M1+E2 γ to 11/2$^-$ level, E2 γ to 9/2$^-$ level; band structure.
1163.7+x			B	
1423.7+x			B	
1493.4+x *3*	(13/2$^-$)		B D	J$^\pi$: Q γ to (9/2$^-$).
1512.1+x[#] *3*	(15/2$^-$)		B D	J$^\pi$: M1 γ to 13/2$^-$ level, E2 γ to 11/2$^-$ level; band structure.
1833.2+x[#] *3*	(17/2$^-$)		D	J$^\pi$: E2 γ to 13/2$^-$ level, D γ to 15/2$^-$ level; band structure.
1871.0+x			B	
1899.6+x *4*	(15/2$^-$)		B D	J$^\pi$: M1 γ to (13/2)$^+$ level.
1928.4+x *4*	(17/2$^-$)		D	J$^\pi$: D γ to 15/2$^-$ level, (Q) γ to 13/2$^-$ level.
1960.0+x *5*	(15/2$^-$)		B D	J$^\pi$: M1 γ to (13/2$^-$) level.
2008.1+x[a] *5*	(17/2$^+$)	0.6 ns	D	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Tl Levels (continued)

E(level)[†]	Jπ[‡]	XREF
2105.4+x[a] 6	(19/2+)	D
2231.5+x[a] 7	(21/2+)	D
2303.8+x[#] 5	(19/2−)	D
2393.4+x[a] 8	(23/2+)	D
2393.7+x 5	(19/2−)	D
2452.0+x 8	(23/2)	D
2506.3+x[@] 5	(21/2−)	D
2576.2+x[#] 6	(21/2−)	D
2591.3+x[@] 6	(23/2−)	D
2672.5+x 8	(25/2)	D
2687.3+x[@] 7	(25/2−)	D
2710.2+x[a] 6	(25/2+)	D
2798.3+x 9	(27/2)	D
2931.5+x 9	(27/2)	D
2956.3+x[@] 8	(27/2−)	D
3026.9+x[a] 7	(27/2+)	D
3030.3+x 10	(29/2)	D
3087.5+x 11	(29/2)	D
3164.3+x[@] 8	(29/2−)	D
3407.0+x[a] 7	(29/2+)	D
3428.5+x 12	(31/2)	D
3457.3+x[b] 7	(27/2−)	D
3556.8+x[@] 9	(31/2−)	D
3616.3+x[b] 8	(29/2−)	D
3630.5+x 12	(33/2)	D
3747.1+x[a] 8	(31/2+)	D
3767.2+x[&] 9	(29/2−)	D
3767.3+x[b] 9	(31/2−)	D
3849.8+x[@] 9	(33/2−)	D
3966.2+x[&] 10	(31/2−)	D
3988.9+x[b] 10	(33/2−)	D
4008.0+x[a] 8	(33/2+)	D
4114.6+x 8	(33/2)	D
4157.5+x[a] 10	(35/2+)	D
4227.4+x[b] 10	(35/2−)	D
4262.5+x 13	(37/2)	D
4306.8+x[@] 9	(35/2−)	D
4307.6+x 10	(35/2)	D
4319.3+x[a] 11	(37/2+)	D
4335.2+x[&] 11	(33/2−)	D
4525.7+x[a] 12	(39/2+)	D
4532.6+x 11	(37/2)	D
4553.4+x[b] 11	(37/2−)	D
4587.2+x[&] 11	(35/2−)	D
4646.4+x[@] 9	(37/2−)	D
4804.9+x[a] 12	(41/2+)	D
4890.4+x[b] 11	(39/2−)	D

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Adopted Levels, Gammas (continued)

^{193}Tl Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
4956.2+x[&] *12*	(37/2−)	D	
5039.5+x *14*	(41/2)	D	
5124.4+x[@] *10*	39/2−	D	
5125.0+x[a] *12*	43/2+	D	
5264.2+x[b]	41/2−	D	
5312.2+x[&] *13*	39/2−	D	
5469.8+x[@] *10*	41/2−	D	
5490.6+x[a] *12*	45/2+	D	
5853.8+x[@] *11*	43/2−	D	
5888.6+x[a] *13*	47/2+	D	
6271.2+x[@] *12*	45/2−	D	
v[c]	(17/2+)	E	E(level): 3134 keV *4* depopulating from this state. Proposed feeding by 1998Bo20 does not fit to members of normal band of (HI,xnγ) 2016NdZZ. Jπ: from 1998Bo20. Also from least-squares fits to Eγ's using empirical expansions relating second moment of inertia and angular frequency.
98+v[d]	(19/2+)	E	E(level): 3113 keV *5* depopulating from this state. Proposed feeding by 1998Bo20 does not fit to members of normal band of (HI,xnγ) 2016NdZZ. Jπ: calculated J=19/2 (1992Wu01,1993Hu06,1994Zh40).
206+v[c]	(21/2+)	E	E(level): 3046 keV *6* depopulating from this state. Proposed feeding by 1998Bo20 does not fit to members of normal band of (HI,xnγ) 2016NdZZ. Jπ: calculated J=21/2 (1992Wu01,1993Hu06,1994Zh40).
325+v[d] *3*	(23/2+)	E	
454+v[c] *3*	(25/2+)	E	
593+v[d] *3*	(27/2+)	E	
741+v[c] *3*	(29/2+)	E	
901+v[d] *3*	(31/2+)	E	
1069+v[c] *3*	(33/2+)	E	
1249+v[d] *3*	(35/2+)	E	
1435+v[c] *3*	(37/2+)	E	
1636+v[d] *3*	(39/2+)	E	
1840+v[c] *3*	(41/2+)	E	
2062+v[d] *3*	(43/2+)	E	
2283+v[c] *3*	(45/2+)	E	
2525+v[d] *3*	(47/2+)	E	
2763+v[c] *3*	(49/2+)	E	
3027+v[d] *3*	(51/2+)	E	
3279+v[c] *3*	(53/2+)	E	
3564+v[d] *3*	(55/2+)	E	
3830+v[c] *3*	(57/2+)	E	
4137+v[d] *3*	(59/2+)	E	
4417+v[c] *3*	(61/2+)	E	
4746+v[d] *3*	(63/2+)	E	
5037+v[c] *3*	(65/2+)	E	
5390+v[d] *3*	(67/2+)	E	
5691+v[c] *3*	(69/2+)	E	
6069+v[d] *3*	(71/2+)	E	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Tl Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
6377+v[c] *3*	(73/2$^+$)	E	
6782+v[d] *3*	(75/2$^+$)	E	
7096+v[c] *3*	(77/2$^+$)	E	
7529+v[d] *3*	(79/2$^+$)	E	
7847+v[c] *3*	(81/2$^+$)	E	
8311+v[d] *3*	(83/2$^+$)	E	
8630+v[c] *4*	(85/2$^+$)	E	
y[e]	J	E	Jπ: ≈(15/2).
187.9+y[e] *3*	J+2	E	
418.6+y[e] *5*	J+4	E	
691.4+y[e] *6*	J+6	E	
1005.7+y[e] *6*	J+8	E	
1360.7+y[e] *7*	J+10	E	
1755.8+y[e] *8*	J+12	E	
2190.3+y[e] *8*	J+14	E	
2663.4+y[e] *9*	J+16	E	
3174.0+y[e] *9*	J+18	E	
3721.5+y[e] *10*	J+20	E	
4304.9+y[e] *10*	J+22	E	
4923.3+y[e] *11*	J+24	E	
5576.4+y[e] *11*	J+26	E	
6263.1+y[e] *12*	J+28	E	
6977.1+y[e] *14*	J+30	E	
7712.1+y[e] *17*	J+32	E	
z[f]	J1	E	Jπ: ≈(23/2).
250.8+z[f] *3*	J1+2	E	
542.8+z[f] *5*	J1+4	E	
875.5+z[f] *6*	J1+6	E	
1248.2+z[f] *6*	J1+8	E	
1660.1+z[f] *7*	J1+10	E	
2110.6+z[f] *8*	J1+12	E	
2598.7+z[f] *8*	J1+14	E	
3123.9+z[f] *9*	J1+16	E	
3685.6+z[f] *9*	J1+18	E	
4282.5+z[f] *10*	J1+20	E	
4914.3+z[f] *10*	J1+22	E	
5580.7+z[f] *11*	J1+24	E	
6285.4+z[f] *13*	J1+26	E	
7033.4+z[f] *16*	J1+28	E	
u[g]	J2	E	Jπ: ≈(21/2).
271.5+u[g] *5*	J2+2	E	
584.8+u[g] *7*	J2+4	E	
938.9+u[g] *7*	J2+6	E	
1332.2+u[g] *9*	J2+8	E	
1764.5+u[g] *9*	J2+10	E	

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Adopted Levels, Gammas (continued)

^{193}Tl Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
2234.4+u[g] *10*	J2+12	E	3864.8+u[g] *11*	J2+18	E	5813.0+u[g] *13*	J2+24	E
2741.7+u[g] *10*	J2+14	E	4479.3+u[g] *12*	J2+20	E	6531.8+u[g] *15*	J2+26	E
3285.4+u[g] *10*	J2+16	E	5128.8+u[g] *13*	J2+22	E			

† From least squares fit to Eγ. For the levels built on the 365.2+x level, the uncertainties given for E(level) are relative uncertainties within that part of the level scheme; they do not include the uncertainty in Eγ=365.2 (not known) nor the uncertainty in the unknown x. Similarly, the uncertainties on the E(level) in the SD-bands are the relative uncertainties within the band.

‡ From (HI,xnγ) based on combined analysis of γ-ray multipolarities, coincidence data, rotational structure, and systematics of odd-mass Tl nuclei in (HI,xnγ), except where noted.

Band(A): Band 1.

@ Band(B): Band 2 9/2(505).

& Band(C): Band 3.

a Band(D): Band 4.

b Band(E): Band 5.

c Band(F): SD-1 band α=+1/2 (1990Fe07,1996Bo02,1998Bo20,1999Kr19) Percent population is ≈0.5 of total yield for ^{193}Tl (1990Fe07). Q(intrinsic)=18.3 *10* (1999Kr19). From competing M1 (interband) and E2 (intraband) transitions, g_K=1.46 *17* (1996Bo02) and g_s^{eff}/g_s^{free}=0.7 *2* (1996Bo02).

d Band(f): SD-2 band α=−1/2 (1990Fe07,1996Bo02,1998Bo20,1999Kr19) percent population is ≈0.5 of total yield for ^{193}Tl (1990Fe07). Q(intrinsic)=17.4 *10* (1999Kr19). The two SD bands are interpreted as signature partners influenced by i13/2 proton intruder orbital. From competing M1 (interband) and E2 (intraband) transitions, g_K=1.46 *17* (1996Bo02) and g_s^{eff}/g_s^{free}=0.7 *2* (1996Bo02).

e Band(G): SD-3 band (1998Bo32) Population intensity=60% of SD-2 band. Interaction observed between SD-3 and SD-4 bands, and the identical energies (within 2 keV) of transitions in SD-3 and SD-5 bands, indicate involvement of 1/2[411], α=±1/2 and 1/2[651], α=−1/2 proton orbitals. At high frequencies SD-3 is interpreted to be due to 1/2[651], α=−1/2, while at low frequencies, it is expected to be due to 1/2[411] α=−1/2.

f Band(H): SD-4 band (1998Bo32) Population intensity=33% of SD-2 band. Interaction is observed between SD-3 and SD-4 bands. At high frequencies SD-4 is interpreted to be due to 1/2[411], α=−1/2, while at low frequencies it is interpreted as 1/2[651], α=−1/2.

g Band(I): SD-5 band (1998Bo32) Population intensity=16% of SD-2 band. Identical energies (within 2 keV) of transitions in SD-3 and SD-5 bands indicate that these bands may be signature partners. SD-5 band is interpreted as 1/2[411], α=+1/2.

$\gamma(^{193}$Tl)

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.§	δ§	α[d]	Comments
365.2	3/2$^{(+)}$	365.2	100	0.0	1/2$^{(+)}$	M1+E2	1.7 *+5−4*	0.106 *20*	E_γ: unweighted average of measurements in ^{193}Tl IT decay (365.0 keV, 1976Ha25) and (HI,xnγ) (365.3 keV, 1974Ne16). Mult.,δ: from ^{193}Tl IT decay (2.11 min).
365.2+x	(9/2$^-$)	(x)		365.2	3/2$^{(+)}$	[E3]			E_γ: E<13 keV, see ^{193}Tl IT decay (2.11 min). B(E3)(W.u.) varies from 0.005 for Eγ=13 to 0.14 for Eγ=2.2.
757.51+x	(11/2$^-$)	392.5	100	365.2+x	(9/2$^-$)	M1+E2	−0.59 *14*	0.160 *13*	δ: Other values: $-0.14<\delta<-0.03$ (1999Fu05), from e$^-$-γ and $\gamma\gamma$ angular correlations.
1081.10+x	(13/2$^-$)	323.9	89.7 *2*	757.51+x	(11/2$^-$)	M1+E2	0.6 *+4−5*		I_γ: Other: 37.3 (^{193}Pb ε decay (5.8 min)).
		716.4	100.0 *2*	365.2+x	(9/2$^-$)	E2		0.0126	
1163.7+x		406.5	100	757.51+x	(11/2$^-$)				E_γ: 406.6γ placed from 1900.2+x level in (HI,xnγ) data.
1423.7+x		666.2[@]	100	757.51+x	(11/2$^-$)				
1493.4+x	(13/2$^-$)	412.0	11.75 *11*	1081.10+x	(13/2$^-$)	D+Q			
		735.9	100.00 *11*	757.51+x	(11/2$^-$)	D			
		1128.4	3.06 *4*	365.2+x	(9/2$^-$)	Q			
1512.1+x	(15/2$^-$)	431.2	73.49 *5*	1081.10+x	(13/2$^-$)	M1			I_γ: Other: 30.8 (^{193}Pb ε decay (5.8 min)).
		755.1	100.00 *21*	757.51+x	(11/2$^-$)	E2		0.0113	
1833.2+x	(17/2$^-$)	321.0	31.31 *2*	1512.1+x	(15/2$^-$)	D			
		752.2	100.00 *17*	1081.10+x	(13/2$^-$)	E2			
1871.0+x		1113.5[@]	100	757.51+x	(11/2$^-$)				
1899.6+x	(15/2$^-$)	406.2	100.0 *5*	1493.4+x	(13/2$^-$)	M1		0.180	
		818.6	6.09 *1*	1081.10+x	(13/2$^-$)	D			
1928.4+x	(17/2$^-$)	416.9	<34.59	1512.1+x	(15/2$^-$)	D			
		848.1	100.0 *2*	1081.10+x	(13/2$^-$)	Q			
1960.0+x	(15/2$^-$)	466.9	100.00 *8*	1493.4+x	(13/2$^-$)	M1		0.125	
		878.9	9.92 *2*	1081.10+x	(13/2$^-$)	D			
2008.1+x	(17/2$^+$)	47.5	100.00 *25*	1960.0+x	(15/2$^-$)	D			
		107.8	32.59 *3*	1899.6+x	(15/2$^-$)	D			
		495.2	30.32 *5*	1512.1+x	(15/2$^-$)	E1			
2105.4+x	(19/2$^+$)	97.0	100	2008.1+x	(17/2$^+$)	D			
2231.5+x	(21/2$^+$)	125.9	100	2105.4+x	(19/2$^+$)	D			
2303.8+x	(19/2$^-$)	470.0	62.05 *7*	1833.2+x	(17/2$^-$)	D			
		791.0	100.00 *7*	1512.1+x	(15/2$^-$)	(E2)			
2393.4+x	(23/2$^+$)	161.8	100	2231.5+x	(21/2$^+$)				
2393.7+x	(19/2$^-$)	464.1	100.0 *20*	1928.4+x	(17/2$^-$)	D			
		881.0	14.43 *2*	1512.1+x	(15/2$^-$)	Q			
2452.0+x	(23/2)	220.5	100	2231.5+x	(21/2$^+$)	D			
2506.3+x	(21/2$^-$)	112.5	2.40 *1*	2393.7+x	(19/2$^-$)				
		202.5	10.36 *2*	2303.8+x	(19/2$^-$)	D			
		672.5	100.0 *1*	1833.2+x	(17/2$^-$)	E2			

Adopted Levels, Gammas (continued)

$\gamma(^{193}Tl)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[§]
2576.2+x	(21/2⁻)	272.4	24.38 *4*	2303.8+x	(19/2⁻)	D
		742.4	100.0 *1*	1833.2+x	(17/2⁻)	Q
2591.3+x	(23/2⁻)	85.0		2506.3+x	(21/2⁻)	
		287.5		2303.8+x	(19/2⁻)	(Q)
2672.5+x	(25/2)	220.5[b]	100.0 *23*	2452.0+x	(23/2)	D
		441.0	33.59 *4*	2231.5+x	(21/2⁺)	(Q)
2687.3+x	(25/2⁻)	96.0	100	2591.3+x	(23/2⁻)	D
2710.2+x	(25/2⁺)	316.7	100.00 *9*	2393.4+x	(23/2⁺)	D
		478.5	32.40 *8*	2231.5+x	(21/2⁺)	Q
2798.3+x	(27/2)	111.0	100	2687.3+x	(25/2⁻)	D
2931.5+x	(27/2)	259.0[b]	100	2672.5+x	(25/2)	D
2956.3+x	(27/2⁻)	269.0	100	2687.3+x	(25/2⁻)	M1
3026.9+x	(27/2⁺)	316.7	35.09 *4*	2710.2+x	(25/2⁺)	D
		633.4	100.00 *11*	2393.4+x	(23/2⁺)	E2
3030.3+x	(29/2)	232.0[a]	100	2798.3+x	(27/2)	D
3087.5+x	(29/2)	156.0[b]	100	2931.5+x	(27/2)	D
3164.3+x	(29/2⁻)	208.0	100.0 *2*	2956.3+x	(27/2⁻)	D
		477.0	49.28 *7*	2687.3+x	(25/2⁻)	Q
3407.0+x	(29/2⁺)	380.1	100.00 *12*	3026.9+x	(27/2⁺)	M1
		696.8	88.38 *6*	2710.2+x	(25/2⁺)	(E2)
3428.5+x	(31/2)	341.0[b]	100	3087.5+x	(29/2)	D
3457.3+x	(27/2⁻)	770.0	100.00 *21*	2687.3+x	(25/2⁻)	M1
		866.0	62.33 *16*	2591.3+x	(23/2⁻)	(E2)
3556.8+x	(31/2⁻)	392.5	100.00 *12*	3164.3+x	(29/2⁻)	M1
		600.5	21.56 *8*	2956.3+x	(27/2⁻)	
3616.3+x	(29/2⁻)	159.0	71.15 *14*	3457.3+x	(27/2⁻)	D
		929.0	100.00 *23*	2687.3+x	(25/2⁻)	Q
3630.5+x	(33/2)	543.0[a]	100	3087.5+x	(29/2)	Q
3747.1+x	(31/2⁺)	340.1	70.0 *6*	3407.0+x	(29/2⁺)	M1
		720.2	100.00 *8*	3026.9+x	(27/2⁺)	E2
3767.2+x	(29/2⁻)	210.4	65.8 *11*	3556.8+x	(31/2⁻)	D
		810.9	100.00 *22*	2956.3+x	(27/2⁻)	M1
3767.3+x	(31/2⁻)	151.0	100	3616.3+x	(29/2⁻)	D
3849.8+x	(33/2⁻)	293.0	100.00 *13*	3556.8+x	(31/2⁻)	D
		685.5	85.06 *18*	3164.3+x	(29/2⁻)	E2
3966.2+x	(31/2⁻)	199.0	100	3767.2+x	(29/2⁻)	(M1)
3988.9+x	(33/2⁻)	221.6	100	3767.3+x	(31/2⁻)	M1
4008.0+x	(33/2⁺)	260.9	100.0 *13*	3747.1+x	(31/2⁺)	M1
		601.0	66.81 *15*	3407.0+x	(29/2⁺)	Q
4114.6+x	(33/2)	367.5	44.34 *10*	3747.1+x	(31/2⁺)	D
		707.7	100.00 *22*	3407.0+x	(29/2⁺)	Q
4157.5+x	(35/2⁺)	149.5	100	4008.0+x	(33/2⁺)	D
4227.4+x	(35/2⁻)	238.5	100.00 *12*	3988.9+x	(33/2⁻)	M1
		460.1	71.31 *20*	3767.3+x	(31/2⁻)	Q
4262.5+x	(37/2)	632.0	100	3630.5+x	(33/2)	Q
4306.8+x	(35/2⁻)	457.0	100.23 *23*	3849.8+x	(33/2⁻)	M1
		750.0	59.40 *20*	3556.8+x	(31/2⁻)	Q
4307.6+x	(35/2)	193.0[c]	100	4114.6+x	(33/2)	D
4319.3+x	(37/2⁺)	161.8	100	4157.5+x	(35/2⁺)	D
4335.2+x	(33/2⁻)	369.0	100	3966.2+x	(31/2⁻)	D
4525.7+x	(39/2⁺)	206.4	100	4319.3+x	(37/2⁺)	D
4532.6+x	(37/2)	225.0[c]	100	4307.6+x	(35/2)	D
4553.4+x	(37/2⁻)	326.0	100	4227.4+x	(35/2⁻)	D
4587.2+x	(35/2⁻)	252.0	97.8 *3*	4335.2+x	(33/2⁻)	D
		621.0	100.0 *3*	3966.2+x	(31/2⁻)	Q
4646.4+x	(37/2⁻)	339.6	68.17 *15*	4306.8+x	(35/2⁻)	M1
		796.6	100.00 *18*	3849.8+x	(33/2⁻)	(E2)
4804.9+x	(41/2⁺)	279.2	100.00 *15*	4525.7+x	(39/2⁺)	M1
		485.6	13.5 *4*	4319.3+x	(37/2⁺)	Q
4890.4+x	(39/2⁻)	337.0	100.00 *21*	4553.4+x	(37/2⁻)	D
		663.0	50.69 *14*	4227.4+x	(35/2⁻)	Q
4956.2+x	(37/2⁻)	369.0	100	4587.2+x	(35/2⁻)	D
5039.5+x	(41/2)	777.0[a]	100	4262.5+x	(37/2)	Q
5124.4+x	39/2⁻	478.0	100.00 *18*	4646.4+x	(37/2⁻)	D
		817.6	54.51 *8*	4306.8+x	(35/2⁻)	Q
5125.0+x	43/2⁺	320.1	84.87 *12*	4804.9+x	(41/2⁺)	D
		599.3	100.00 *23*	4525.7+x	(39/2⁺)	Q
5264.2+x	41/2⁻	374.0[e]	100	4890.4+x	(39/2⁻)	D
5312.2+x	39/2⁻	356.0	100	4956.2+x	(37/2⁻)	D
5469.8+x	41/2⁻	345.4	100.0 *17*	5124.4+x	39/2⁻	M1
		823.4	76.9 *23*	4646.4+x	(37/2⁻)	Q
5490.6+x	45/2⁺	365.6	100.0 *21*	5125.0+x	43/2⁺	D
		685.7	25.79 *4*	4804.9+x	(41/2⁺)	Q
5853.8+x	43/2⁻	384.0	100.0 *3*	5469.8+x	41/2⁻	D
		729.4[e]	21.68 *8*	5124.4+x	39/2⁻	Q
5888.6+x	47/2⁺	398.0	100	5490.6+x	45/2⁺	D
6271.2+x	45/2⁻	417.4	100.0 *3*	5853.8+x	43/2⁻	D
		801.4[e]	29.03 *7*	5469.8+x	41/2⁻	
206+v	(21/2⁺)	108.0 *3*		98+v	(19/2⁺)	
		206.6 *3*		v	(17/2⁺)	

$\gamma(^{193}$Tl) (continued)

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.§	Comments
325+v	(23/2+)	118.9 3		206+v	(21/2+)		
		227.3 3	0.98 10	98+v	(19/2+)		
454+v	(25/2+)	128.3 3		325+v	(23/2+)		
		247.3 3	0.39 6	206+v	(21/2+)		
593+v	(27/2+)	139.2 3		454+v	(25/2+)	(M1)#	Mult.: α(exp)(139γ+148γ)=2.6 8 (1996Bo02); theory: α(K)(M1)=2.73.
		267.9 3	1.13& 23	325+v	(23/2+)		
741+v	(29/2+)	148.2 3		593+v	(27/2+)	(M1)#	Mult.: α(exp)(139γ+148γ)=2.6 8 and α(exp)(148γ+160γ)=3.0 8 (1996Bo02); theory: α(K)(M1)=2.29.
		287.7 3	0.45 5	454+v	(25/2+)		
901+v	(31/2+)	160.1 3		741+v	(29/2+)	(M1)#	Mult.: α(exp)(148γ+160γ)=3.0 8 (1996Bo02); theory: α(K)(M1)=1.84.
		308.2 3	0.86 9	593+v	(27/2+)		
1069+v	(33/2+)	167.4 3		901+v	(31/2+)	(M1)#	Mult.: α(exp)(167γ+181γ)=2.2 5 (1996Bo02): theory: α(K)(M1)=1.622.
		327.4 3	0.53 5	741+v	(29/2+)		
1249+v	(35/2+)	180.6 3		1069+v	(33/2+)	(M1)#	Mult.: α(exp)(167γ+181γ)=2.2 5 and α(exp)(181γ+186γ)=1.8 7 (1996Bo02); theory: α(K)(M1)=1.31.
		348.0 3	1.01 11	901+v	(31/2+)		
1435+v	(37/2+)	185.8 3		1249+v	(35/2+)	(M1)#	Mult.: α(exp)(181γ+186γ)=1.8 7 and α(exp)(186γ+201γ)=1.4 6 (1996Bo02); theory: α(K)(M1)=1.21.
		366.4 3	1.15 23	1069+v	(33/2+)		
1636+v	(39/2+)	201.4 3		1435+v	(37/2+)	(M1)#	Mult.: α(exp)(186γ+201γ)=1.4 6 (1996Bo02); theory: α(K)(M1)=0.965.
		387.0 3	1.4 4	1249+v	(35/2+)		
1840+v	(41/2+)	203.5 3		1636+v	(39/2+)		
		405.3 4	0.93 19	1435+v	(37/2+)		
2062+v	(43/2+)	221.5 3		1840+v	(41/2+)		
		425.4 3	1.22 12	1636+v	(39/2+)		
2283+v	(45/2+)	442.9 3		1840+v	(41/2+)		
2525+v	(47/2+)	463.7 3	1.60& 16	2062+v	(43/2+)		
2763+v	(49/2+)	479.7 3	0.72 17	2283+v	(45/2+)		
3027+v	(51/2+)	501.1 3		2525+v	(47/2+)		
3279+v	(53/2+)	516.1 3	1.11 17	2763+v	(49/2+)		
3564+v	(55/2+)	537.5 3	1.30 14	3027+v	(51/2+)		
3830+v	(57/2+)	551.6 3	1.00 14	3279+v	(53/2+)		
4137+v	(59/2+)	573.4 3	1.00 10	3564+v	(55/2+)		
4417+v	(61/2+)	586.5 3	0.84 17	3830+v	(57/2+)		
4746+v	(63/2+)	608.8 3	0.96 10	4137+v	(59/2+)		
5037+v	(65/2+)	620.3 3	0.81 13	4417+v	(61/2+)		
5390+v	(67/2+)	643.8 3	1.09 22	4746+v	(63/2+)		
5691+v	(69/2+)	653.6 4	0.42 11	5037+v	(65/2+)		
6069+v	(71/2+)	678.7 4	0.75 14	5390+v	(67/2+)		
6377+v	(73/2+)	686.1 4	0.46 11	5691+v	(69/2+)		

Adopted Levels, Gammas (continued)

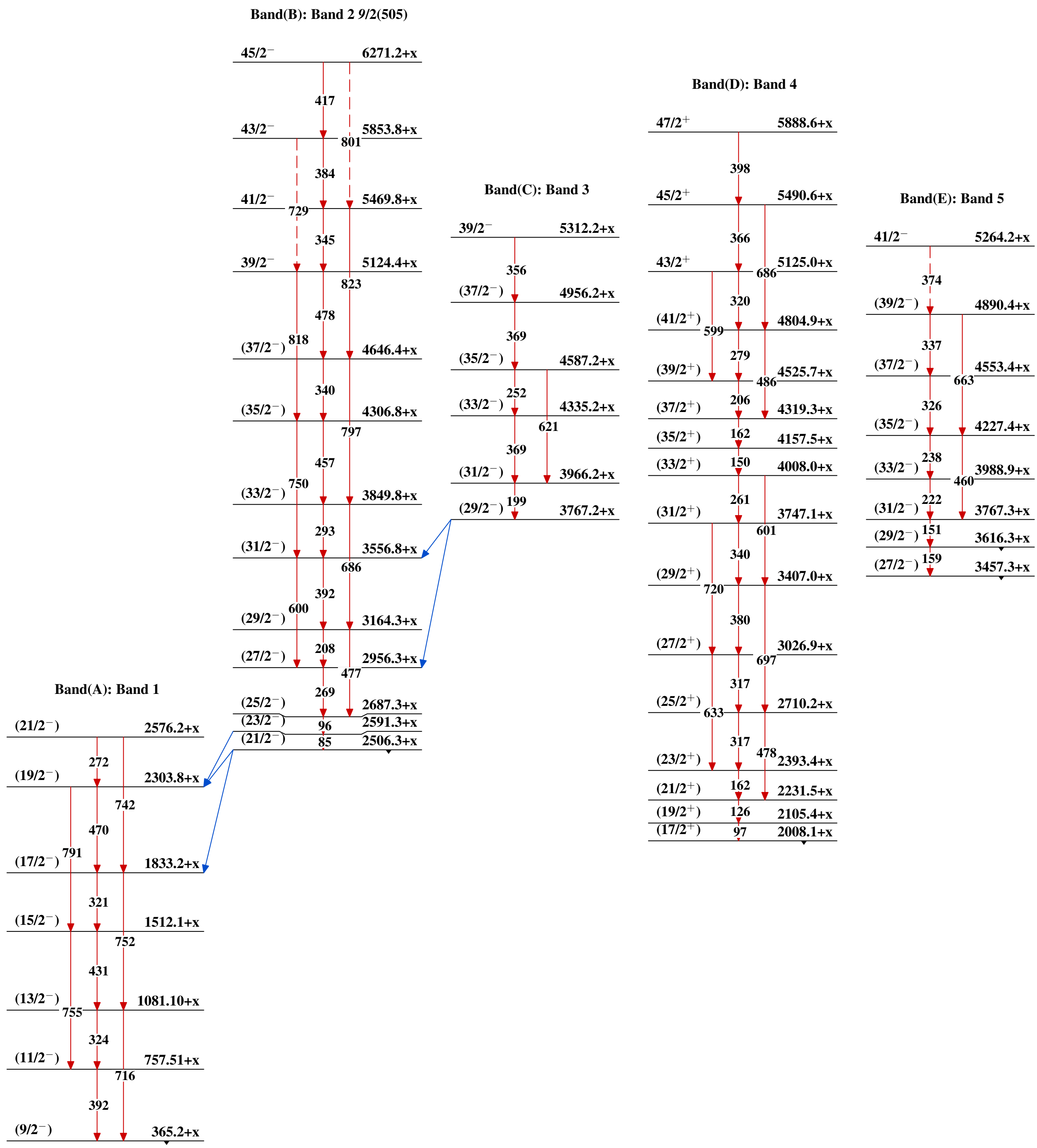
γ(^{193}Tl) (continued)

E_i(level)	J_i^π	E_γ[†]	E_f	J_f^π
6782+v	(75/2$^+$)	713.2 *5*	6069+v	(71/2$^+$)
7096+v	(77/2$^+$)	718.7 *5*	6377+v	(73/2$^+$)
7529+v	(79/2$^+$)	747.5 *5*	6782+v	(75/2$^+$)
7847+v	(81/2$^+$)	751.3 *5*	7096+v	(77/2$^+$)
8311+v	(83/2$^+$)	781.9 *5*	7529+v	(79/2$^+$)
8630+v	(85/2$^+$)	783.4 *5*	7847+v	(81/2$^+$)
187.9+y	J+2	187.9 *3*	y	J
418.6+y	J+4	230.7 *3*	187.9+y	J+2
691.4+y	J+6	272.8 *3*	418.6+y	J+4
1005.7+y	J+8	314.3 *3*	691.4+y	J+6
1360.7+y	J+10	355.0 *3*	1005.7+y	J+8
1755.8+y	J+12	395.1 *3*	1360.7+y	J+10
2190.3+y	J+14	434.5 *3*	1755.8+y	J+12
2663.4+y	J+16	473.1 *3*	2190.3+y	J+14
3174.0+y	J+18	510.6 *3*	2663.4+y	J+16
3721.5+y	J+20	547.5 *3*	3174.0+y	J+18
4304.9+y	J+22	583.4 *3*	3721.5+y	J+20
4923.3+y	J+24	618.4 *3*	4304.9+y	J+22
5576.4+y	J+26	653.1 *3*	4923.3+y	J+24
6263.1+y	J+28	686.7 *4*	5576.4+y	J+26
6977.1+y	J+30	714.0 *7*	6263.1+y	J+28
7712.1+y	J+32	735.0 *10*	6977.1+y	J+30
250.8+z	J1+2	250.8 *3*	z	J1
542.8+z	J1+4	292.0 *3*	250.8+z	J1+2
875.5+z	J1+6	332.7 *3*	542.8+z	J1+4
1248.2+z	J1+8	372.7 *3*	875.5+z	J1+6
1660.1+z	J1+10	411.9 *3*	1248.2+z	J1+8
2110.6+z	J1+12	450.5 *3*	1660.1+z	J1+10
2598.7+z	J1+14	488.1 *3*	2110.6+z	J1+12
3123.9+z	J1+16	525.2 *3*	2598.7+z	J1+14
3685.6+z	J1+18	561.7 *3*	3123.9+z	J1+16
4282.5+z	J1+20	596.9 *3*	3685.6+z	J1+18
4914.3+z	J1+22	631.8 *3*	4282.5+z	J1+20
5580.7+z	J1+24	666.4 *3*	4914.3+z	J1+22
6285.4+z	J1+26	704.7 *7*	5580.7+z	J1+24
7033.4+z	J1+28	748.0 *10*	6285.4+z	J1+26
271.5+u	J2+2	271.5 *5*	u	J2
584.8+u	J2+4	313.4 *4*	271.5+u	J2+2
938.9+u	J2+6	354.1 *3*	584.8+u	J2+4
1332.2+u	J2+8	393.3 *4*	938.9+u	J2+6
1764.5+u	J2+10	432.3 *3*	1332.2+u	J2+8
2234.4+u	J2+12	469.9 *3*	1764.5+u	J2+10
2741.7+u	J2+14	507.3 *3*	2234.4+u	J2+12
3285.4+u	J2+16	543.7 *3*	2741.7+u	J2+14
3864.8+u	J2+18	579.4 *4*	3285.4+u	J2+16
4479.3+u	J2+20	614.5 *4*	3864.8+u	J2+18
5128.8+u	J2+22	649.5 *4*	4479.3+u	J2+20
5813.0+u	J2+24	684.2 *4*	5128.8+u	J2+22
6531.8+u	J2+26	718.8 *7*	5813.0+u	J2+24

[†] From (HI,xnγ) for level scheme based on the 365.2+x level and from (HI,xnγ):SD in superdeformed bands.
[‡] From (HI,xnγ). Relative photon branching from each level.
[§] From (HI,xnγ), unless otherwise noted.
[&] Relative intensity within the SD band.
[@] From ^{193}Pb decay (5.8 min).
[#] From (HI,xnγ):SD.
[a] Member of a sequence.
[b] Member of a sequence.
[c] Member of a sequence.
[d] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[e] Placement of transition in the level scheme is uncertain.

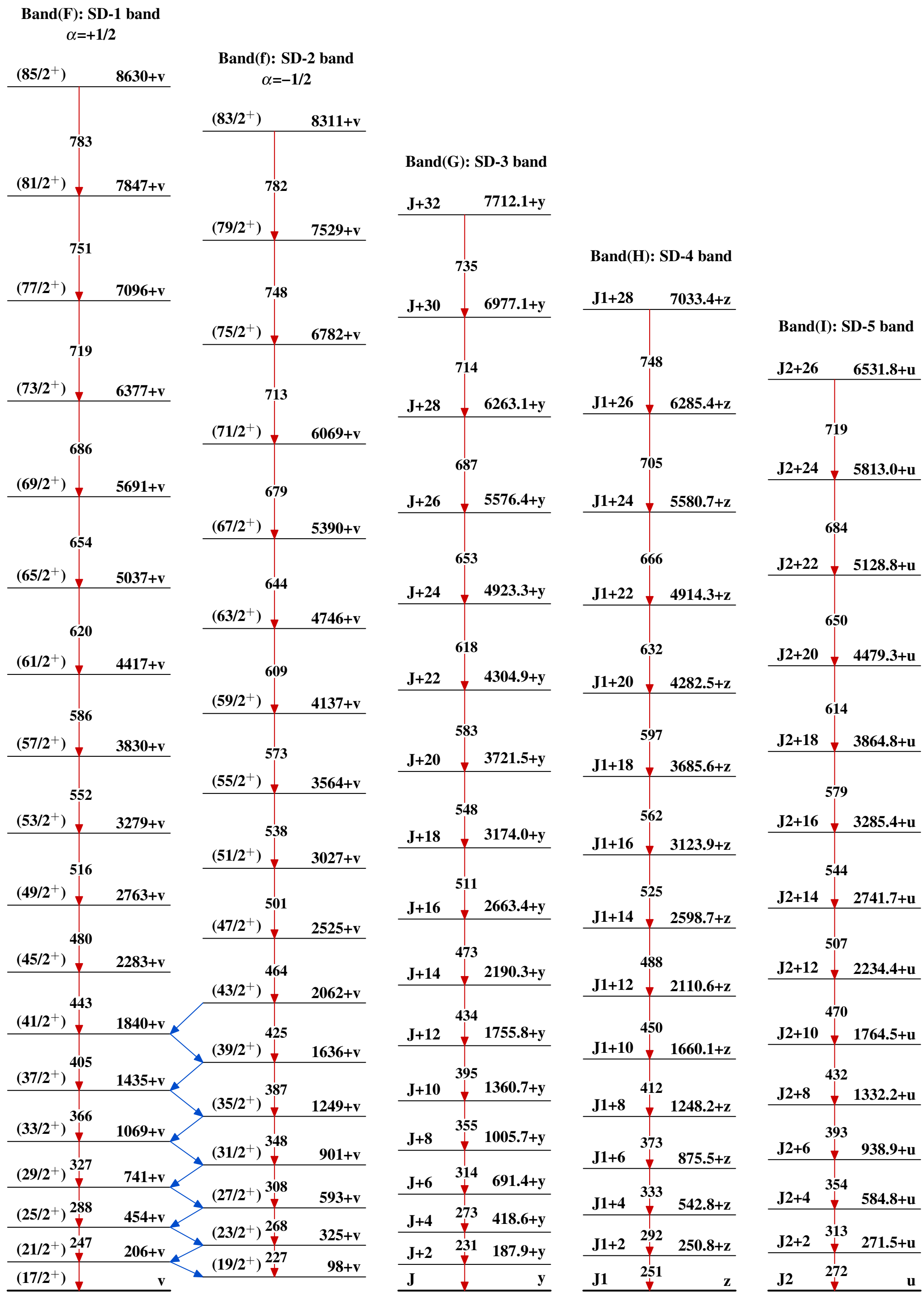
$^{193}_{81}$Tl$_{112}$-9

Adopted Levels, Gammas



$^{193}_{81}Tl_{112}$

Adopted Levels, Gammas (continued)



$^{193}_{81}Tl_{112}$

^{193}Tl IT decay (2.11 min) 1963Di10,1976Ha25

Parent: ^{193}Tl: E=365.0+x; J^π=(9/2$^-$); $T_{1/2}$=2.11 min *15*; %IT decay≤75

1963Di10: sources from ^{185}Re(^{12}C,^{4}n), E(^{12}C)=59, 67 MeV; ^{181}Ta(^{16}O,^{4}n), E(^{16}O)=74, 79, 94 MeV. Natural targets. Measured E(ce), Ice (mag spect).

1976Ha25: from ^{193}Pb (5.8 min) ε decay (^{193}Pb produced by bombardment of natural tungsten by ^{16}O, mass separation); measured Eγ, Iγ (Ge(Li)).

Other: 1976GoZP.

^{193}Tl Levels

E(level)	J^π †	$T_{1/2}$	Comments
0.0	1/2$^{(+)}$	21.6 min *8*	
365.0	3/2$^{(+)}$		
365.0+x	(9/2$^-$)	2.11 min *15*	%IT≤75 (1976GoZP) $T_{1/2}$: from 1963Di10.

† From Adopted Levels.

γ(^{193}Tl)

E$_\gamma$	I$_\gamma$ ‡	E$_i$(level)	J^π_i	E$_f$	J^π_f	Mult.	δ	α §	I$_{(\gamma+ce)}$ †‡	Comments
(<13)		365.0+x	(9/2$^-$)	365.0	3/2$^{(+)}$	[E3]			100	E$_\gamma$: limit suggested by negligible L X ray intensity (conversion of isomeric transition only in M-shell or higher) (1976Ha25); E<25 (1963Di10) L3(binding energy, Tl)=12.657. For the assumed multipolarity the theoretical conversion coefficient is $\alpha \geq 1.0\times10^7$.
365.0	90.2 *16*	365.0	3/2$^{(+)}$	0.0	1/2$^{(+)}$	M1+E2	1.7 *+5−4*	0.106 *20*	100	E$_\gamma$: from 1976Ha25. I$_\gamma$: deduced from I(γ+ce) and α. Mult.,δ: from K/L=3.8 *4* (1963Di10); other: L/M=2.7 (1963Di10); theory: K/L=3.8 *9*, L/M=4.1 *5*.

† From intensity balance in the level scheme.

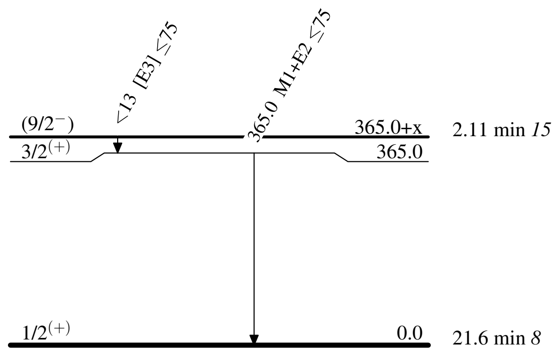
‡ For absolute intensity per 100 decays, multiply by ≤0.75.

§ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{193}Tl IT decay (2.11 min) 1963Di10,1976Ha25

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
%IT≤75



$^{193}_{81}Tl_{112}$

^{193}Pb ε decay (5.8 min) 1976Ha25

Parent: ^{193}Pb: E=0.0+x; J^π=(13/2$^+$); $T_{1/2}$=5.8 min *2*; Q(ε)=5280 *50*; %ε+%β^+ decay=100
^{193}Pb-E: Level energy 130 keV *80* in 2017Au03 from systematics.
1976Ha25: sources from bombardment of natural tungsten by ^{16}O, mass separation; measured Eγ, Iγ (Ge(Li)), $\gamma\gamma$ coin.
Others: 1974Ne16, 1961An03.
Sum of decay energies of this dataset is 5157 keV *195* cf. 5280 keV *5* obtained from ^{28}Ne β^- decay Q(g.s.) and branching.

^{193}Tl Levels

The decay scheme shown is from 1976Ha25 and is based on $\gamma\gamma$ coincidences. The authors state that the results should be considered preliminary. The proposed level scheme agrees with the scheme obtained from (HI,xnγ).

1976Ha25 state that the intensity of the 365.0γ (100 on the Iγ scale) is that of the 5.8 min activity (^{193}Pb 23/2$^+$ state) and from that deduce that 70% of the ε+β^+ decay goes directly to the 2.11 min, 365+x level. (they do not state whether this intensity is the measured intensity, or intensity corrected for transient equilibrium conditions). However, a 70% ε+β^+ branch to the 365+x level would give log $f^{1u}t$=7.6 (expected log $f^{1u}t$≥8.5). This could be explained by: 1) an anomalous log $f^{1u}t$ value or 2) the ε+β^+ transition is not 1U (either Jπ(^{193}Pb (5.8 min)≠(13/2$^+$) or Jπ(^{193}Tl (2.11 min)≠9/2$^-$)). None of these explanations is really acceptable. Another possible explanation for such high Iγ(365) is that the ^{193}Pb 3/2$^-$ level has $T_{1/2}$≈5.8 min (this activity has not been seen) and that the source contained both activities. With similar $T_{1/2}$ it would be difficult to distinguish between the two decays.

E(level)	J^{π}†	$T_{1/2}$	Comments
0.0	1/2$^{(+)}$	21.6 min *8*	
365.0	3/2$^{(+)}$		
365.0+x‡	(9/2$^-$)	2.11 min *15*	%IT≤75, from ^{193}Tl IT decay (2.11 min) (1976GoZP). $T_{1/2}$: from ^{193}Tl IT decay (2.11 min) (1963Di10).
757.2+x‡	(11/2$^-$)		
1081.5+x‡	(13/2$^-$)		
1163.7+x			Level not confirmed by (HI,xnγ) data.
1423.4+x			
1493.2+x	(13/2$^-$)		J^π: From Adopted Levels.
1513.0+x‡	(15/2$^-$)		
1870.7+x			
1960.0+x	(15/2$^-$)		J^π: From Adopted Levels.

† From Adopted Levels.
‡ Band(A): 9/2(505) Band.

ε,β^+ radiations

All log *ft* information was calculated with Q(ε)=5120 *120*, E(365+x, ^{193}Tl)=365 and E(5.8 min, ^{193}Pb)=100.

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I(ε+β^+)†
(1.7×10^3‡ *17*)	1960.0+x	0.26	1.74	6.8	2
(1.7×10^3‡ *17*)	1870.7+x	0.29	1.71	6.8	2
(1.9×10^3‡ *19*)	1513.0+x	2.2	8.8	6.2	11
(1.9×10^3‡ *19*)	1493.2+x	3.1	11.9	6.1	15
(1.9×10^3‡ *19*)	1423.4+x	1.5	5.5	6.5	7
(2.1×10^3‡ *21*)	1163.7+x	2.4	6.6	6.5	9
(2.1×10^3‡ *21*)	1081.5+x	8.5	21.5	6.0	30

Continued on next page (footnotes at end of table)

^{193}Pb ε decay (5.8 min) 1976Ha25 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	$I\beta^+$ †	$I\varepsilon$†	Log *ft*	$I(\varepsilon+\beta^+)$†	Comments
(2.3×10^3‡ *23*)	757.2+x	8.3	15.7	6.2	24	
(2.5×10^3‡ *25*)	365.0+x	<2.2	<7.8	>8.5	<10	$I(\varepsilon+\beta^+)$: from log $f^{1u}t$>8.5 for a 13/2$^+$ to 9/2$^-$ transition.

† Absolute intensity per 100 decays.
‡ Estimated for a range of levels.

$\gamma(^{193}Tl)$

Iγ normalization: From ΣI(γ+ce)(to 365+x level)=95 *5*. From log $f^{1u}t$>8.5, $I(\varepsilon+\beta^+)$(to 365+x level) < 10%.

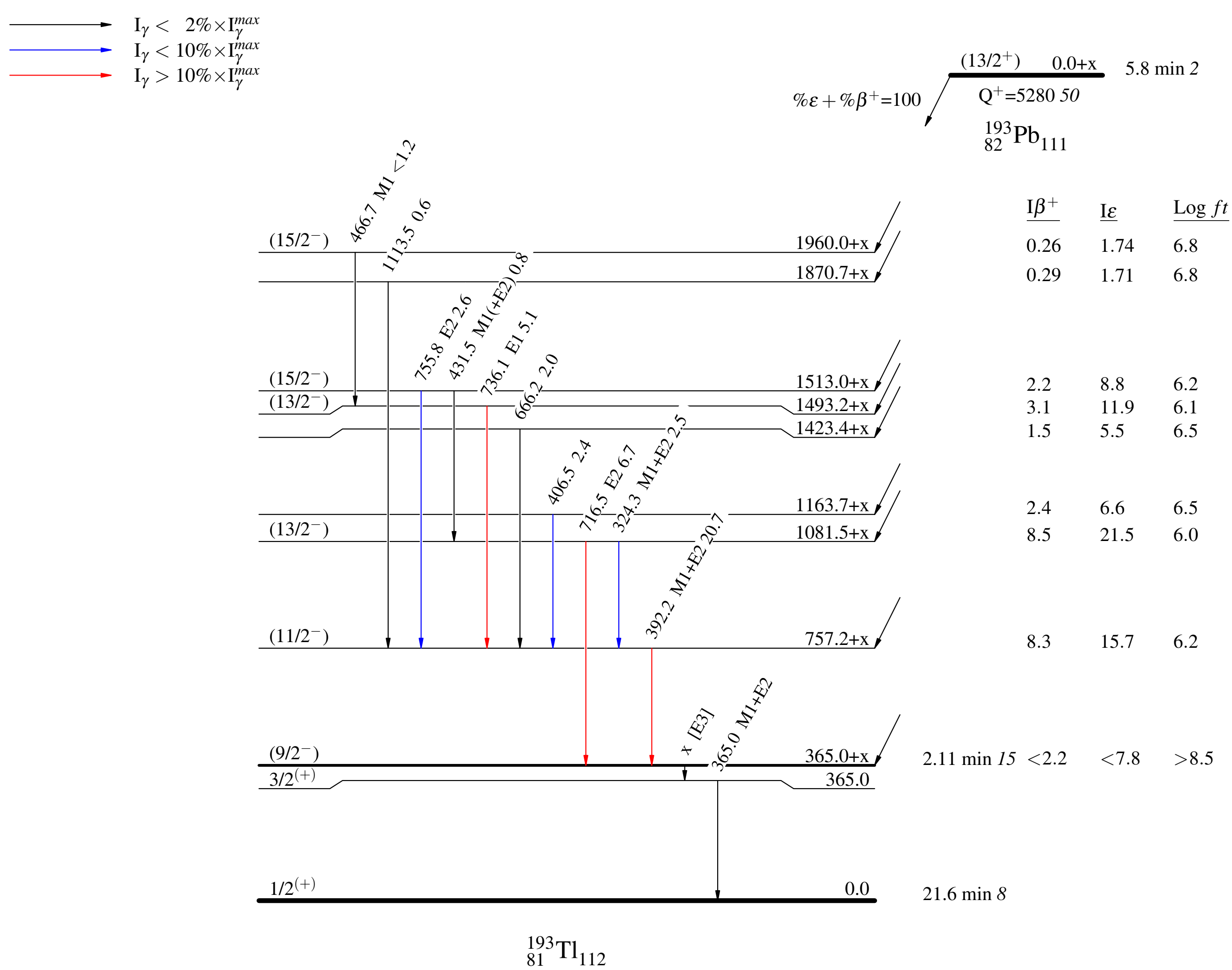
E_γ	I_γ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	δ†	α§	Comments
(x)		365.0+x	(9/2$^-$)	365.0	3/2$^{(+)}$	[E3]			E_γ: Eγ<13 keV from ^{193}Tl IT decay (2.11 min).
324.3	2.5	1081.5+x	(13/2$^-$)	757.2+x	(11/2$^-$)	M1+E2	0.6 *4*	0.26 *6*	
365.0		365.0	3/2$^{(+)}$	0.0	1/2$^{(+)}$	M1+E2	1.7 *+5−4*	0.106 *20*	I_γ: γ follows an isomeric transition with $T_{1/2}$=2.11 min and %IT≤75%. The equilibrium status of the source is not known. Therefore, Iγ of this γ cannot be compared with Iγ of the other γ's in the decay scheme. 1976Ha25 give Iγ=100. Mult.,δ: from ^{193}Tl IT decay (2.11 min).
392.2	20.7	757.2+x	(11/2$^-$)	365.0+x	(9/2$^-$)	M1+E2	−0.59 *14*	0.154 *13*	
406.5	2.4	1163.7+x		757.2+x	(11/2$^-$)				406.6γ placed from 1900.2+x level in (HI,xnγ) data.
431.5	0.8	1513.0+x	(15/2$^-$)	1081.5+x	(13/2$^-$)	M1(+E2)		0.094 *54*	
466.7	<1.2	1960.0+x	(15/2$^-$)	1493.2+x	(13/2$^-$)	M1		0.1194	
666.2	2.0	1423.4+x		757.2+x	(11/2$^-$)				
716.5	6.7	1081.5+x	(13/2$^-$)	365.0+x	(9/2$^-$)	E2		0.01248	
736.1	5.1	1493.2+x	(13/2$^-$)	757.2+x	(11/2$^-$)	E1		0.00425	
755.8	2.6	1513.0+x	(15/2$^-$)	757.2+x	(11/2$^-$)	E2		0.01115	
1113.5	0.6	1870.7+x		757.2+x	(11/2$^-$)				

† From adopted γ's, unless otherwise noted.
‡ For absolute intensity per 100 decays, multiply by 3.3.
§ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

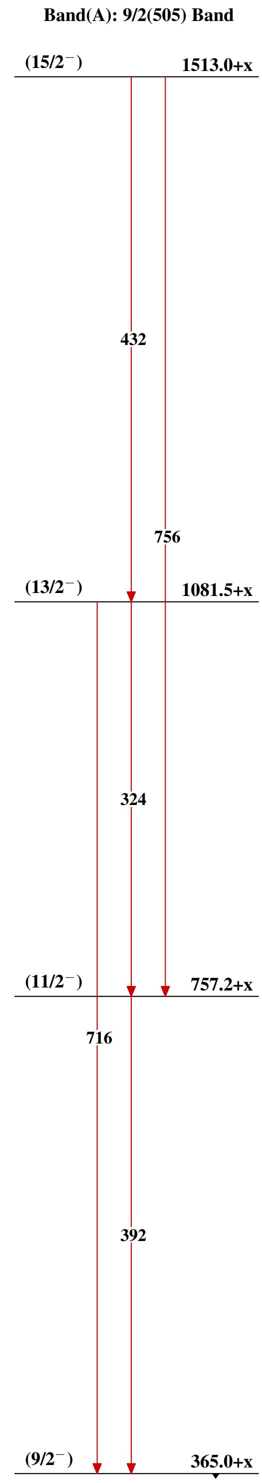
^{193}Pb ε decay (5.8 min) 1976Ha25

Decay Scheme

Intensities: Relative I_γ



^{193}Pb ε decay (5.8 min) 1976Ha25



$^{193}_{81}Tl_{112}$

^{197}Bi α decay (5.15 min) 1985Co06

Parent: ^{197}Bi: E=533 *12*; J^π=($1/2^+$); $T_{1/2}$=5.15 min *55*; Q(α)=5365 *11*; %α decay=6.×10^1 *4*
^{197}Bi-E: From 2017Au03.
^{197}Bi-$T_{1/2}$: From 1985Co06.
Sources from ^{14}N bombardments of Ir, ^{16}O bombardments of Re, and ^{20}Ne bombardments of ^{181}Ta, mass separation; measured Eα, Iα, time-sequential α and γ spectra.
Others: 1974Le02, 1972Ga27, 1970Ta14, 1950Ne77.

^{193}Tl Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	$1/2^{(+)}$	21.6 min *8*	J^π: From Adopted Levels.

α radiations

Eα	E(level)	Iα†	Comments
5776 *4*	0.0	100	Eα: From 1991Ry01, based on 5780 *5* (1985Co06), 5770 *10* (1974Le02), 5770 *10* (1972Ga27); other: 1970Ta14. HF: r_0(^{193}Tl)=1.50 *1* Value for r_0 suggested by neighboring Pb isotone, with r_0(^{194}Pb)=1.496 *3* (1998Ak04) The quoted radius value gives HF=0.15 for this decay. Since HF<<1 is not expected in odd-A nuclei, one must question the input to HF calculation. The two uncertain quantities are the nuclear radius, r_0, and %α from ^{197}Bi. In order to obtain an HF≈1 one would have to use r_0=1.59 which is unreasonably large for this region. Using r_0=1.49, based on overall systematic trends for r_0, an alpha branch of %α≈12 gives a HF≈1.0. It seems, therefore, that %α=55 *40* quoted in 1985Co06 may be too large.

† For absolute intensity per 100 decays, multiply by 0.6 *4*.

(HI,xnγ) 2016NdZZ,1992Re08,1974Ne16

Other: 1996SaZU.

2016NdZZ: ^{160}Gd(^{37}Cl,4nγ): Two experiments were performed with thin (1.0 mg/cm^2) and thick (10 mg/cm^2) ^{160}Gd targets with beam energies of 167 MeV and 162 MeV, respectively, at iThamba accelarator facility. γ rays were measured using 9 clover detectors (afrodite array). Four clover detectors were place (average location) at 135° and five clovers at 90° with respect to beam ditection, but the crystals are arranged in rings at 85° and 95°, 130° and 140°. Both thin and thick target data were used to build the level scheme, while the data from the thin target were used for γ-ray angular distribution and linear polarization measurements. Measured Eγ, Iγ, $\gamma\gamma$ coin, γ-ray angular distribution, linear polarization anisotropy, and lifetime measurement by Doppler Shift Attenuation Method. Also studied by ^{181}Ta(^{18}O,6nγ), E=105 MeV, reaction.

1992Re08: ^{160}Gd(^{37}Cl,^{4}nγ); E=167 MeV; 12 Compton suppressed Ge(Li) detectors, 4π BGO array (ATLAS array), >97% ^{160}Gd target; measured Eγ, Iγ, $\gamma\gamma$ coin, DCO ratio (I(γ1(146°),γ2(34°))/I(γ1(90°), γ2(34°))).

1974Ne16: ^{181}Ta(^{16}O,^{4}nγ), E(^{16}O)=79, 84, 89, 98 MeV; ^{184}W(^{14}N,^{5}nγ), E(^{14}N)=82, 86, 89 MeV; also includes ^{197}Au(α,8nγ), E(α)=93, 104, 116 MeV; measured Eγ, Iγ (Ge(Li)), $\gamma\gamma$ coin, γ-ray angular distributions, E(ce), Ice (mag spect, Si(Li)).

1996SaZU: ^{181}Ta(^{16}O,^{4}nγ), E(^{16}O)=84 MeV; measured $\gamma\gamma(\theta)$, γ(ce)(θ).

Level scheme from 2016NdZZ. Level scheme of 1992Re08 was revised and and new transitions added by 2016NdZZ.

^{193}Tl Levels

E(level)[a]	J$^{\pi}$[b]	T$_{1/2}$	Comments
0.0			
365.3 *5*			E(level): from Adopted Levels.
365.3+x[†]	9/2$^-$		
757.8+x[†] *4*	11/2$^-$		
1081.7+x[†] *4*	13/2$^-$		
1493.8+x *4*	13/2$^{(-)}$		J$^\pi$: 13/2$^+$ in 1992Re08. 1128.4γ (2016NdZZ) to 9/2$^-$.
1512.8+x[†] *4*	15/2$^-$		
1833.8+x[†] *5*	17/2$^-$		
1900.2+x *5*	15/2$^-$		
1929.7+x *5*	17/2$^-$		
1960.6+x *5*	15/2$^{(-)}$		J$^\pi$: 1466.9γ M1 to 13/2$^{(-)}$. 15/2$^+$ in 1992Re08.
2008.1+x[@] *5*	17/2$^+$	0.6 ns	J$^\pi$: 15/2$^+$ in 1992Re03. T$_{1/2}$: 2016NdZZ estimate the value using Recoil Shadow Attenuation Method (RSAM) and list t$_{1/2}$=0.6 ns, however, used the term “lifetime”. The evaluator assumes half-life.
2105.4+x[@] *6*	19/2$^+$		
2231.5+x[@] *7*	21/2$^+$		
2303.8+x[†] *5*	19/2$^-$		
2393.4+x[@] *8*	23/2$^+$		
2393.7+x *5*	19/2$^-$		
2452.0+x *8*	23/2		
2506.3+x[‡] *5*	21/2$^-$		
2576.2+x[†] *6*	21/2$^-$		
2591.3+x[‡] *6*	23/2$^-$		
2672.5+x *8*	25/2		
2687.3+x[‡] *7*	25/2$^-$		
2710.2+x[@] *6*	25/2$^+$		
2798.3+x *9*	27/2		
2931.5+x *9*	27/2		
2956.3+x[‡] *8*	27/2$^-$		
3026.9+x[@] *7*	27/2$^+$		

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(HI,xnγ) 2016NdZZ,1992Re08,1974Ne16 (continued)

^{193}Tl Levels (continued)

E(level)[a]	J^{π}[b]	E(level)[a]	J^{π}[b]	E(level)[a]	J^{π}[b]	E(level)[a]	J^{π}[b]
3030.3+x *10*	29/2	3767.3+x[&] *9*	$31/2^-$	4319.3+x[@] *11*	$37/2^+$	5124.4+x[‡] *10*	$39/2^-$
3087.5+x *11*	29/2	3849.8+x[‡] *9*	$33/2^-$	4335.2+x[#] *11*	$33/2^-$	5125.0+x[@] *12*	$43/2^+$
3164.3+x[‡] *8*	$29/2^-$	3966.2+x[#] *10*	$31/2^-$	4525.7+x[@] *12*	$39/2^+$	5264.2+x[&]	$41/2^-$
3407.0+x[@] *7*	$29/2^+$	3988.9+x[&] *10*	$33/2^-$	4532.6+x *11*	37/2	5312.2+x[#] *13*	$39/2^-$
3428.5+x *12*	31/2	4008.0+x[@] *8*	$33/2^+$	4553.4+x[&] *11*	$37/2^-$	5469.8+x[‡] *10*	$41/2^-$
3457.3+x[&] *7*	$27/2^-$	4114.6+x *8*	33/2	4587.2+x[#] *11*	$35/2^-$	5490.6+x[@] *12*	$45/2^+$
3556.8+x[‡] *9*	$31/2^-$	4157.5+x[@] *10*	$35/2^+$	4646.4+x[‡] *9*	$37/2^-$	5853.8+x[‡] *11*	$43/2^-$
3616.3+x[&] *8*	$29/2^-$	4227.4+x[&] *10*	$35/2^-$	4804.9+x[@] *12*	$41/2^+$	5888.6+x[@] *13*	$47/2^+$
3630.5+x *12*	33/2	4262.5+x *13*	37/2	4890.4+x[&] *11*	$39/2^-$	6271.2+x[‡] *12*	$45/2^-$
3747.1+x[@] *8*	$31/2^+$	4306.8+x[‡] *9*	$35/2^-$	4956.2+x[#] *12*	$37/2^-$		
3767.2+x[#] *9*	$29/2^-$	4307.6+x *10*	35/2	5039.5+x *14*	41/2		

[†] Band(A): Band 1.
[‡] Band(B): Band 2.
[#] Band(C): Band 3.
[@] Band(D): Band 4.
[&] Band(E): Band 5.
[a] From least-squares fitting to γ-ray energies, assuming $\Delta E\gamma$=0.5 keV.
[b] From 2016NdZZ based on γ-ray angular distribution ratio and polarization measurement. Also coincidence relationships, intensity balances, and increasing J with increasing E(level).

$\gamma(^{193}Tl)$

E_γ[&]	I_γ[&a]	E_i(level)	J^{π}_i	E_f	J^{π}_f	Mult.[b]	Comments
(15.1)		2591.3+x	$23/2^-$	2576.2+x	$21/2^-$		
47.5	19.82 *5*	2008.1+x	$17/2^+$	1960.6+x	$15/2^{(-)}$	D[c]	Mult.: R_{ad}=0.86 *20* (2016NdZZ).
(60.3)		1960.6+x	$15/2^{(-)}$	1900.2+x	$15/2^-$		E_γ: Unobserved transition that lies at the shoulder of the x-ray peak tentatively placed based on observed coincidence relations. Placement from level scheme (Fig 4.1). In Table 4.1 – from 2226 keV level.
85.0		2591.3+x	$23/2^-$	2506.3+x	$21/2^-$		E_γ: Placement from level scheme (Fig. 4.1). In Table 4.1 – from 1643 keV level – a misprint. Based on intensity balance at 2226.1 keV level, 2016NdZZ propose as an M1 transition.
96.0[#]	5.150 *8*	2687.3+x	$25/2^-$	2591.3+x	$23/2^-$	D	Mult.: R_{ad}=0.87 *17* (2016NdZZ); DCO=1.24 *5* (1992Re08).
97.0	5.150 *4*	2105.4+x	$19/2^+$	2008.1+x	$17/2^+$	D	E_γ: Confirmed coincidence relation with 735.9γ from 1128.4 keV level, however, changed placement based on coincidences with both 406.6γ and 466.9γ from 1535- and 1595-keV level, respectively. In 1992Re08, 96.4 keV *3*, from 2056.4+x, level not present in 2016NdZZ. Mult.: R_{ad}=0.8 *3* (2016NdZZ); DCO=1.24 *5* (1992Re08).
107.8[@]	6.460 *5*	2008.1+x	$17/2^+$	1900.2+x	$15/2^-$	D[c]	Mult.: R_{ad}=0.87 *19* (2016NdZZ); DCO=1.42 *3* (1992Re08).
111.0	0.9200 *21*	2798.3+x	27/2	2687.3+x	$25/2^-$	D	Mult.: R_{ad}=0.78 *12* (2016NdZZ).
112.5	0.9400 *18*	2506.3+x	$21/2^-$	2393.7+x	$19/2^-$	[c]	

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(HI,xnγ) 2016NdZZ,1992Re08,1974Ne16 (continued)

γ(^{193}Tl) (continued)

E_γ [&]	I_γ [&a]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [b]	Comments
125.9[#]	9.260 *7*	2231.5+x	21/2$^+$	2105.4+x	19/2$^+$	D	Mult.: R_{ad}=0.81 *21* (2016NdZZ); DCO=0.660 *19* (1992Re08).
149.5[#]	9.020 *4*	4157.5+x	35/2$^+$	4008.0+x	33/2$^+$	D	Mult.: R_{ad}=0.74 *13* (2016NdZZ); DCO=0.664 *16* (1992Re08).
151.0	1.1100 *21*	3767.3+x	31/2$^-$	3616.3+x	29/2$^-$	D	Mult.: R_{ad}=0.76 *19* (2016NdZZ).
156.0[‡#]	2.150 *3*	3087.5+x	29/2	2931.5+x	27/2	D	Mult.: R_{ad}=0.8 *3* (2016NdZZ); DCO=0.69 *3* (1992Re08).
159.0	0.7400 *15*	3616.3+x	29/2$^-$	3457.3+x	27/2$^-$	D	Mult.: R_{ad}=0.74 *21* (2016NdZZ)Expected to be a magnetic dipole transition (2016NdZZ) from 159.0γ and 929.0γ intensity comparisons of this level.
161.8	10.260 *14*	2393.4+x	23/2$^+$	2231.5+x	21/2$^+$		
161.8[#]	5.780 *5*	4319.3+x	37/2$^+$	4157.5+x	35/2$^+$	D	Mult.: R_{ad}=0.87 *21* (2016NdZZ).
193.0[§]	1.370 *2*	4307.6+x	35/2	4114.6+x	33/2	D	Mult.: R_{ad}=0.73 *18* (2016NdZZ).
199.0[#]	3.110 *3*	3966.2+x	31/2$^-$	3767.2+x	29/2$^-$	(M1)	Mult.: R_{ad}=0.79 *11*. Sign from intensity balance (2016NdZZ). DCO=0.69 *3* (1992Re08).
202.5[@]	4.060 *7*	2506.3+x	21/2$^-$	2303.8+x	19/2$^-$	D	Mult.: R_{ad}=0.90 *14* (2016NdZZ); DCO=0.90 *5* (1992Re08).
206.4[#]	5.860 *6*	4525.7+x	39/2$^+$	4319.3+x	37/2$^+$	D	Mult.: R_{ad}=0.85 *14* (2016NdZZ); DCO=0.816 *16* (1992Re08).
208.0[#]	9.030 *18*	3164.3+x	29/2$^-$	2956.3+x	27/2$^-$	D	Mult.: R_{ad}=0.82 *12* (2016NdZZ); DCO=0.72 *4* (1992Re08).
210.4	1.500 *25*	3767.2+x	29/2$^-$	3556.8+x	31/2$^-$	D	Mult.: R_{ad}=0.7 *3* (2016NdZZ).
220.5[d#]	3.90[d] *9*	2452.0+x	23/2	2231.5+x	21/2$^+$	D	Mult.: R_{ad}=0.8 *3* (2016NdZZ); DCO=0.696 *20* for doublet (1992Re08).
220.5[d#‡]	3.90[d] *9*	2672.5+x	25/2	2452.0+x	23/2	D	Mult.: R_{ad}=0.8 *3* (2016NdZZ); DCO=0.696 *20* for doublet (1992Re08).
221.6	2.510 *5*	3988.9+x	33/2$^-$	3767.3+x	31/2$^-$	M1	Mult.: R_{ad}=0.83 *8*, A_{pol}=−0.17 *4* (2016NdZZ).
225.0[§]	1.3200 *15*	4532.6+x	37/2	4307.6+x	35/2	D	Mult.: R_{ad}=0.87 *8* (2016NdZZ).
232.0[†#]	1.390 *4*	3030.3+x	29/2	2798.3+x	27/2	D	Mult.: R_{ad}=0.9 *3* (2016NdZZ); DCO=0.95 *3* (1992Re08).
238.5[#]	2.510 *3*	4227.4+x	35/2$^-$	3988.9+x	33/2$^-$	M1	Mult.: R_{ad}=0.77 *12*, A_{pol}=−0.06 *4* (2016NdZZ); DCO=0.69 *3* (1992Re08).
252.0[#]	0.890 *3*	4587.2+x	35/2$^-$	4335.2+x	33/2$^-$	D	Mult.: R_{ad}=0.85 *24* (2016NdZZ); DCO=0.54 *6* (1992Re08).
259.0[‡#]	9.480 *8*	2931.5+x	27/2	2672.5+x	25/2	D	Mult.: R_{ad}=0.70 *16* (2016NdZZ); DCO=0.75 *3* (1992Re08).
260.9[#]	9.10 *12*	4008.0+x	33/2$^+$	3747.1+x	31/2$^+$	M1	Mult.: R_{ad}=0.72 *20*, A_{pol}=−0.10 *4* (2016NdZZ); DCO=0.862 *20* (1992Re08).
269.0[#]	17.870 *12*	2956.3+x	27/2$^-$	2687.3+x	25/2$^-$	M1	Mult.: R_{ad}=0.78 *9*, A_{pol}=−0.04 *3* (2016NdZZ); DCO=0.884 *24* (1992Re08); A_2=−0.49 *15*, A_4=−0.02 *15* (1974Ne16).
272.4[@]	3.150 *5*	2576.2+x	21/2$^-$	2303.8+x	19/2$^-$	D	Mult.: R_{ad}=0.81 *21* (2016NdZZ); DCO=0.95 *3* (1992Re08).
279.2[#]	5.190 *8*	4804.9+x	41/2$^+$	4525.7+x	39/2$^+$	M1	Mult.: R_{ad}=0.77 *7*, A_{pol}=−0.06 *3* (2016NdZZ); DCO=0.789 *16* (1992Re08).
287.5	8.820 *15*	2591.3+x	23/2$^-$	2303.8+x	19/2$^-$	(Q)	Mult.: R_{ad}=1.12 *8* (2016NdZZ).
293.0[#]	5.490 *7*	3849.8+x	33/2$^-$	3556.8+x	31/2$^-$	D	Mult.: R_{ad}=0.81 *10* (2016NdZZ); DCO=0.67 *5* (1992Re08).

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(HI,xnγ) 2016NdZZ,1992Re08,1974Ne16 (continued)

γ(^{193}Tl) (continued)

E_γ[&]	I_γ[&a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[b]	δ	Comments
316.7[d#]	8.240[d] *7*	2710.2+x	25/2$^+$	2393.4+x	23/2$^+$	D		Mult.: R_{ad}=0.73 *8* (2016NdZZ); DCO=0.435 *12* (1992Re08).
316.7[d#]	3.670[d] *4*	3026.9+x	27/2$^+$	2710.2+x	25/2$^+$	D		Mult.: R_{ad}=0.7 *4* (2016NdZZ); DCO=0.669 *12* (1992Re08).
320.1	5.160 *7*	5125.0+x	43/2$^+$	4804.9+x	41/2$^+$	D		E_γ: Placement from level scheme (Fig. 4.1). In table 4.1 − placement from 2661 keV level. Mult.: R_{ad}=0.76 *9* (2016NdZZ).
321.0[@]	13.040 *7*	1833.8+x	17/2$^-$	1512.8+x	15/2$^-$	D		Mult.: R_{ad}=0.85 *12* (2016NdZZ); DCO=0.84 *4* (1992Re08).
323.9[@]	31.28 *6*	1081.7+x	13/2$^-$	757.8+x	11/2$^-$	M1+E2	0.6 *+4−5*	Mult.,δ: From α(K)exp=0.21 *5* (1974Ne16); R_{ad}=0.86 *9* (2016NdZZ); DCO=0.791 *11* (1992Re08); A_2=−0.74 *2*, A_4=+0.02 *2* (1974Ne16) for unresolved 323.8γ+320.9γ.
326.0[#]	3.280 *6*	4553.4+x	37/2$^-$	4227.4+x	35/2$^-$	D		Mult.: R_{ad}=0.74 *9* (2016NdZZ); DCO=0.71 *3* (1992Re08).
337.0[#]	1.440 *3*	4890.4+x	39/2$^-$	4553.4+x	37/2$^-$	D		E_γ: Placement from level scheme (Fig. 4.1). In Table 4.1 − from 4749 keV level. Mult.: R_{ad}=0.68 *19* (2016NdZZ); DCO=0.60 *3* (1992Re08).
339.6[#]	2.270 *5*	4646.4+x	37/2$^-$	4306.8+x	35/2$^-$	M1		Mult.: R_{ad}=0.74 *10*, A_{pol}=−0.06 *4* (2016NdZZ); DCO=0.70 *6* (1992Re08). E_γ: From level scheme (Fig 4.1). In Table 4.1 − from 4182 keV level, which appears to be a misprint of 4281.
340.1[#]	7.40 *6*	3747.1+x	31/2$^+$	3407.0+x	29/2$^+$	M1		Mult.: R_{ad}=0.72 *13*, A_{pol}=−0.05 *3* (2016NdZZ); DCO=0.70 *6* (1992Re08).
341.0[‡]	5.710 *5*	3428.5+x	31/2	3087.5+x	29/2	D		Mult.: R_{ad}=0.75 *21* (2016NdZZ).
345.4[#]	1.300 *22*	5469.8+x	41/2$^-$	5124.4+x	39/2$^-$	M1		Mult.: R_{ad}=0.76 *25*, A_{pol}=−0.10 *4* (2016NdZZ); DCO=0.60 *4* (1992Re08).
356.0[#]	1.1200 *13*	5312.2+x	39/2$^-$	4956.2+x	37/2$^-$	D		Mult.: R_{ad}=0.77 *23* (2016NdZZ); DCO=0.65 *5* (1992Re08).
365.3		365.3		0.0				E_γ: from 1974Ne16. I_γ: found to be duty cycle dependent.
365.6[#]	1.90 *4*	5490.6+x	45/2$^+$	5125.0+x	43/2$^+$	D		Mult.: R_{ad}=0.74 *24* (2016NdZZ); DCO=1.254 *24* (1992Re08) not consistent with D.
367.5	1.840 *4*	4114.6+x	33/2	3747.1+x	31/2$^+$	D		Mult.: R_{ad}=0.77 *21* (2016NdZZ).
369.0[e#]	2.370[e] *4*	4335.2+x	33/2$^-$	3966.2+x	31/2$^-$	D		Mult.: R_{ad}=0.70 *12* (2016NdZZ).
369.0[e#]	2.0400[e] *21*	4956.2+x	37/2$^-$	4587.2+x	35/2$^-$	D		Mult.: R_{ad}=0.70 *12* (2016NdZZ); DCO=0.61 *4* (1992Re08).
374.0[f]	0.2600 *5*	5264.2+x	41/2$^-$	4890.4+x	39/2$^-$	D		Mult.: R_{ad}=0.75 *23* (2016NdZZ).
380.1[#]	8.69 *1*	3407.0+x	29/2$^+$	3026.9+x	27/2$^+$	M1		Mult.: R_{ad}=0.69 *12*, A_{pol}=−0.05 *3* (2016NdZZ); DCO=0.721 *24* (1992Re08).
384.0[#]	1.430 *4*	5853.8+x	43/2$^-$	5469.8+x	41/2$^-$	D		Mult.: R_{ad}=0.8 *3* (2016NdZZ); DCO=0.70 *8* (1992Re08).

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(HI,xnγ) 2016NdZZ,1992Re08,1974Ne16 (continued)

$\gamma(^{193}Tl)$ (continued)

E_γ[&]	I_γ[&a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[b]	Comments
392.5[d@]	100[d] *1*	757.8+x	11/2⁻	365.3+x	9/2⁻	M1+E2	Mult.: α(K)exp=0.110 *25* (1974Ne16); DCO=0.791 *11* (1992Re08); A_2=−0.74 *2*, A_4=+0.02 *2* (1974Ne16); R_{ad}=0.91 *8*, A_{pol}=−0.019 *29* (2016NdZZ). δ: from γγ(θ) and γ(ce)(θ) (1996SaZU).
392.5[d#]	13.820[d] *17*	3556.8+x	31/2⁻	3164.3+x	29/2⁻	M1	Mult.: R_{ad}=0.78 *12*, A_{pol}=−0.08 *4* (2016NdZZ).
398.0	2.540 *4*	5888.6+x	47/2⁺	5490.6+x	45/2⁺	D	Mult.: R_{ad}=0.64 *11* (2016NdZZ).
406.2[@]	29.70 *15*	1900.2+x	15/2⁻	1493.8+x	13/2⁽⁻⁾	M1	Mult.: R_{ad}=0.83 *14*, A_{pol}=−0.07 *3* (2016NdZZ); α(K)exp=0.12 *3*, K/L=4.6 *8* (1974Ne16); DCO=0.710 *16* (1992Re08); A_2=−0.68 *3*, A_4=+0.02 *3* (1974Ne16).
412.0[@]	6.150 *6*	1493.8+x	13/2⁽⁻⁾	1081.7+x	13/2⁻	D+Q	Mult.: R_{ad}=1.12 *8* (2016NdZZ), DCO=1.37 *3* indicates dominant Q (1992Re08).
416.9[e@]	2.480[e] *8*	1929.7+x	17/2⁻	1512.8+x	15/2⁻	D	E_γ,I_γ: 416.9 is a doublet of 416.9γ and 417.4γ from 6271.2+x keV level. Undivided γ-ray intensity listed. Mult.: DCO=0.53 *4* (1992Re08).
417.4[e#]	2.480[e] *8*	6271.2+x	45/2⁻	5853.8+x	43/2⁻	D	E_γ,I_γ: Doublet of 417.4γ and 416.9γ from 1929.7+x keV level. Undivided γ-ray intensity listed. Q. Mult.: DCO=0.53 *4* (1992Re08).
431.2[@]	17.910 *13*	1512.8+x	15/2⁻	1081.7+x	13/2⁻	M1	Mult.: R_{ad}=0.79 *8*, A_{pol}=−0.04 *3* (2016NdZZ); α(K)exp=0.12 *3*, K/L=4.3 *8* (1974Ne16); DCO=0.81 *3* (1992Re08); A_2=−0.51 *8*, A_4=−0.16 *8* (1974Ne16).
441.0	1.3100 *15*	2672.5+x	25/2	2231.5+x	21/2⁺	(Q)	Mult.: R_{ad}=1.16 *20* (2016NdZZ). E_γ: Placement from level scheme (Fig. 4.1). In Table 4.1 − from 1128 keV level − is a misprint.
457.0[#]	2.980 *7*	4306.8+x	35/2⁻	3849.8+x	33/2⁻	M1	Mult.: R_{ad}=0.7 *3*, A_{pol}=−0.028 *13* (2016NdZZ); DCO=0.81 *4* (1992Re08).
460.1	1.790 *5*	4227.4+x	35/2⁻	3767.3+x	31/2⁻	Q	Mult.: R_{ad}=1.2 *4* (2016NdZZ).
464.1[@]	6.10 *12*	2393.7+x	19/2⁻	1929.7+x	17/2⁻	D	Mult.: R_{ad}=0.73 *17* (2016NdZZ); DCO=0.90 *4* (1992Re08).
466.9[@]	14.410 *12*	1960.6+x	15/2⁽⁻⁾	1493.8+x	13/2⁽⁻⁾	M1	Mult.: R_{ad}=0.73 *16*, A_{pol}=−0.05 *3* (2016NdZZ); α(K)exp=0.090 *25* (1974Ne16); DCO=0.729 *14* (1992Re08).
470.0[@]	6.670 *7*	2303.8+x	19/2⁻	1833.8+x	17/2⁻	D	Mult.: R_{ad}=0.82 *17* (2016NdZZ); DCO=0.79 *3* (1992Re08).
477.0[#]	4.450 *6*	3164.3+x	29/2⁻	2687.3+x	25/2⁻	Q	Mult.: R_{ad}=1.3 *3* (2016NdZZ); DCO=1.346 *22* (1992Re08).
478.0[#]	2.220 *4*	5124.4+x	39/2⁻	4646.4+x	37/2⁻	D	Mult.: R_{ad}=0.83 *8* (2016NdZZ); DCO=0.89 *3* (1992Re08).
478.5	2.670 *7*	2710.2+x	25/2⁺	2231.5+x	21/2⁺	Q	Mult.: R_{ad}=1.2 *3* (2016NdZZ).
485.6[#]	0.700 *18*	4804.9+x	41/2⁺	4319.3+x	37/2⁺	Q	Mult.: R_{ad}=1.25 *13* (2016NdZZ); DCO=1.33 *4* (1992Re08).
495.2[@]	6.01 *1*	2008.1+x	17/2⁺	1512.8+x	15/2⁻	E1	Mult.: R_{ad}=0.78 *17*, A_{pol}=0.03 *3* (2016NdZZ); DCO=1.51 *3* (1992Re08).
543.0[†#]	1.790 *5*	3630.5+x	33/2	3087.5+x	29/2	Q	Mult.: R_{ad}=1.17 *6* (2016NdZZ); DCO=1.462 *20* (1992Re08).
599.3[#]	6.080 *14*	5125.0+x	43/2⁺	4525.7+x	39/2⁺	Q	E_γ,I_γ: Doublet of 599.3γ and 601.0γ from 3642 keV level. Undivided γ-ray intensity listed. Mult.: DCO=1.29 *4* (1992Re08).

Continued on next page (footnotes at end of table)

(HI,xnγ) 2016NdZZ,1992Re08,1974Ne16 (continued)

γ(^{193}Tl) (continued)

E_γ[&]	I_γ[&a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[b]	Comments
600.5	2.980 *11*	3556.8+x	31/2$^-$	2956.3+x	27/2$^-$		E_γ: From level scheme (Fig 4.1). In Table 4.1 – from 3191 keV level, which appears to be the same with this level.
601.0[#]	6.080 *14*	4008.0+x	33/2$^+$	3407.0+x	29/2$^+$	Q	E_γ,I_γ: Doublet of 601.0γ and 599.3γ from 4759 keV level. Undivided γ-ray intensity listed. Mult.: DCO=1.40 *3* (1992Re08).
621.0[#]	0.9100 *24*	4587.2+x	35/2$^-$	3966.2+x	31/2$^-$	Q	Mult.: R_{ad}=1.41 *11* (2016NdZZ); DCO=1.40 *3* (1992Re08).
632.0[#]	1.760 *3*	4262.5+x	37/2	3630.5+x	33/2	Q	Mult.: R_{ad}=1.2 *3* (2016NdZZ); DCO=1.599 *22* (1992Re08).
633.4[#]	10.460 *11*	3026.9+x	27/2$^+$	2393.4+x	23/2$^+$	E2	Mult.: R_{ad}=1.33 *11*, A_{pol}=0.04 *4*; DCO=1.599 *22* (1992Re08).
663.0[#]	0.730 *2*	4890.4+x	39/2$^-$	4227.4+x	35/2$^-$	Q	Mult.: R_{ad}=1.31 *20* (2016NdZZ); DCO=1.36 *5* (1992Re08).
672.5[@]	39.19 *4*	2506.3+x	21/2$^-$	1833.8+x	17/2$^-$	E2	Mult.: R_{ad}=1.21 *15*, A_{pol}=0.04 *3* (2016NdZZ); DCO=1.347 *15* (1992Re08).
685.5[#]	4.67 *1*	3849.8+x	33/2$^-$	3164.3+x	29/2$^-$	E2	Mult.: R_{ad}=1.25 *11*, A_{pol}=0.07 *4* (2016NdZZ); DCO=1.353 *21* (1992Re08).
685.7	0.4900 *8*	5490.6+x	45/2$^+$	4804.9+x	41/2$^+$	Q	Mult.: R_{ad}=1.25 *21* (2016NdZZ).
696.8[#]	7.680 *5*	3407.0+x	29/2$^+$	2710.2+x	25/2$^+$	(E2)	Mult.: R_{ad}=1.15 *8*, A_{pol}=0.039 *25* (2016NdZZ); DCO=1.278 *24* (1992Re08).
707.7	4.150 *9*	4114.6+x	33/2	3407.0+x	29/2$^+$	Q	Mult.: R_{ad}=1.33 *18* (2016NdZZ).
716.4[@]	34.88 *6*	1081.7+x	13/2$^-$	365.3+x	9/2$^-$	E2	Mult.: R_{ad}=1.29 *23*, A_{pol}=0.06 *3* (2016NdZZ); α(K)exp=0.0075 *2* (1974Ne16); DCO=1.291 *16* (1992Re08); A_2=+0.32 *5*, A_4=−0.02 *5* (1974Ne16).
720.2[#]	10.570 *8*	3747.1+x	31/2$^+$	3026.9+x	27/2$^+$	E2	Mult.: R_{ad}=1.33 *5*, A_{pol}=0.06 *4* (2016NdZZ); DCO=1.406 *18* (1992Re08).
729.4[#f]	0.3100 *11*	5853.8+x	43/2$^-$	5124.4+x	39/2$^-$	Q	Mult.: DCO=1.30 *3* (1992Re08).
735.9[@]	52.34 *6*	1493.8+x	13/2$^{(-)}$	757.8+x	11/2$^-$	D	Mult.: R_{ad}=0.72 *13*, A_{pol}=0.001 *34* (2016NdZZ); α(K)exp=0.0060 *15* (1974Ne16), theory: α(K)(E1)=0.00354, α(K)(M1)=0.0299; DCO=0.704 *23* (1992Re08); A_2=−0.19 *4*, A_4=0.04 *4* (1974Ne16).
742.4[@]	12.920 *13*	2576.2+x	21/2$^-$	1833.8+x	17/2$^-$	Q	Mult.: R_{ad}=1.29 *25* (2016NdZZ); α(K)exp=0.030 *15* (1974Ne16); theory: α(K)(E2)=0.00349, α(K)(M1)=0.0292; DCO=1.191 *19* (1992Re08); A_2=+0.24 *17*, A_4=−0.05 *17* (1974Ne16). In band transition.
750.0	1.770 *6*	4306.8+x	35/2$^-$	3556.8+x	31/2$^-$	Q	Mult.: R_{ad}=1.21 *14* (2016NdZZ).
752.2[@]	41.65 *7*	1833.8+x	17/2$^-$	1081.7+x	13/2$^-$	E2	Mult.: α(K)exp=0.013 *4* (1974Ne16); DCO=1.640 *15* (1992Re08); R_{ad}=1.2 *3* (2016NdZZ).
755.1[@]	24.37 *5*	1512.8+x	15/2$^-$	757.8+x	11/2$^-$	E2	Mult.: R_{ad}=1.25 *12* (2016NdZZ); α(K)exp=0.011 *4* (1974Ne16); DCO=1.219 *18* (1992Re08). theory: α(K)(E2)=0.00867.
770.0	1.460 *3*	3457.3+x	27/2$^-$	2687.3+x	25/2$^-$	M1	Mult.: R_{ad}=0.8 *4*, A_{pol}=−0.05 *4* (2016NdZZ).
777.0[†#]	1.950 *3*	5039.5+x	41/2	4262.5+x	37/2	Q	Mult.: R_{ad}=1.3 *3* (2016NdZZ); DCO=1.39 *3* (1992Re08).
791.0[@]	10.750 *8*	2303.8+x	19/2$^-$	1512.8+x	15/2$^-$	(E2)	Mult.: R_{ad}=1.13 *11*, A_{pol}=0.038 *25* (2016NdZZ); DCO=1.488 *18* (1992Re08).
796.6[#]	3.330 *6*	4646.4+x	37/2$^-$	3849.8+x	33/2$^-$	(E2)	Mult.: R_{ad}=1.15 *8*, A_{pol}=0.13 *5* (2016NdZZ); DCO=1.382 *21* (1992Re08).

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(HI,xnγ) 2016NdZZ,1992Re08,1974Ne16 (continued)

γ(^{193}Tl) (continued)

E_γ[&]	I_γ[&a]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[b]	Comments
801.4[#f]	0.7200 *17*	6271.2+x	$45/2^-$	5469.8+x	$41/2^-$		Mult.: DCO=1.30 *7* (1992Re08).
810.9	2.280 *5*	3767.2+x	$29/2^-$	2956.3+x	$27/2^-$	M1	Mult.: R_{ad}=0.53 *13*, A_{pol}=−0.014 *4* (2016NdZZ).
817.6[#]	1.2100 *18*	5124.4+x	$39/2^-$	4306.8+x	$35/2^-$	Q	Mult.: R_{ad}=1.30 *11* (2016NdZZ); DCO=1.90 *8* (1992Re08).
818.6	1.810 *4*	1900.2+x	$15/2^-$	1081.7+x	$13/2^-$	D	Mult.: R_{ad}=0.78 *8* (2016NdZZ).
823.4[#]	1.00 *3*	5469.8+x	$41/2^-$	4646.4+x	$37/2^-$	Q	Mult.: R_{ad}=1.32 *20* (2016NdZZ); DCO=1.699 *23* (1992Re08).
848.1[@]	7.170 *14*	1929.7+x	$17/2^-$	1081.7+x	$13/2^-$	Q	Mult.: R_{ad}=1.131 *21* (2016NdZZ); DCO=1.201 *23* (1992Re08).
866.0	0.9100 *23*	3457.3+x	$27/2^-$	2591.3+x	$23/2^-$	(E2)	Mult.: R_{ad}=1.16 *25*, A_{pol}=0.09 *5* (2016NdZZ).
878.9	1.4300 *24*	1960.6+x	$15/2^{(-)}$	1081.7+x	$13/2^-$	D	Mult.: R_{ad}=0.86 *15* (2016NdZZ).
881.0	0.8800 *12*	2393.7+x	$19/2^-$	1512.8+x	$15/2^-$	Q	Mult.: R_{ad}=1.23 *22* (2016NdZZ).
929.0	1.0400 *24*	3616.3+x	$29/2^-$	2687.3+x	$25/2^-$	Q	Mult.: R_{ad}=1.2 *3* (2016NdZZ).
1128.4	1.600 *21*	1493.8+x	$13/2^{(-)}$	365.3+x	$9/2^-$	Q	Mult.: R_{ad}=1.34 *8* (2016NdZZ).

† Member of a sequence.

‡ Member of a sequence.

§ Member of a sequence.

& From 2016NdZZ, except otherwise noted. 2016NdZZ did not report uncertainty of γ-ray energy. Assuming a 0.5 keV uncertainty, the values are in good agreement with those of 1992Re08.

@ A comparable γ ray from the same level also reported in 1992Re08.

\# A comparable γ-ray reported in 1992Re08, but level not present in 2016NdZZ.

a From 2016NdZZ, except otherwise noted.

b Based on α(K)exp, K/L, γ(θ) results (1974Ne16), DCO (1992Re08), and γ-ray angular distribution ratio, polarization measurement (2016NdZZ). The levels up to $13/2^+$ and $15/2^-$ were considered established by 1974Ne16. To obtain the α(K)exp, the photon and ce-spectra of 1974Ne16 were calibrated through α(K) (E3 theory) for 382.8γ in ^{199}Tl. The DCO ratio is defined as $I(\gamma_1(146°),\gamma_2(34°))/I(\gamma_1(90°),\gamma_2(34°))$ which results in DCO=1.4 for ΔJ=2 Q and ΔJ=0 D, and DCO=0.7 for ΔJ=1, D. 2016NdZZ measured γ-ray angular distribution ratio $R_{ad}=I\gamma(135°)/I\gamma(90°)$ and linear polarization anisotropy measurements. Expected R_{ad}=0.85 for pure stretched dipole and R_{ad}=1.35 for pure stretched quadrupole. For parity − a positive sign of polarization anisotropy A_{pol} for stretched electric transitions and a negative sign for stretched magnetic transitions was expected.

c 2016NdZZ argue the transition expected to be electric dipole based on intensity comparison with following transitons of 406.6γ, 818.6γ, 466.9γ, 878.9γ and without any additional feeding to $15/2^-$ state at 1535.0 keV level.

d Multiply placed with undivided intensity.

e Multiply placed with intensity suitably divided.

f Placement of transition in the level scheme is uncertain.

(HI,xnγ):SD 1996Bo02,1998Bo32,1999Kr19

1990Fe07: ^{160}Gd(^{37}Cl,^{4}nγ) E=167 MeV; measured γ, $\gamma\gamma$ and deduced SD-1 and SD-2 bands.
1990KeZW; ^{176}Yb(^{23}Na,^{6}nγ); E=116, 122 MeV; HERA Compton-suppressed Ge detector array (20 detectors); identified a 12-transition SD band which was tentatively assigned to ^{193}Tl. Authors give no other details.
1996Bo02, 1996Bo15: ^{181}Ta(^{18}O,^{6}nγ) E=110 MeV. Measured Eγ, $\gamma\gamma\gamma$ with EUROGAM2 array (126 Compton-suppressed Ge detectors (24 quad-clover and 30 Ge detectors)). Deduced SD-1 and SD-2 bands and interband transitions linking the two signature partners.
1998Bo32, 1998Bo20 (also 1996WiZY): ^{181}Ta(^{18}O,^{6}nγ) E=110 MeV. Measured Eγ, 2^{-} and 3-fold gated $\gamma\gamma$ coincidences with EUROGAM2 array (54 Compton-suppressed Ge detectors (24 quad-clover and 30 Ge detectors)). Deduced SD-3, SD-4 and SD-5 bands. Deduced transitions connecting SD-1 and SD-2 bands to normal bands.
1999Kr19: ^{176}Yb(^{23}Na,^{6}nγ) E=129 MeV. GAMMASPHERE array of 100 Compton-suppressed HPGe detectors. Measured lifetimes by DSAM and deduced intrinsic quadrupole moments for SD-1 and SD-2 bands.

^{193}Tl Levels

E(level)	J$^{\pi}$	Comments
v†	(17/2^{+})	J$^{\pi}$: from 1998Bo20. Also from least-squares fits to Eγ's using empirical expansions relating second moment of inertia and angular frequency.
98+v‡	(19/2^{+})	J$^{\pi}$: calculated J=19/2 (1992Wu01,1993Hu06,1994Zh40).
206+v†	(21/2^{+})	J$^{\pi}$: calculated J=21/2 (1992Wu01,1993Hu06,1994Zh40).
325+v‡ *3*	(23/2^{+})	
454+v† *3*	(25/2^{+})	
593+v‡ *3*	(27/2^{+})	
741+v† *3*	(29/2^{+})	
901+v‡ *3*	(31/2^{+})	
1069+v† *3*	(33/2^{+})	
1249+v‡ *3*	(35/2^{+})	
1435+v† *3*	(37/2^{+})	
1636+v‡ *3*	(39/2^{+})	
1840+v† *3*	(41/2^{+})	
2062+v‡ *3*	(43/2^{+})	
2283+v† *3*	(45/2^{+})	
2525+v‡ *3*	(47/2^{+})	
2763+v† *3*	(49/2^{+})	
3027+v‡ *3*	(51/2^{+})	
3279+v† *3*	(53/2^{+})	
3564+v‡ *3*	(55/2^{+})	
3830+v† *3*	(57/2^{+})	
4137+v‡ *3*	(59/2^{+})	
4417+v† *3*	(61/2^{+})	
4746+v‡ *3*	(63/2^{+})	
5037+v† *3*	(65/2^{+})	
5390+v‡ *3*	(67/2^{+})	
5691+v† *3*	(69/2^{+})	
6069+v‡ *3*	(71/2^{+})	
6377+v† *3*	(73/2^{+})	
6782+v‡ *3*	(75/2^{+})	
7096+v† *3*	(77/2^{+})	
7529+v‡ *3*	(79/2^{+})	
7847+v† *3*	(81/2^{+})	

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(HI,xnγ):SD 1996Bo02,1998Bo32,1999Kr19 (continued)

^{193}Tl Levels (continued)

E(level)	J$^{\pi}$	Comments
8311+v[‡] 3	(83/2^{+})	
8630+v[†] 4	(85/2^{+})	
y[#]	J	J$^{\pi}$: ≈(15/2).
187.9+y[#] 3	J+2	
418.6+y[#] 5	J+4	
691.4+y[#] 6	J+6	
1005.7+y[#] 6	J+8	
1360.7+y[#] 7	J+10	
1755.8+y[#] 8	J+12	
2190.3+y[#] 8	J+14	
2663.4+y[#] 9	J+16	
3174.0+y[#] 9	J+18	
3721.5+y[#] 10	J+20	
4304.9+y[#] 10	J+22	
4923.3+y[#] 11	J+24	
5576.4+y[#] 11	J+26	
6263.1+y[#] 12	J+28	
6977.1+y[#] 14	J+30	
7712.1+y[#] 17	J+32	
z[@]	J1	J$^{\pi}$: ≈(23/2).
250.8+z[@] 3	J1+2	
542.8+z[@] 5	J1+4	
875.5+z[@] 6	J1+6	
1248.2+z[@] 6	J1+8	
1660.1+z[@] 7	J1+10	
2110.6+z[@] 8	J1+12	
2598.7+z[@] 8	J1+14	
3123.9+z[@] 9	J1+16	
3685.6+z[@] 9	J1+18	
4282.5+z[@] 10	J1+20	
4914.3+z[@] 10	J1+22	
5580.7+z[@] 11	J1+24	
6285.4+z[@] 13	J1+26	
7033.4+z[@] 16	J1+28	
u[&]	J2	J$^{\pi}$: ≈(21/2).
271.5+u[&] 5	J2+2	
584.8+u[&] 7	J2+4	
938.9+u[&] 7	J2+6	
1332.2+u[&] 9	J2+8	
1764.5+u[&] 9	J2+10	
2234.4+u[&] 10	J2+12	
2741.7+u[&] 10	J2+14	
3285.4+u[&] 10	J2+16	
3864.8+u[&] 11	J2+18	
4479.3+u[&] 12	J2+20	

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(HI,xnγ):SD 1996Bo02,1998Bo32,1999Kr19 (continued)

^{193}Tl Levels (continued)

E(level)	J^π
5128.8+u[&] *13*	J2+22
5813.0+u[&] *13*	J2+24
6531.8+u[&] *15*	J2+26

[†] Band(A): SD-1 band α=+1/2. (1990Fe07,1996Bo02,1998Bo20,1999Kr19). Percent population is ≈0.5 of total yield for ^{193}Tl (1990Fe07). Q(intrinsic)=18.3 *10* (1999Kr19). From competing M1 (interband) and E2 (intraband) transitions, g_K=1.46 *17* (1996Bo02) and g_s^{eff}/g_s^{free}=0.7 *2* (1996Bo02).

[‡] Band(a): SD-2 band α=−1/2. (1990Fe07,1996Bo02,1998Bo20,1999Kr19). percent population is ≈0.5 of total yield for ^{193}Tl (1990Fe07). Q(intrinsic)=17.4 *10* (1999Kr19). The two SD bands (SD Band 1 and SD Band 2) are interpreted as signature partners influenced by the i13/2 proton intruder orbital. From competing M1 (interband) and E2 (intraband) transitions, g_K=1.46 *17* (1996Bo02) and g_s^{eff}/g_s^{free}=0.7 *2* (1996Bo02).

[#] Band(B): SD-3 band. Population intensity=60% of SD-2 band. Interaction observed between SD-3 and SD-4 bands, and the identical energies (within 2 keV) of transitions in SD-3 and SD-5 bands, indicate involvement of 1/2[411], α=±1/2 and 1/2[651], α=−1/2 proton orbitals. At high frequencies SD-3 is interpreted to be due to 1/2[651], α=−1/2, while at low frequencies, it is expected to be due to 1/2[411] α=−1/2 (1998Bo32).

[@] Band(C): SD-4 band. Population intensity=33% of SD-2 band. At high frequencies SD-4 Interaction is observed between SD-3 and SD-4 bands. is interpreted to be due to 1/2[411], α=−1/2, while at low frequencies it is interpreted as 1/2[651], α=−1/2 (1998Bo32).

[&] Band(D): SD-5 band. Population intensity=16% of SD-2 band. Identical energies (within 2 keV) of transitions in SD-3 and SD-5 bands indicate that these bands may be signature partners. SD-5 band is interpreted as 1/2[411], α=+1/2 (1998Bo32).

γ(^{193}Tl)

E_γ[†]	I_γ[§]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
108.0 *3*		206+v	(21/2$^+$)	98+v	(19/2$^+$)		
118.9 *3*		325+v	(23/2$^+$)	206+v	(21/2$^+$)		
128.3 *3*		454+v	(25/2$^+$)	325+v	(23/2$^+$)		
139.2 *3*		593+v	(27/2$^+$)	454+v	(25/2$^+$)	(M1)	Mult.: α(exp)(139γ+148γ)=2.6 *8* (1996Bo02); theory: α(K)(M1)=2.73.
148.2 *3*		741+v	(29/2$^+$)	593+v	(27/2$^+$)	(M1)	Mult.: α(exp)(139γ+148γ)=2.6 *8* and α(exp)(148γ+160γ)=3.0 *8* (1996Bo02); theory: α(K)(M1)=2.29.
160.1 *3*		901+v	(31/2$^+$)	741+v	(29/2$^+$)	(M1)	Mult.: α(exp)(148γ+160γ)=3.0 *8* (1996Bo02); theory: α(K)(M1)=1.84.
167.4 *3*		1069+v	(33/2$^+$)	901+v	(31/2$^+$)	(M1)	Mult.: α(exp)(167γ+181γ)=2.2 *5* (1996Bo02): theory: α(K)(M1)=1.622.
180.6 *3*		1249+v	(35/2$^+$)	1069+v	(33/2$^+$)	(M1)	Mult.: α(exp)(167γ+181γ)=2.2 *5* and α(exp)(181γ+186γ)=1.8 *7* (1996Bo02); theory: α(K)(M1)=1.31.
185.8 *3*		1435+v	(37/2$^+$)	1249+v	(35/2$^+$)	(M1)	Mult.: α(exp)(181γ+186γ)=1.8 *7* and α(exp)(186γ+201γ)=1.4 *6* (1996Bo02); theory: α(K)(M1)=1.21.
187.9 *3*		187.9+y	J+2	y	J		
201.4 *3*		1636+v	(39/2$^+$)	1435+v	(37/2$^+$)	(M1)	Mult.: α(exp)(186γ+201γ)=1.4 *6* (1996Bo02); theory: α(K)(M1)=0.965.
203.5 *3*		1840+v	(41/2$^+$)	1636+v	(39/2$^+$)		
206.6 *3*		206+v	(21/2$^+$)	v	(17/2$^+$)		
221.5 *3*		2062+v	(43/2$^+$)	1840+v	(41/2$^+$)		
227.3 *3*	0.98 *10*	325+v	(23/2$^+$)	98+v	(19/2$^+$)		
230.7 *3*		418.6+y	J+4	187.9+y	J+2		

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(HI,xnγ):SD 1996Bo02,1998Bo32,1999Kr19 (continued)

$\gamma(^{193}Tl)$ (continued)

E_γ [†]	I_γ [§]	E_i(level)	J^π_i	E_f	J^π_f
247.3 *3*	0.39 *6*	454+v	(25/2+)	206+v	(21/2+)
250.8 *3*		250.8+z	J1+2	z	J1
267.9 *3*	1.13[&] *23*	593+v	(27/2+)	325+v	(23/2+)
271.5 *5*		271.5+u	J2+2	u	J2
272.8 *3*		691.4+y	J+6	418.6+y	J+4
287.7 *3*	0.45 *5*	741+v	(29/2+)	454+v	(25/2+)
292.0 *3*		542.8+z	J1+4	250.8+z	J1+2
308.2 *3*	0.86 *9*	901+v	(31/2+)	593+v	(27/2+)
313.4 *4*		584.8+u	J2+4	271.5+u	J2+2
314.3 *3*		1005.7+y	J+8	691.4+y	J+6
327.4 *3*	0.53 *5*	1069+v	(33/2+)	741+v	(29/2+)
332.7 *3*		875.5+z	J1+6	542.8+z	J1+4
348.0 *3*	1.01 *11*	1249+v	(35/2+)	901+v	(31/2+)
354.1 *3*		938.9+u	J2+6	584.8+u	J2+4
355.0 *3*		1360.7+y	J+10	1005.7+y	J+8
366.4 *3*	1.15 *23*	1435+v	(37/2+)	1069+v	(33/2+)
372.7 *3*		1248.2+z	J1+8	875.5+z	J1+6
387.0 *3*	1.4 *4*	1636+v	(39/2+)	1249+v	(35/2+)
393.3 *4*		1332.2+u	J2+8	938.9+u	J2+6
395.1 *3*		1755.8+y	J+12	1360.7+y	J+10
405.3 *4*	0.93 *19*	1840+v	(41/2+)	1435+v	(37/2+)
411.9 *3*		1660.1+z	J1+10	1248.2+z	J1+8
425.4 *3*	1.22 *12*	2062+v	(43/2+)	1636+v	(39/2+)
432.3 *3*		1764.5+u	J2+10	1332.2+u	J2+8
434.5 *3*		2190.3+y	J+14	1755.8+y	J+12
442.9 *3*		2283+v	(45/2+)	1840+v	(41/2+)
450.5 *3*		2110.6+z	J1+12	1660.1+z	J1+10
463.7 *3*	1.60[&] *16*	2525+v	(47/2+)	2062+v	(43/2+)
469.9 *3*		2234.4+u	J2+12	1764.5+u	J2+10
473.1 *3*		2663.4+y	J+16	2190.3+y	J+14
479.7 *3*	0.72 *17*	2763+v	(49/2+)	2283+v	(45/2+)
488.1 *3*		2598.7+z	J1+14	2110.6+z	J1+12
501.1 *3*		3027+v	(51/2+)	2525+v	(47/2+)
507.3 *3*		2741.7+u	J2+14	2234.4+u	J2+12
510.6 *3*		3174.0+y	J+18	2663.4+y	J+16
516.1 *3*	1.11 *17*	3279+v	(53/2+)	2763+v	(49/2+)
525.2 *3*		3123.9+z	J1+16	2598.7+z	J1+14
537.5 *3*	1.30 *14*	3564+v	(55/2+)	3027+v	(51/2+)
543.7 *3*		3285.4+u	J2+16	2741.7+u	J2+14
547.5 *3*		3721.5+y	J+20	3174.0+y	J+18
551.6 *3*	1.00 *14*	3830+v	(57/2+)	3279+v	(53/2+)
561.7 *3*		3685.6+z	J1+18	3123.9+z	J1+16
573.4 *3*	1.00 *10*	4137+v	(59/2+)	3564+v	(55/2+)
579.4 *4*		3864.8+u	J2+18	3285.4+u	J2+16
583.4 *3*		4304.9+y	J+22	3721.5+y	J+20
586.5 *3*	0.84 *17*	4417+v	(61/2+)	3830+v	(57/2+)
596.9 *3*		4282.5+z	J1+20	3685.6+z	J1+18
608.8 *3*	0.96 *10*	4746+v	(63/2+)	4137+v	(59/2+)
614.5 *4*		4479.3+u	J2+20	3864.8+u	J2+18
618.4 *3*		4923.3+y	J+24	4304.9+y	J+22
620.3 *3*	0.81 *13*	5037+v	(65/2+)	4417+v	(61/2+)
631.8 *3*		4914.3+z	J1+22	4282.5+z	J1+20
643.8 *3*	1.09 *22*	5390+v	(67/2+)	4746+v	(63/2+)
649.5 *4*		5128.8+u	J2+22	4479.3+u	J2+20

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(HI,xnγ):SD 1996Bo02,1998Bo32,1999Kr19 (continued)

$\gamma(^{193}Tl)$ (continued)

E_γ †	I_γ §	E_i(level)	J_i^π	E_f	J_f^π	Comments
653.1 *3*		5576.4+y	J+26	4923.3+y	J+24	
653.6 *4*	0.42 *11*	5691+v	$(69/2^+)$	5037+v	$(65/2^+)$	
666.4 *3*		5580.7+z	J1+24	4914.3+z	J1+22	
678.7 *4*	0.75 *14*	6069+v	$(71/2^+)$	5390+v	$(67/2^+)$	
684.2 *4*		5813.0+u	J2+24	5128.8+u	J2+22	
686.1 *4*	0.46 *11*	6377+v	$(73/2^+)$	5691+v	$(69/2^+)$	
686.7 *4*		6263.1+y	J+28	5576.4+y	J+26	
704.7 *7*		6285.4+z	J1+26	5580.7+z	J1+24	
713.2 *5*		6782+v	$(75/2^+)$	6069+v	$(71/2^+)$	
714.0 *7*		6977.1+y	J+30	6263.1+y	J+28	
718.7 *5*		7096+v	$(77/2^+)$	6377+v	$(73/2^+)$	
718.8 *7*		6531.8+u	J2+26	5813.0+u	J2+24	
735.0 *10*		7712.1+y	J+32	6977.1+y	J+30	
747.5 *5*		7529+v	$(79/2^+)$	6782+v	$(75/2^+)$	
748.0 *10*		7033.4+z	J1+28	6285.4+z	J1+26	
751.3 *5*		7847+v	$(81/2^+)$	7096+v	$(77/2^+)$	
781.9 *5*		8311+v	$(83/2^+)$	7529+v	$(79/2^+)$	
783.4 *5*		8630+v	$(85/2^+)$	7847+v	$(81/2^+)$	
[x]3046‡ *6*						E_γ: Depopulating $(21/2^+)$ state at 206+V (1998Bo20).
[x]3113‡ *5*						E_γ: Depopulating $(19/2^+)$ state at 98+V (1998Bo20).
[x]3134‡ *4*						E_γ: Depopulating $(17/2^+)$ state at V (1998Bo20).

† From 1996Bo02 for γ's in SD-1 and SD-2 bands; from 1998Bo32 for γ's in SD-3, SD-4 and SD-5 bands. Interconnecting transitions from SD-1 and SD-2 bands to normal bands are from 1998Bo20. Eγ's for levels up to 2575 are from adopted gammas.

‡ Identified by 1998Bo20 as out of the two signature partners of SD bands (SD Band 1 and 2) and proposed connection with members of normal deformed states of 1992Re08. The proposed connections do not fit with current data of 2016NdZZ, since the location of 1765.9 (2131+X) level (Jπ=15/2$^+$) changed to 1865.7 (2230.9+X) (Jπ=21/2$^+$). The evaluator placed the transition as unplaced with notes of the depopulating state.

§ From 1990Fe07 ($^{160}Gd(^{37}Cl,^{4}n\gamma)$ E=167 MeV). Values are relative transition intensities within the band deduced from $\gamma\gamma$ data with gate on 500.7γ for SD-1 and gate on 443.0γ for SD-2. Intensity plots are given by 1998Bo32 for SD-3, SD-4 and SD-5 bands.

& Contains contribution from another unresolved transition in ^{193}Tl.

[x] γ ray not placed in level scheme.

Adopted Levels, Gammas

Q(β^-)=−6310 *50*; S(n)=7710 *50*; S(p)=3610 *60*; Q(α)=5010 *60* 2017Wa10

^{193}Pb Levels

The main features for the adopted level scheme are from 1996Du18 (^{30}Si,5nγ), for the lower part of the scheme, including the nomenclature of the magnetic dipole bands. Differences with other sources, specially 1996Ba54 (^{24}Mg,5nγ), are noted where appropriate. See the (HI,xnγ):SD dataset for sources for the superdeformed bands. For a discussion of the configurations, magnetic dipole bands, and band systematics in Pb nuclei, see 1996Ba54 and 1996Du18 (^{30}Si,5nγ).

Proposed new spin-parity assignments for 2213.8+x (J$^\pi$=23/2$^+$), 2426.7+x (J$^\pi$=25/2$^+$), and 2584.8+x (J$^\pi$=27/2$^+$) by 2011Ba02 (^{28}Si,5nγ) would result 1$\hbar$ lower spin assignments for most of the excited levels proposed in (^{30}Si,5nγ) and (^{16}O,5nγ).

Cross Reference (XREF) Flags

A	^{193}Bi ε decay	F	^{174}Yb(^{24}Mg,5nγ)
B	^{197}Po α decay (53.6 s)	G	^{182}W(^{16}O,5nγ)
C	^{197}Po α decay (25.8 s)	H	(HI,xnγ):SD
D	^{168}Er(^{30}Si,5nγ)		
E	^{170}Er(^{28}Si,5nγ)		

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0	(3/2$^-$)		B	%ε+%β^+=? Decay not observed. J$^\pi$: From shell model. Available low-spin configurations for N=111 are 2f5/2, 3p3/2 and 3p1/2; 3/2$^-$ is the g.s. in ^{191}Pb, ^{197}Pb and also in ^{193}Hg and ^{193}Po. RMS charge radius: 5.4298 fm *22* (2004An14).
0.0+x	(13/2$^+$)	5.8 min *2*	CDEFG	%ε+%β^+=100 μ=−1.150 *7*; Q=+0.195 *10* E(level): Level energy 130 keV *80* in 2017Au03 from systematics. J$^\pi$: From shell calculations − configuration $\nu i_{13/2}$. This high-J isomer is confirmed in ^{197}Pb, ^{199}Pb, ^{201}Pb, ^{203}Pb; also in ^{199}Po, ^{201}Po, ^{203}Po. T$_{1/2}$: from 1976Ha25. Other values: 5.0 min *6*, 5.8 min *3* (both from 1974Ne16). IT and α decay not observed. μ,Q: from collinear fast atom beam laser spectroscopy (2014StZZ,1991Du07). Isotope shift: Δ<r^2> = −0.747 fm^2 *8* relative to ^{208}Pb (1991Du07). Other: -0.746 fm^2 *12* (1989MeZZ).
757+x	(13/2$^+$)		C	J$^\pi$: Suggested in 2002Va13, based on the low hindrance factor for the 5622 keV α ray feeding this level from 13/2$^+$ state in ^{197}Po α decay.
881.6 +x *2*	(17/2$^+$)		DEFG	J$^\pi$: E2 γ to (13/2$^+$) level.
1022.1+x *3*	(15/2$^+$)		DEFG	J$^\pi$: (M1+E2) γ to (13/2$^+$) level.
1401.8+x *3*	(21/2$^+$)		DEFG	J$^\pi$: E2 γ to (17/2$^+$) level.
1519.4+x *11*	(19/2$^+$)		D	J$^\pi$: (E2) γ to (15/2$^+$).
1550.2+x *3*	(19/2$^+$)		DEFG	J$^\pi$: E2 γ to (15/2$^+$) level, E2+M1 γ to (17/2$^+$) level.
1585.9+x *4*	(21/2$^-$)	20.5 ns *4*	DEFG	μ=−0.62 *12*; Q=0.22 *2* μ: From 2014StZZ, 2004Io01: Time Dependent Perturbed Angular Distribution (TDPAD) method. Q: From 2014StZZ, 2004Ba31): TDPAD method. J$^\pi$: E1+M2 γ to (21/2$^+$) level. T$_{1/2}$: From 2004Io01 − (^{28}Si,5nγ). Other: 22 ns *2* (1991La07) -(^{16}O,5nγ).
1994.8+x *4*	(25/2$^+$)		DEFG	J$^\pi$: E2 γ to (21/2$^+$) level.
2058.9+x *5*	(23/2$^-$)		DEF	J$^\pi$: D γ to (21/2$^-$) level.

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Adopted Levels, Gammas (continued)

^{193}Pb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
2141.4+x *4*	(23/2$^+$)		DEFG	Jπ: E2 γ to (19/2$^+$) level, M1+E2 γ to (21/2$^+$) level.
2142.1+x *5*	(25/2$^-$)		DEFG	Jπ: E2 γ to (21/2$^-$) level.
2172.6+x *6*	(23/2$^+$)		D	
2213.8+x *4*	(25/2$^+$)		DEFG	Jπ: Conflicting spin assignment (23/2$^+$) in 2011Ba02 (^{28}Si,5nγ), based on 811.9γ (M1+E2) to (21/2$^+$) level. 1991La07 – (^{16}O,5nγ) proposes 25/2$^+$ with 811.9γ E2 from α_K(exp) to (21/2$^+$). Proposed (23/2$^+$) assignment requires adjustment of many higher level spin assignments of (^{30}Si,5nγ) and other (HI,xnγ) datasets. Evaluator keeps (25/2$^+$) for consistent links with higher excited levels.
2322.2+x *5*	(27/2$^-$)	5.3 ns *6*	DEFG	Q≤0.5 (2011Ba02) Jπ: E2+M1 γ to (25/2$^-$) level. $T_{1/2}$: From 2011Ba02 (^{28}Si,5nγ).
2404.9+x *9*			F	
2426.7+x *4*	(27/2$^+$)		DEFG	Jπ: Conflicting Jπ assignment: (25/2$^+$) by 2011Ba02 (^{28}Si,5nγ). (27/2$^+$) in (^{30}Si,5nγ), (^{24}Mg,5nγ), and (^{16}O,5nγ). Proposed (25/2$^+$) assignment requires adjustment of many higher level spin assignments of (^{30}Si,5nγ) and other (HI,xnγ) datasets. Evaluator keeps (27/2$^+$) for consistent links with higher excited levels.
2524.9+x *4*	(27/2$^+$)		D F	Jπ: γ to (23/2$^+$).
2526.9+x *4*	(29/2$^+$)		DEFG	Jπ: E2 γ to (25/2$^+$) level.
2584.8+x[&] *5*	(29/2$^-$)	9.4 ns *5*	DEFG	μ=9.2 *4* Q=2.6 *3* μ: From 2011Ba02, 2014StZZ – Time Dependent Perturbed Angular Distribution (TDPAD) method. Other value: +9.9 *4* from g=0.68 *3* (1997Ch33). 2011Ba02 (^{28}Si,5nγ) also reanalyzed 1997Ch33 data and reproduce the g value for revised spin-parity of (27/2$^-$). Q: From 2011Ba02, 2014StZZ: TDPAD method. Supercedes their earlier value 2.84 *26* in 2004Ba31. Jπ: 2011Ba02 (^{28}Si,5nγ) propose (27/2$^-$). E1 γ to (27/2$^+$) level. $T_{1/2}$: From 2011Ba02 (^{28}Si,5nγ). Other values: 9.4 ns *7* (1991La07), 8 ns *2* from Recoil Shadow Anisotropy Method (2001Gu31), and 11 ns *2* (1997Ch33).
2612.5+x *5*	(33/2$^+$)	180 ns *15*	DEFG	μ=2.82 *15*; Q=0.45 *4* E(level): 2742 keV *80* in 2017Au03 from systematics. μ: From 2014StZZ, 2004Io01: Time Dependent Perturbed Angular Distribution (TDPAD) method. Q: From 2014StZZ, 2004Ba31: TDPAD method. Jπ: (E2) γ to (29/2$^+$) level. $T_{1/2}$: From 2004Io01 (^{28}Si,5nγ). Other: 104 ns *+370−34* (2003Gl05,2004Gl04); 135 ns *+25−15* (1991La07).
2653.6+x *5*	(27/2$^-$)		D F	
2672.2+x *6*	(29/2$^+$)		D F	Jπ: Q γ to (25/2$^+$) level.
2686.9+x[&] *6*	(31/2$^-$)		D F	Jπ: γ to (27/2$^-$).
2707.2+x *6*	(29/2$^-$)		D F	Jπ: Q γ to (25/2$^-$) level.
2769.4+x[e] *5*	(29/2$^+$)		D F	Jπ: γ to (25/2$^+$).
2939.2+x[&] *7*	(33/2$^-$)	2.2 ps *6*	DEF	Jπ: (M1) γ to (31/2$^-$) level. $T_{1/2}$: From measured mean lifetime of 3.2 ps *8* (2005Gl09 – (^{28}Si,5nγ)).
2994.6+x[f] *6*	(31/2$^-$)		D F	Jπ: Q γ to (27/2$^-$) level.
3080.2+x *6*	(29/2$^+$)		D F	Jπ: d γ to (29/2$^+$) level.
3128.6+x *6*	(31/2$^-$)		D F	Jπ: Q γ to (27/2$^-$) level.
3133.4+x[e] *5*	(31/2$^+$)		D F	Jπ: (M1) γ to (29/2$^+$) level.
3249.9+x *8*	(31/2$^-$)		D F	Jπ: γ to (29/2$^-$) level.

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Adopted Levels, Gammas (continued)

^{193}Pb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
3260.7+x *7*	(31/2⁻)		D	Jπ: γ to (27/2⁻) level.
3282.1+x *7*	(33/2⁺)		D	Jπ: Q γ to (29/2⁺) level.
3320.7+x[&] *7*	(35/2⁻)	≤0.7 ps	DEF	Jπ: (M1) γ to (33/2⁻) level. $T_{1/2}$: From measured lifetime of ≤1 ps (2005Gl09 – (^{28}Si,5nγ)).
3376.4+x *6*	(31/2⁺)		D F	Jπ: Q γ to (27/2⁺) level.
3414.8+x *6*	(33/2⁺)		D F	Jπ: Q γ to (29/2⁺) level.
3418.8+x *7*			D F	Jπ: (33/2⁻) in 1996Du18 – (^{30}Si,5nγ) as 834γ feeding 29/2⁻ state at 2584+x, however, adopted spin-parity is (27/2⁻) for the feeding state.
3541.6+x[f] *8*	(35/2⁻)		D F	Jπ: Q γ to (31/2⁻) level.
3542.8+x[e] *6*	(33/2⁺)		D F	Jπ: D γ to (31/2⁺) level.
3607.0+x *12*			F	
3640.3+x *8*	(37/2⁻)		D F	Jπ: D to (33/2⁻) level.
3673.0+x *7*	(33/2⁺)		D	Jπ: Q to (29/2⁺) level.
3702.2+x *6*	(33/2⁺)		D	Jπ: γ to (29/2⁺) level.
3722.3+x[&] *7*	(37/2⁻)		D F	Jπ: Q γ to (33/2⁻) level, d γ to (35/2⁻) level.
3741.8+x *9*	(35/2⁻)		D F	Jπ: Q γ to (31/2⁻) level.
3772.1+x *6*	(35/2⁺)		D F	Jπ: Q γ to (31/2⁺) level.
3822.5+x *9*	(35/2⁺)		D	
3839.5+x *6*	(33/2⁺)		D F	Jπ: Q γ to (29/2⁺) level.
3860.0+x *10*			F	
3906.6+x *8*	(35/2⁻)		D	Jπ: D γ to (33/2⁻) level.
3924.8+x[e] *6*	(35/2⁺)		D F	Jπ: Q γ to (31/2⁺) level.
3987.5+x *10*			F	
3991.7+x *7*	(35/2⁺)		D	Jπ: γ to (33/2⁺) level.
3997.1+x *6*	(37/2⁺)		D F	Jπ: (Q) γ to (33/2⁺) level.
4003.5+x *6*	(35/2⁺)		D F	Jπ: D γ to (33/2⁺) level.
4055.9+x *9*	(39/2⁻)		D F	Jπ: (D) γ to (37/2⁻) level.
4063.1+x *8*	(37/2⁻)		D	Jπ: γ to (35/2⁻) level.
4116.5+x *10*	(37/2⁺)		D F	Jπ: Q γ to (33/2⁺) level.
4136.1+x[&] *7*	(39/2⁻)		D F	Jπ: D γ to (37/2⁻) level.
4149.4+x *6*	(37/2⁺)		D F	Jπ: D γ to (35/2⁺) level.
4167.2+x *8*	(39/2⁻)		D F	Jπ: D γ to (37/2⁻) level.
4180.3+x[f] *10*	(39/2⁻)		D F	Jπ: Q γ to (35/2⁻) level.
4191.4+x *7*	(39/2⁺)		D	Jπ: Q γ to (35/2⁺) level.
4210.9+x *6*	(37/2⁺)		D F	
4239.2+x *13*			F	
4271.1+x *8*	(39/2⁻)		D	Jπ: D γ to (37/2⁻) level.
4298.0+x[c] *7*	(39/2⁺)		D F	Jπ: D γ to (37/2⁺) level.
4313.4+x[e] *7*	(37/2⁺)		D	Jπ: γ to (33/2⁺) level.
4360.8+x *11*	(37/2⁺)		D	Jπ: γ to (33/2⁺) level.
4388.1+x[c] *7*	(41/2⁺)		D	Jπ: D γ to (39/2⁺) level.
4399.2+x *11*	(39/2⁻)		D F	Jπ: Q γ to (35/2⁻) level.
4435.2+x *11*	(39/2⁻)		D F	Jπ: Q γ to (35/2⁻) level.
4445.5+x *6*	(39/2⁺)		D	Jπ: γ to (37/2⁺) level.
4470.6+x[&] *8*	(41/2⁻)		D F	Jπ: D γ to (39/2⁻) level.
4493.6+x			F	E(level): In the level scheme in (^{24}Mg,5nγ) 1996Ba54. this is the the level feeding by 232γ in dipole band 2 and depopulating by 197γ. However, a comparable 196.9γ placed from 4388+x level.
4532.8+x *8*	(41/2⁻)		D	Jπ: D γ to (39/2⁻) level.
4537.0+x[c] *7*	(43/2⁺)		D	Jπ: D γ to (41/2⁺) level.
4538.8+x *10*	(41/2⁻)		D F	Jπ: D γ to (39/2⁻) level.
4564.6+x *9*	(39/2⁺)		D	Jπ: γ to (37/2⁺) level.

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Adopted Levels, Gammas (continued)

^{193}Pb Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
4577.2+x *7*	(41/2+)		D F	Jπ: D γ to (39/2+) level.
4591.3+x *8*	(41/2−)		D F	Jπ: D γ to (39/2−) level.
4634.9+x *12*			F	
4661.8+x *11*			D	
4760.6+x *11*	(41/2+)		D F	Jπ: Q γ to (37/2+) level.
4769.0+x[c] *8*	(45/2+)		D	Jπ: D γ to (43/2+) level.
4784.2+x *7*	(41/2+)		D	Jπ: γ to (39/2+) level.
4828.1+x[&] *8*	(43/2−)		D F	Jπ: D γ to (41/2−) level.
4861.6+x *8*	(43/2−)		D	Jπ: D γ to (41/-) level.
4893.1+x[f] *12*	(43/2−)		D F	Jπ: Q γ to (39/2−).
4917.0+x *8*	(43/2−)		D	Jπ: γ to (43/2+) level.
4945.1+x[d] *8*	(43/2+)		D F	Jπ: D γ to (41/2+) level.
5033.3+x *9*	(43/2−)		D F	Jπ: D γ to (41/2−) level.
5060.6+x[c] *9*	(47/2+)	0.23[@] ps *3*	D F	Jπ: D γ to (45/2+) level. $T_{1/2}$: From mean lifetime of 0.33 ps *4* (1998Cl06).
5092.8+x[a] *8*	(45/2−)		D	Jπ: D γ to (43/2−) level.
5165.8+x *12*	(43/2−)		D F	Jπ: Q γ to (39/2−) level.
5169.4+x[d] *9*	(45/2+)		D F	Jπ: D+Q γ to (43/2+) level.
5182.0+x *8*	(45/2−)		D F	
5218.4+x[&] *9*	(45/2−)		D	Jπ: D γ to (43/2−) level.
5281.1+x *15*	(43/2−)		D	Jπ: γ to (39/2−) level.
5331.9+x[a] *8*	(47/2−)		D F	XREF: F(239.1+Y). Jπ: D γ to (45/2−) level.
5425.8+x[c] *9*	(49/2+)	0.16[@] ps *+3−2*	D	Jπ: D γ to (47/2+). $T_{1/2}$: From mean lifetime of 0.23 ps *+4−3* (1998Cl06).
5436.9+x[d] *9*	(47/2+)		D	Jπ: D γ to (45/2+) level.
5439.8+x *10*	(45/2−)		D	Jπ: D γ to (43/2−) level.
5501.7+x *9*	(47/2−)		D	Jπ: D γ to (45/2−) level.
5597.5+x[a] *9*	(49/2−)		D F	XREF: F(504.2+Y). Jπ: D γ to (47/2−) level.
5668.3+x *15*	(45/2−)		D	Jπ: γ to (41/2−) level.
5763.1+x[d]	(49/2+)		D	Jπ: D γ to (47/2+) level.
5802.2+x *11*	(47/2−)		D	Jπ: γ to (45/2−) level.
5815.4+x[c] *9*	(51/2+)	0.15[@] ps *3*	D	Jπ: D γ to (49/2+). $T_{1/2}$: From mean lifetime of 0.21 ps *+4−5* (1998Cl06).
5825.3+x[b] *9*	(49/2−)		D	Jπ: D γ to (47/2−) level.
5927.0+x[a] *9*	(51/2−)		D F	XREF: F(833.6+Y). Jπ: D+Q γ to (49/2−) level.
6001.5+x[b] *10*	(51/2−)		D	Jπ: D+Q γ to (49/2−) level.
6145.5+x[d] *11*	(51/2+)		D	Jπ: D+Q γ to (49/2+) level.
6231.4+x[c] *10*	(53/2+)	0.17[@] ps *2*	D	Jπ: (M1) γ to (51/2+) level. $T_{1/2}$: From mean lifetime of 0.25 ps *3* (1998Cl06).
6285.2+x[b] *10*	(53/2−)		D	Jπ: D γ to (51/2−) level.
6302.6+x[a] *10*	(53/2−)		D F	XREF: F(1208.5+Y). Jπ: D+Q γ to (51/2−) level.
6597.1+x[b] *11*	(55/2−)		D	Jπ: D γ to (53/2−) level.
6657.6+x[c] *10*	(55/2+)		D	Jπ: γ to (51/2+) and (53/2+) levels.
6715.5+x[a] *11*	(55/2−)		D	Jπ: γ to (53/2−) level.
6927.5+x[b] *11*	(57/2−)		D	Jπ: D+Q γ to (55/2−) level.

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Adopted Levels, Gammas (continued)

^{193}Pb Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
7090.3+x[c] *11*	(57/2+)	D	
7154.7+x[a] *12*	(57/2−)	D	Jπ: D γ to (55/2−) level.
7312.0+x[b] *12*	(59/2−)	D	Jπ: D γ to (57/2−) level.
7516+x?[c]	(59/2+)	D	Jπ: γ to (57/2+) level.
7713.5+x[b] *13*	(61/2−)	D	Jπ: γ to (59/2−) level.
7932+x?[c]	(61/2+)	D	Jπ: γ to (59/2+) level.
y[g]	J	H	Jπ: ≈(23/2). E(level): 4217 relative to the 13/2+ isomer was suggested by 1996Pe20 on the basis of a tentative 2222γ (Iγ=0.042 *20*) to 1995+x level. But this transition has not been confirmed in the work of 1999Ro21 using a larger detector array.
277.0+y[g] *3*	J+2	H	2282γ (Iγ=0.035 *20*) and 2352γ (Iγ=0.034 *20*) proposed by 1996Du05 as linking transitions to normal-deformed states have not been confirmed by 1999Ro21 using a larger detector array, thus these γ rays together with a 2222γ (1996Du05) have been omitted here.
594.3+y[g] *5*	J+4	H	
951.6+y[g] *6*	J+6	H	
1349.1+y[g] *6*	J+8	H	
1786.9+y[g] *7*	J+10	H	
2264.3+y[g] *8*	J+12	H	
2781.6+y[g] *9*	J+14	H	
3337.7+y[g] *9*	J+16	H	
3932.5+y[g] *10*	J+18	H	
4565.9+y[g] *11*	J+20	H	
5237.7+y[g] *13*	J+22	H	
5945.9+y?[g] *15*	J+24	H	
z[h]	J1	H	Jπ: ≈(17/2).
190.2+z[h] *5*	J1+2	H	
422.8+z[h] *6*	J1+4	H	
698.0+z[h] *7*	J1+6	H	
1015.9+z[h] *8*	J1+8	H	
1376.8+z[h] *8*	J1+10	H	
1780.3+z[h] *9*	J1+12	H	
2226.2+z[h] *9*	J1+14	H	
2714.4+z[h] *10*	J1+16	H	
3242.4+z[h] *11*	J1+18	H	
3812.2+z[h] *13*	J1+20	H	
4422.7+z[h] *15*	J1+22	H	
5072.7+z[h] *16*	J1+24	H	
5762.5+z?[h] *18*	J1+26	H	
u[i]	J2	H	Jπ: ≈(21/2).
251.5+u[i] *6*	J2+2	H	
543.0+u[i] *7*	J2+4	H	
875.4+u[i] *8*	J2+6	H	
1247.5+u[i] *8*	J2+8	H	
1659.4+u[i] *9*	J2+10	H	
2110.0+u[i] *9*	J2+12	H	

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Adopted Levels, Gammas (continued)

^{193}Pb Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
2598.9+u[i] *10*	J2+14	H	
3125.5+u[i] *11*	J2+16	H	
3688.9+u[i] *11*	J2+18	H	
4288.8+u[i] *13*	J2+20	H	
4925.8+u[i] *14*	J2+22	H	
5598.0+u[i] *15*	J2+24	H	
6307.2+u[i] *16*	J2+26	H	
v[j]	J3	H	Jπ: ≈(23/2).
273.0+v?[j] *7*	J3+2	H	
586.4+v[j] *10*	J3+4	H	
939.5+v[j] *10*	J3+6	H	
1331.4+v[j] *11*	J3+8	H	
1761.4+v[j] *11*	J3+10	H	
2228.5+v[j] *12*	J3+12	H	
2732.4+v[j] *13*	J3+14	H	
3271.9+v[j] *13*	J3+16	H	
3847.0+v[j] *14*	J3+18	H	
4457.0+v[j] *15*	J3+20	H	
5101.5+v[j] *16*	J3+22	H	
5777.9+v[j] *17*	J3+24	H	
6485.1+v[j] *19*	J3+26	H	
w[k]	J4	H	Jπ: ≈(17/2).
100.5+w[l] *8*	J4+1	H	
213.2+w[k] *4*	J4+2	H	
335.1+w[l] *6*	J4+3	H	
467.9+w[k] *7*	J4+4	H	
610.6+w[l] *7*	J4+5	H	
763.9+w[k] *7*	J4+6	H	
926.8+w[l] *8*	J4+7	H	
1099.9+w[k] *8*	J4+8	H	
1282.6+w[l] *8*	J4+9	H	
1475.2+w[k] *9*	J4+10	H	
1677.0+w[l] *9*	J4+11	H	
1888.7+w[k] *9*	J4+12	H	
2109.8+w[l] *9*	J4+13	H	
2340.0+w[k] *10*	J4+14	H	
2580.4+w[l] *10*	J4+15	H	
2828.5+w[k] *12*	J4+16	H	
3087.8+w[l] *11*	J4+17	H	
3355.0+w[k] *13*	J4+18	H	
3631.3+w[l] *12*	J4+19	H	
3917.2+w[k] *14*	J4+20	H	
4211.0+w[l] *13*	J4+21	H	
4513.4+w[k] *16*	J4+22	H	
4825.6+w[l] *15*	J4+23	H	

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Adopted Levels, Gammas (continued)

^{193}Pb Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
5144.7+w[k] *18*	J4+24	H	3167.8+s[m] *15*	J5+16	H	3900.1+t[n] *17*	J6+18	H
5475.1+w[l] *16*	J4+25	H	3729.1+s[m] *16*	J5+18	H	4512.1+t[n] *18*	J6+20	H
5811.5+w[k] *20*	J4+26	H	4325.5+s[m] *17*	J5+20	H	5158.9+t[n] *19*	J6+22	H
6159.1+w[l] *17*	J4+27	H	4956.6+s[m] *19*	J5+22	H	a[o]	J7	H
6512.0+w[k] *22*	J4+28	H	5620.8+s[m] *20*	J5+24	H	212.9+a[o] *5*	J7+2	H
6877.0+w[l] *18*	J4+29	H	t[n]	J6	H	468.7+a[o] *7*	J7+4	H
s[m]	J5	H	281.8+t[n] *6*	J6+2	H	766.0+a[o] *10*	J7+6	H
260.6+s[m] *7*	J5+2	H	603.2+t[n] *9*	J6+4	H	1102.5+a[o] *11*	J7+8	H
560.4+s[m] *10*	J5+4	H	964.1+t[n] *10*	J6+6	H	1478.3+a[o] *13*	J7+10	H
900.5+s[m] *10*	J5+6	H	1362.6+t[n] *11*	J6+8	H	1894.2+a[o] *13*	J7+12	H
1279.4+s[m] *12*	J5+8	H	1798.5+t[n] *12*	J6+10	H	2349.7+a[o] *14*	J7+14	H
1696.6+s[m] *13*	J5+10	H	2270.8+t[n] *14*	J6+12	H	2845.3+a[o] *15*	J7+16	H
2150.6+s[m] *14*	J5+12	H	2778.9+t[n] *15*	J6+14	H	3380.7+a[o] *17*	J7+18	H
2641.7+s[m] *15*	J5+14	H	3322.1+t[n] *16*	J6+16	H	3956.0+a[o] *19*	J7+20	H

† From least squares fit to Eγ as calculated in (HI,xnγ) from 1996Du18 and (HI,xnγ):SD reactions. Note that there is a, somewhat erratic, trend towards lower γ-ray energies in 1996Ba54 (^{24}Mg,5nγ). These add up and tend to reduce the level energies by up to ≈45 keV (see the dataset).

‡ From (HI,xnγ) or (HI,xnγ):SD, except for g.s. and the 0+x level. The assignments are based on multipolarities of deexciting transitions (from α(K)exp and γ(θ) measurements), assumption of increasing J with increasing E, and band structure. Specific arguments are listed in comments. For SD bands, the assignments are based on band structure and γ anisotropy, the lowest level spin in each band having been estimated using the spin-fit method.

From γγ(t) or γ(t) in (HI,xnγ), except as noted.

@ From mean lifetime in 1998Cl06, deduced from fitting of Doppler broadened γ-ray peaks. Value listed in comments section.

& Band(A): Magnetic dipole band 1. (1996Du18). This band is the same as Band 1a in 1996Ba54. Note that from a systematic study of $^{191-199}$Pb isotopes, 1998Fo02 conclude that members of this band in ^{193}Pb are 1ℏ higher compared to all the other isotopes.

[a] Band(B): Magnetic dipole band 1a. (1996Du18). This band is the analogue of Band 1b in 1996Ba54.

[b] Band(C): Magnetic dipole band 1b. (1996Du18). None of the transitions in this band are observed in 1996Ba54.

[c] Band(D): Magnetic dipole band 2. (1996Du18). This band is almost the same as Band 2 in 1996Ba54. There is a significant difference however in the energies for the levels of this band, because in 1996Ba54 a single 197-keV γ ray connects the final level of the 232-keV transition with the 4297-keV bandhead. Instead, 1996Du18 place a sequence of two γ rays (90 keV and 149 keV) in its place, thereby shifting the Band 2 levels upwards by ≈45 keV, as compared to those shown in 1996Ba54. This modified scheme also implies a change in the proposed spin sequences for the levels in this band.

[d] Band(E): Magnetic dipole band 3. (1996Du18). With a single exception (224-keV γ) the transitions in this group are not observed in 1996Ba54.

[e] Band(F): Magnetic dipole band 4. (1996Ba54). The transitions in this group are not assigned to a band in 1996Du18.

[f] Band(G): Band 5.

[g] Band(H): SD-1 band. (1999Ro21,1995Hu01,1996Du05,1996Pe20). Configuration=ν3/2[761] α=−1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.5%. Q(intrinsic)=17.3 *+7−6* (1998Va18). See footnote to SD-2 Band regarding relationship between these two SD bands.

[h] Band(I): SD-2 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν3/2[761] α=+1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.3% (1995Hu01). Band intensity relative to SD-1 band=50% (1996Du05), 38% *8* (1999Ro21). SD-1 and SD-2 represent favored and unfavored signature components (with a large observed splitting) of the low-K, 3/2[761], N=7 neutron orbital (from (^{24}Mg,5nγ)).

[i] Band(J): SD-3 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν3/2[642] α=+1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.25% (1995Hu01). Band intensity relative to SD-1 band=50% (1996Du05), 46% *9* (1999Ro21)

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Adopted Levels, Gammas (continued)

^{193}Pb Levels (continued)

See footnote to SD-4 Band regarding relationship between these two SD bands.

[j] Band(K): SD-4 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν3/2[642] α=−1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.25% (1995Hu01). Band intensity relative to SD-1 band=50% (1996Du05), 23% *5* (1999Ro21). SD-3 and SD-4 are interpreted as signature partners (no signature splitting) based on a high K, 3/2[642] neutron orbital. The 5/2[512] neutron orbital suggested by 1995Hu01 is not supported by calculations and experimental comparisons of 1996Du05 and 1999Ro21.

[k] Band(L): SD-5 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν9/2[624] α=+1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.2% (1995Hu01). Band intensity relative to SD-1 band=30% (1996Du05), 15% *3* (1999Ro21) See footnote to SD-6 Band regarding relationship between these two SD bands.

[l] Band(M): SD-6 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν9/2[624] α=−1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.2% (1995Hu01). Band intensity relative to SD-1 band=30% (1996Du05), 20% *4* (1999Ro21). SD-5 and SD-6 are interpreted as signature partners (no signature splitting) based on a high K, 9/2[624] neutron orbital. From dipole interband transitions, 1996Du05 deduce B(M1)/B(E2)=0.15 *4*. g_K=−0.39 *12* (1996Du05), −0.27 *9* (1999Ro21) from M1/E2 branching ratios, using Θ_0=18.4 and K=9/2.

[m] Band(N): SD-7 band. (1999Ro21). Band intensity relative to SD-1 band=17% *3* (1999Ro21). SD-7 and SD-8 are proposed as signature partners with configuration=ν5/2[512].

[n] Band(O): SD-8 band. (1999Ro21). Band intensity relative to SD-1 band=14% *3* (1999Ro21). SD-7 and SD-8 are proposed as signature partners with configuration=ν5/2[512].

[o] Band(P): SD-9 band. (1999Ro21). Band intensity relative to SD-1 band=5% *1* (1999Ro21). Configuration=$\nu 7_3$ intruder orbital.

Adopted Levels, Gammas (continued)

$\gamma(^{193}Pb)$

It should be noted that there are sharp discrepancies between the intensities reported among the (HI,xnγ) datasets. Of these, 1996Du18 and 1991La07 provide total intensity values, while 1996Ba54 lists γ intensities. It is not clear whether these differences are due to varying measurement conditions, or, possibly more likely, to the diversity in the high-lying levels populated by the various reaction channels used. For the adopted values the data from 1996Du18 have been used, where the Iγ values have been calculated by the evaluator using the experimental conversion coefficients from 1991La07, where available. Else, total conversion coefficients have been used, based on the multipolarities provided either by the authors, or estimated on the basis of DCO ratios, angular distribution coefficients, membership in various band structures, or assumed from $\Delta J\pi$ values, if no other information was available.

E_i(level)	J^π_i	E_γ[†]	I_γ[&]	E_f	J^π_f	Mult.[a]	δ[a]	α[e]	Comments
757+x	(13/2+)	757 *1*	100	0.0+x	(13/2+)				E_γ: From ^{197}Po α decay (25.8 s).
881.6 +x	(17/2+)	881.6 *2*	100	0.0+x	(13/2+)	E2		0.00854	
1022.1+x	(15/2+)	1022.3 *3*	100	0.0+x	(13/2+)	(M1+E2)		0.0116 *53*	
1401.8+x	(21/2+)	520.1 *2*	100	881.6 +x	(17/2+)	E2		0.0267	
1519.4+x	(19/2+)	497.3 *5*	100	1022.1+x	(15/2+)	E2		0.0298	E_γ: 1991La07 (^{16}O,5nγ) list a comparable γ, Eγ=497.7 *4* keV, but unplaced.
1550.2+x	(19/2+)	527.8 *3*	61 *10*	1022.1+x	(15/2+)	E2		0.0258	I_γ: Other: 100 *19* (^{24}Mg,5nγ).
		668.2 *3*	100 *10*	881.6 +x	(17/2+)	E2+M1	1.8 *+9−5*	0.023 *5*	I_γ: Other: 88 *17* (^{24}Mg,5nγ).
1585.9+x	(21/2−)	(66.5)		1519.4+x	(19/2+)				
		184.0 *4*	100	1401.8+x	(21/2+)	E1+M2	0.049 *+15−20*	0.116 *15*	B(E1)(W.u.)=1.42×10^{-6} *5*; B(M2)(W.u.)=0.5 *3*
1994.8+x	(25/2+)	593.1 *4*	100	1401.8+x	(21/2+)	E2(+M3)	0.16 *3*	0.030 *5*	
2058.9+x	(23/2−)	472.7 *5*	100	1585.9+x	(21/2−)	D[b]			
2141.4+x	(23/2+)	591.1 *4*	90 *21*	1550.2+x	(19/2+)	E2		0.0199	I_γ: Other: 100 *20* (^{24}Mg,5nγ).
		739.7 *3*	100 *17*	1401.8+x	(21/2+)	M1+E2	0.63 *17*	0.031 *3*	I_γ: Other: 63 *13* (^{24}Mg,5nγ).
2142.1+x	(25/2−)	556.0 *4*	100	1585.9+x	(21/2−)	(E2)		0.0229	
2172.6+x	(23/2+)	622.3 *6*	100	1550.2+x	(19/2+)				
2213.8+x	(25/2+)	(40.9)		2172.6+x	(23/2+)				
		72.7 *10*		2141.4+x	(23/2+)	(M1+E2)	0.21 *+4−3*	5.3 *5*	E_γ: From (^{24}Mg,5nγ).
		219.0 *3*	43 *10*	1994.8+x	(25/2+)	(M1)		1.016	I_γ: From (^{24}Mg,5nγ). Other: 32 *14* (^{16}O,5nγ). Mult.: α_K(exp)=1.14 *13*, α_{L12}(exp)=0.11 *6*; Theory: α_K(M1)=0.829.
		811.9 *6*	100 *19*	1401.8+x	(21/2+)	(E2)		0.01009	I_γ: From (^{24}Mg,5nγ). Mult.: From α_K(exp)=0.0038 *28* in 1991La07 (^{16}O,5nγ); theory: α_K(E2)=0.00785. (M1+E2) in 2011Ba02 (^{28}Si,5nγ). See level comments.
2322.2+x	(27/2−)	180.0 *3*	100[@] *6*	2142.1+x	(25/2−)	E2+M1	4 *+5−1*	0.69 *6*	B(M1)(W.u.)=2.2×10^{-5} *+52−22*; B(E2)(W.u.)=4.2 *9*
		263.1 *3*	18[@] *6*	2058.9+x	(23/2−)	[E2]		0.1727	B(E2)(W.u.)=0.12 *5*
2404.9+x		819.0 *3*	100	1585.9+x	(21/2−)				E_γ: From (^{24}Mg,5nγ).

Adopted Levels, Gammas (continued)

$\gamma(^{193}Pb)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[&]	E_f	J^{π}_f	Mult.[a]	δ[a]	α[e]	Comments
2426.7+x	(27/2$^+$)	212.9 3	100[#] 15	2213.8+x	(25/2$^+$)	M1		1.100	Mult.: From (^{24}Mg,5nγ).
		431.9 4	7.4[#] 30	1994.8+x	(25/2$^+$)	D+Q			Mult.: From (^{24}Mg,5nγ).
2524.9+x	(27/2$^+$)	98.2 3	22[#] 8	2426.7+x	(27/2$^+$)				
		311.1 3	100[#] 19	2213.8+x	(25/2$^+$)				
2526.9+x	(29/2$^+$)	204.6 3	8 7	2322.2+x	(27/2$^-$)	E1+M2	0.63 14	1.71 53	
		532.4 3	100 6	1994.8+x	(25/2$^+$)	E2(+M3)	0.14 +5−7	0.0370 95	
2584.8+x	(29/2$^-$)	158.1 3	100	2426.7+x	(27/2$^+$)	E1		0.1396	B(E1)(W.u.)=4.8×10^{-6} 3 Mult.: α_{L12}(exp)=0.0077 71 (1991La07); theory: α_{L12}=0.0170.
2612.5+x	(33/2$^+$)	85.6 3	100	2526.9+x	(29/2$^+$)	(E2)		12.1 3	B(E2)(W.u.)=0.79 8
2653.6+x	(27/2$^-$)	331.3 6	19[#] 12	2322.2+x	(27/2$^-$)				E_{γ}: From (^{24}Mg,5nγ) – 1996Ba54.
		595.0 6	100[#] 50	2058.9+x	(23/2$^-$)				
2672.2+x	(29/2$^+$)	677.6 7	100	1994.8+x	(25/2$^+$)	Q[b]			
2686.9+x	(31/2$^-$)	102.1 3	100	2584.8+x	(29/2$^-$)				
2707.2+x	(29/2$^-$)	301.6[f] 5	25[#] 8	2404.9+x					E_{γ},I_{γ}: Only in (^{24}Mg,5nγ) – 1996Ba54.
		385.0 4	21[#] 10	2322.2+x	(27/2$^-$)			[c]	
		565.0 6	100[#] 26	2142.1+x	(25/2$^-$)	Q			Mult.: From DCO ratio in (^{24}Mg,5nγ). See comment for this γ in the dataset.
2769.4+x	(29/2$^+$)	342.7 3	100	2426.7+x	(27/2$^+$)				
2939.2+x	(33/2$^-$)	252.3 3	100	2686.9+x	(31/2$^-$)	(M1)[b]		0.686	B(M1)(W.u.)=0.37 10 Mult.: From (^{30}Si,5nγ) and RUL. B(M1)=1.1 2 μ_N^2 (2005Gl09 (^{28}Si,5nγ)). 1991La07 show a 253.6 keV γ deexciting their level at 3220 keV. This level is not established by later publications.
2994.6+x	(31/2$^-$)	341.0 3	28[#] 9	2653.6+x	(27/2$^-$)			[d]	
		672.6 7	100[#] 26	2322.2+x	(27/2$^-$)	Q[b]			
3080.2+x	(29/2$^+$)	555.4 6	100	2524.9+x	(27/2$^+$)	D[b]			
3128.6+x	(31/2$^-$)	421.4 4	50[#] 15	2707.2+x	(29/2$^-$)			[c]	
		806.4 8	100[#] 25	2322.2+x	(27/2$^-$)	Q[b]			
3133.4+x	(31/2$^+$)	364.0 4	100[@] 6	2769.4+x	(29/2$^+$)	(M1)		0.252	
		461.5 5	9[@] 3	2672.2+x	(29/2$^+$)			0.135[c]	
		706.7 7	26[@] 3	2426.7+x	(27/2$^+$)			[d]	
3249.9+x	(31/2$^-$)	542.7 5	100	2707.2+x	(29/2$^-$)				
3260.7+x	(31/2$^-$)	675.8 7	100	2584.8+x	(29/2$^-$)				
3282.1+x	(33/2$^+$)	609.9 6	100[@] 25	2672.2+x	(29/2$^+$)	Q[b]			
		755.1 8	83[@] 17	2526.9+x	(29/2$^+$)	Q			

Adopted Levels, Gammas (continued)

$\gamma(^{193}Pb)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[&]	E_f	J^π_f	Mult.[a]	α[e]	Comments
3320.7+x	(35/2⁻)	381.5 *4*	100[#] *21*	2939.2+x	(33/2⁻)	(M1)	0.222	B(M1)(W.u.)>0.43 Mult.: From (^{30}Si,5nγ) and RUL. 2005Gl09 (^{28}Si,5nγ) estimate B(M1)≥1.4 μ_N^2. 1991La07 show a 381.7 keV γ deexciting their level at 2967 keV. This level is not confirmed in the newer references.
		633.8 *6*	7.6[#] *27*	2686.9+x	(31/2⁻)	[E2]	0.01703	B(E2)(W.u.)>6.9
3376.4+x	(31/2⁺)	296.3 *3*	31[#] *9*	3080.2+x	(29/2⁺)	D[b]		
		851.7 *9*	100 *38*	2524.9+x	(27/2⁺)	Q[b]		I_γ: From I(γ+ce) in (^{30}Si,5nγ) − α=0.00915 for (E2). Other: 100 *38* (^{24}Mg,5nγ).
3414.8+x	(33/2⁺)	742.3 *7*	100	2672.2+x	(29/2⁺)	Q[b]		
3418.8+x		158.0 *3*	13[@] *6*	3260.7+x	(31/2⁻)			
		834.0 *8*	100[@] *31*	2584.8+x	(29/2⁻)			
3541.6+x	(35/2⁻)	547.0 *5*	100	2994.6+x	(31/2⁻)	Q[b]		
3542.8+x	(33/2⁺)	409.5 *4*	100[#] *23*	3133.4+x	(31/2⁺)	D[b]		
		773.5 *8*	68[#] *18*	2769.4+x	(29/2⁺)			I_γ: Other value: 15 *6* (^{30}Si,5nγ) can be obtained from total intensity assuming 409.5γ as (E2).
3607.0+x		996.5 *6*	100	2612.5+x	(33/2⁺)			E_γ: From (^{24}Mg,5nγ) − γ ray seen only by 1996Ba54 (^{24}Mg,5nγ).
3640.3+x	(37/2⁻)	319.6 *3*	100	3320.7+x	(35/2⁻)	D[b]		
3673.0+x	(33/2⁺)	1145.2 *11*	100	2526.9+x	(29/2⁺)	Q[b]		
3702.2+x	(33/2⁺)	1030.1 *10*	50[@] *50*	2672.2+x	(29/2⁺)			
		1174.9 *10*	100[@] *50*	2526.9+x	(29/2⁺)			
3722.3+x	(37/2⁻)	401.6 *4*	100[#] *22*	3320.7+x	(35/2⁻)	D[b]		
		783.1 *8*	25[#] *6*	2939.2+x	(33/2⁻)	Q[b]		
3741.8+x	(35/2⁻)	613.2 *6*	100	3128.6+x	(31/2⁻)	Q[b]		
3772.1+x	(35/2⁺)	395.8 *4*	100	3376.4+x	(31/2⁺)	Q[b]		
3822.5+x	(35/2⁺)	540.4 *5*	100	3282.1+x	(33/2⁺)			
3839.5+x	(33/2⁺)	462.9 *5*	100[#] *25*	3376.4+x	(31/2⁺)	D[b]		
		759.4 *8*	18[#] *7*	3080.2+x	(29/2⁺)	Q[b]		
3860.0+x		447.6 *6*	100	3414.8+x	(33/2⁺)			E_γ: From (^{24}Mg,5nγ) 1996Ba54.
3906.6+x	(35/2⁻)	487.8 *5*	100	3418.8+x		D	*d*	
3924.8+x	(35/2⁺)	382.0 *4*	100[@] *17*	3542.8+x	(33/2⁺)	D[b]		
		510.2 *5*	23[@] *9*	3414.8+x	(33/2⁺)		*c*	
		791.5 *8*	40[@] *10*	3133.4+x	(31/2⁺)	Q[b]		
3987.5+x		739.5 *5*	100	3249.9+x	(31/2⁻)			E_γ: From (^{24}Mg,5nγ).
3991.7+x	(35/2⁺)	448.9 *4*	100	3542.8+x	(33/2⁺)			
3997.1+x	(37/2⁺)	294.8 *3*	16[@] *8*	3702.2+x	(33/2⁺)	(Q)[b]		

$\gamma(^{193}Pb)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[&]	E_f	J^{π}_f	Mult.[a]	Comments
3997.1+x	(37/2$^+$)	324.0 3	16[@] 8	3673.0+x	(33/2$^+$)		
		581.8 6	100[@] 36	3414.8+x	(33/2$^+$)	(Q)	E_{γ}: 1996Ba54 (^{24}Mg,5nγ) place a 581.4-keV transition as deexciting their level at 4441 keV. This level has no analogue in the scheme of 1996Du18 (^{30}Si,5nγ).
4003.5+x	(35/2$^+$)	164.0 3	100[@] 11	3839.5+x	(33/2$^+$)	D[b]	
		461.2 5	20[@] 8	3542.8+x	(33/2$^+$)		
4055.9+x	(39/2$^-$)	415.6 4	100	3640.3+x	(37/2$^-$)	(D)[b]	
4063.1+x	(37/2$^-$)	156.5 3	100	3906.6+x	(35/2$^-$)		
4116.5+x	(37/2$^+$)	701.7 7	100	3414.8+x	(33/2$^+$)	Q[b]	
4136.1+x	(39/2$^-$)	413.8 4	100[#] 24	3722.3+x	(37/2$^-$)	D[b]	
		815.4 8	44[#] 13	3320.7+x	(35/2$^-$)		
4149.4+x	(37/2$^+$)	146.0 3	100[@] 13	4003.5+x	(35/2$^+$)	D[b]	
		377.3 4	33[@] 16	3772.1+x	(35/2$^+$)		
4167.2+x	(39/2$^-$)	444.9 4	100[#] 32	3722.3+x	(37/2$^-$)	D[b]	
		846.5 8	32[#] 15	3320.7+x	(35/2$^-$)		
4180.3+x	(39/2$^-$)	638.7 6	100	3541.6+x	(35/2$^-$)	Q[b]	
4191.4+x	(39/2$^+$)	419.6 4	100	3772.1+x	(35/2$^+$)	Q[b]	
4210.9+x	(37/2$^+$)	438.7 4	100	3772.1+x	(35/2$^+$)	D[b]	
4239.2+x		632.2 6	100	3607.0+x			E_{γ}: From (^{24}Mg,5nγ).
4271.1+x	(39/2$^-$)	208.0 3	100	4063.1+x	(37/2$^-$)	D[b]	
4298.0+x	(39/2$^+$)	148.4 3	100	4149.4+x	(37/2$^+$)	D[b]	
4313.4+x	(37/2$^+$)	388.7 4	100[@] 40	3924.8+x	(35/2$^+$)		
		770.2 8	40[@] 50	3542.8+x	(33/2$^+$)		
4360.8+x	(37/2$^+$)	946.0 9	100	3414.8+x	(33/2$^+$)		
4388.1+x	(41/2$^+$)	90.0 3		4298.0+x	(39/2$^+$)		
		196.9 3	100[@] 23	4191.4+x	(39/2$^+$)	D[b]	
4399.2+x	(39/2$^-$)	657.4 7	100	3741.8+x	(35/2$^-$)	Q[b]	
4435.2+x	(39/2$^-$)	693.4 7	100	3741.8+x	(35/2$^-$)	Q[b]	
4445.5+x	(39/2$^+$)	234.5 3	46[@] 12	4210.9+x	(37/2$^+$)		
		296.4 3	32[@] 16	4149.4+x	(37/2$^+$)		
		448.1 4	100[@] 27	3997.1+x	(37/2$^+$)		
4470.6+x	(41/2$^-$)	303.4 3	29[#] 11	4167.2+x	(39/2$^-$)	D[b]	
		334.5 3	100[#] 26	4136.1+x	(39/2$^-$)	D[b]	
		748.3 7	14[#] 6	3722.3+x	(37/2$^-$)		
4532.8+x	(41/2$^-$)	261.7 5	100[@] 36	4271.1+x	(39/2$^-$)	D	
		396.6 4	68[@] 50	4136.1+x	(39/2$^-$)		

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$\gamma(^{193}Pb)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ&	E_f	J^π_f	Mult.[a]	α[e]	Comments
4537.0+x	(43/2+)	148.9 3	100	4388.1+x	(41/2+)	D[b]		
4538.8+x	(41/2−)	482.9 5	100	4055.9+x	(39/2−)	D[b]		
4564.6+x	(39/2+)	567.5 6	100	3997.1+x	(37/2+)			
4577.2+x	(41/2+)	279.2 3	100	4298.0+x	(39/2+)	D[b]		
4591.3+x	(41/2−)	424.1 4	100# 38	4167.2+x	(39/2−)	D[b]		
		455.3 5	54# 31	4136.1+x	(39/2−)			
		869.1 9	92# 38	3722.3+x	(37/2−)			
4634.9+x		647.5 5	100	3987.5+x				E_γ: From (^{24}Mg,5nγ) 1996Ba54.
4661.8+x		545.3 5	100	4116.5+x	(37/2+)			
4760.6+x	(41/2+)	644.1 6	100	4116.5+x	(37/2+)	Q[b]		
4769.0+x	(45/2+)	232.0‡ 3	100	4537.0+x	(43/2+)	D[b]		
4784.2+x	(41/2+)	338.7 3	100	4445.5+x	(39/2+)			
4828.1+x	(43/2−)	295.2 3	15 10	4532.8+x	(41/2−)	D[b]		
		357.7 4	100 22	4470.6+x	(41/2−)	D[b]		
		692.3 7	7 7	4136.1+x	(39/2−)			
4861.6+x	(43/2−)	328.8 3	91 46	4532.8+x	(41/2−)			
		390.8 4	100 76	4470.6+x	(41/2−)	D[b]		
4893.1+x	(43/2−)	712.8 7	100	4180.3+x	(39/2−)	Q[b]		
4917.0+x	(43/2−)	325.7 3	100	4591.3+x	(41/2−)			
4945.1+x	(43/2+)	367.9 4	100	4577.2+x	(41/2+)	D[b]		
5033.3+x	(43/2−)	442.0 4	100	4591.3+x	(41/2−)	D[b]		
5060.6+x	(47/2+)	291.6‡ 3	100	4769.0+x	(45/2+)	D[b]		B(M1)=5.27 64 from 1998Cl06.
5092.8+x	(45/2−)	175.9 3	13@ 13	4917.0+x	(43/2−)	D[b]		
		231.1 3	100@ 40	4861.6+x	(43/2−)	D[b]		
		264.8 3	35@ 22	4828.1+x	(43/2−)		c	
5165.8+x	(43/2−)	730.6 7	100# 40	4435.2+x	(39/2−)	Q[b]		
		766.6 8	53# 27	4399.2+x	(39/2−)			
5169.4+x	(45/2+)	224.3 3	100	4945.1+x	(43/2+)	D+Q[b]		
5182.0+x	(45/2−)	353.7 4	100# 43	4828.1+x	(43/2−)	D[b]		
		711.7 7	29# 14	4470.6+x	(41/2−)			
5218.4+x	(45/2−)	390.3 4	100	4828.1+x	(43/2−)	D[b]		
5281.1+x	(43/2−)	1225.2 12	100	4055.9+x	(39/2−)			
5331.9+x	(47/2−)	239.1§ 3	100	5092.8+x	(45/2−)	D[b]		
5425.8+x	(49/2+)	365.2‡ 4	100@ 9	5060.6+x	(47/2+)	(M1)[b]	0.250	B(M1)(W.u.)=2.0 +4−5
		656.8 7	13.1@ 44	4769.0+x	(45/2+)	[E2][b]	0.01576	B(E2)(W.u.)=41 +16−17
5436.9+x	(47/2+)	267.5 3	100	5169.4+x	(45/2+)	D		

$^{193}_{82}Pb_{111}$-13

Adopted Levels, Gammas (continued)

γ(^{193}Pb) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$[†]	I$_\gamma$[&]	E$_f$	J$^\pi_f$	Mult.[a]	α[e]	Comments
5439.8+x	(45/2⁻)	406.5 *4*	100	5033.3+x	(43/2⁻)	D[b]		
5501.7+x	(47/2⁻)	319.7 *3*	100	5182.0+x	(45/2⁻)	D[b]		
5597.5+x	(49/2⁻)	265.6[§] *3*	100	5331.9+x	(47/2⁻)	D[b]		
5668.3+x	(45/2⁻)	1129.5 *11*	100	4538.8+x	(41/2⁻)			
5763.1+x	(49/2⁺)	326.2 *3*	100	5436.9+x	(47/2⁺)	D[b]		
5802.2+x	(47/2⁻)	362.4 *4*	100	5439.8+x	(45/2⁻)			
5815.4+x	(51/2⁺)	389.6[‡] *4*	100[@] *10*	5425.8+x	(49/2⁺)	(M1)[b]	0.210	B(M1)(W.u.)=1.7 *5* Mult.: From (^{30}Si,5nγ) and RUL. B(M1)=4.01 *+95−76* from 1998Cl06.
		754.7 *8*	24[@] *6*	5060.6+x	(47/2⁺)	[E2]	0.01173	B(E2)(W.u.)=38 *13*
5825.3+x	(49/2⁻)	323.6 *3*	100	5501.7+x	(47/2⁻)	D[b]		
5927.0+x	(51/2⁻)	329.5[§] *3*	100	5597.5+x	(49/2⁻)	D+Q[b]		
6001.5+x	(51/2⁻)	176.3 *3*	100	5825.3+x	(49/2⁻)	D+Q[b]		
6145.5+x	(51/2⁺)	382.4 *4*	100	5763.1+x	(49/2⁺)	D+Q[b]		
6231.4+x	(53/2⁺)	416.1[‡] *4*	100[@] *13*	5815.4+x	(51/2⁺)	(M1)[b]	0.176	B(M1)(W.u.)=1.4 *4* Mult.: From (^{30}Si,5nγ) and RUL.
		805.6 *8*	7.3[@] *37*	5425.8+x	(49/2⁺)	[E2]	0.01025	B(E2)(W.u.)=9 *5*
6285.2+x	(53/2⁻)	283.7 *3*	100	6001.5+x	(51/2⁻)	D[b]		
6302.6+x	(53/2⁻)	375.6[§] *4*	100	5927.0+x	(51/2⁻)	D+Q[b]		
6597.1+x	(55/2⁻)	311.9 *3*	100	6285.2+x	(53/2⁻)	D[b]		
6657.6+x	(55/2⁺)	426.1[‡] *4*	100[@] *16*	6231.4+x	(53/2⁺)			
		842.2 *8*	29[@] *10*	5815.4+x	(51/2⁺)			
6715.5+x	(55/2⁻)	412.9 *4*	100	6302.6+x	(53/2⁻)			
6927.5+x	(57/2⁻)	330.4 *3*	100	6597.1+x	(55/2⁻)	D+Q[b]		
7090.3+x	(57/2⁺)	432.7[‡] *4*	100[@] *33*	6657.6+x	(55/2⁺)			
		858.8 *9*	19[@] *19*	6231.4+x	(53/2⁺)			
7154.7+x	(57/2⁻)	439.2 *4*	100	6715.5+x	(55/2⁻)	D[b]		
7312.0+x	(59/2⁻)	384.5 *4*	100	6927.5+x	(57/2⁻)	D[b]		
7516+x?	(59/2⁺)	426.1[f] *10*	100	7090.3+x	(57/2⁺)			
7713.5+x	(61/2⁻)	401.5 *4*	100	7312.0+x	(59/2⁻)			
7932+x?	(61/2⁺)	416.1[f] *10*	100	7516+x?	(59/2⁺)			
277.0+y	J+2	277.0 *3*	100	y	J			
594.3+y	J+4	317.3 *3*	100	277.0+y	J+2			
951.6+y	J+6	357.3 *3*	100	594.3+y	J+4			
1349.1+y	J+8	397.5 *3*	100	951.6+y	J+6			
1786.9+y	J+10	437.8 *3*	100	1349.1+y	J+8			
2264.3+y	J+12	477.4 *3*	100	1786.9+y	J+10			

$^{193}_{82}$Pb$_{111}$-14

$\gamma(^{193}Pb)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ&	E_f	J^π_f	$I_{(\gamma+ce)}$	Comments
2781.6+y	J+14	517.3 *4*	100	2264.3+y	J+12		
3337.7+y	J+16	556.1 *3*	100	2781.6+y	J+14		
3932.5+y	J+18	594.8 *4*	100	3337.7+y	J+16		
4565.9+y	J+20	633.4 *5*	100	3932.5+y	J+18		
5237.7+y	J+22	671.8 *6*	100	4565.9+y	J+20		
5945.9+y?	J+24	708.2[f] *8*		5237.7+y	J+22	0.05 *4*	SD band transition from 1996Du05, not confirmed by 1999Ro21.
190.2+z	J1+2	190.2 *5*	100	z	J1		
422.8+z	J1+4	232.6 *3*	100	190.2+z	J1+2		
698.0+z	J1+6	275.2 *3*	100	422.8+z	J1+4		
1015.9+z	J1+8	317.9 *3*	100	698.0+z	J1+6		
1376.8+z	J1+10	360.9 *3*	100	1015.9+z	J1+8		
1780.3+z	J1+12	403.5 *3*	100	1376.8+z	J1+10		
2226.2+z	J1+14	445.9 *3*	100	1780.3+z	J1+12		
2714.4+z	J1+16	488.2 *4*	100	2226.2+z	J1+14		
3242.4+z	J1+18	528.0 *5*	100	2714.4+z	J1+16		
3812.2+z	J1+20	569.8 *6*	100	3242.4+z	J1+18		
4422.7+z	J1+22	610.5 *7*	100	3812.2+z	J1+20		
5072.7+z	J1+24	650.0 *7*	100	4422.7+z	J1+22		
5762.5+z?	J1+26	689.8[f] *8*	100	5072.7+z	J1+24		SD band transition from 1996Du05, not confirmed by 1999Ro21.
251.5+u	J2+2	251.5 *6*	100	u	J2		
543.0+u	J2+4	291.5 *3*	100	251.5+u	J2+2		
875.4+u	J2+6	332.4 *3*	100	543.0+u	J2+4		
1247.5+u	J2+8	372.1 *3*	100	875.4+u	J2+6		
1659.4+u	J2+10	411.9 *3*	100	1247.5+u	J2+8		
2110.0+u	J2+12	450.6 *3*	100	1659.4+u	J2+10		
2598.9+u	J2+14	488.9 *3*	100	2110.0+u	J2+12		
3125.5+u	J2+16	526.6 *4*	100	2598.9+u	J2+14		
3688.9+u	J2+18	563.4 *4*	100	3125.5+u	J2+16		
4288.8+u	J2+20	599.9 *5*	100	3688.9+u	J2+18		
4925.8+u	J2+22	637.0 *5*	100	4288.8+u	J2+20		
5598.0+u	J2+24	672.2 *6*	100	4925.8+u	J2+22		
6307.2+u	J2+26	709.2 *7*	100	5598.0+u	J2+24		E_γ: 709.3 *6* (1996Du05) was assigned to SD-4 band.
273.0+v?	J3+2	273.0[f] *7*	100	v	J3		SD band transition from 1996Du05, not confirmed by 1999Ro21.
586.4+v	J3+4	313.4 *6*	100	273.0+v?	J3+2		
939.5+v	J3+6	353.1 *4*	100	586.4+v	J3+4		
1331.4+v	J3+8	391.9 *3*	100	939.5+v	J3+6		
1761.4+v	J3+10	430.0 *3*	100	1331.4+v	J3+8		
2228.5+v	J3+12	467.1 *4*	100	1761.4+v	J3+10		
2732.4+v	J3+14	503.9 *4*		2228.5+v	J3+12	1.00 *10*	
3271.9+v	J3+16	539.5 *4*		2732.4+v	J3+14	1.02 *10*	
3847.0+v	J3+18	575.1 *3*		3271.9+v	J3+16	0.82 *8*	
4457.0+v	J3+20	610.0 *5*		3847.0+v	J3+18	0.66 *7*	

$^{193}_{82}Pb_{111}$-15

$\gamma(^{193}Pb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	E_f	J_f^π	$I_{(\gamma+ce)}$	Comments
5101.5+v	J3+22	644.5 *6*	4457.0+v	J3+20	0.31 *7*	
5777.9+v	J3+24	676.4 *6*	5101.5+v	J3+22	0.20 *7*	
6485.1+v	J3+26	707.2 *8*	5777.9+v	J3+24	0.07 *7*	E_γ: 707.3 *6* (1996Du05) was assigned to SD-3 band.
100.5+w	J4+1	101[f]	w	J4		
213.2+w	J4+2	112[f]	100.5+w	J4+1		
		213.2 *4*	w	J4	0.53 *10*	
335.1+w	J4+3	122.0 *5*	213.2+w	J4+2		
		234.6 *5*	100.5+w	J4+1	0.13 *7*	
467.9+w	J4+4	132.9 *5*	335.1+w	J4+3		
		254.6 *7*	213.2+w	J4+2	0.72 *11*	
610.6+w	J4+5	142.5 *5*	467.9+w	J4+4		
		275.5 *5*	335.1+w	J4+3	0.35 *7*	
763.9+w	J4+6	153.2 *5*	610.6+w	J4+5		
		296.2 *5*	467.9+w	J4+4	0.71 *14*	
926.8+w	J4+7	163.0 *5*	763.9+w	J4+6		
		316.2 *5*	610.6+w	J4+5	0.45 *7*	
1099.9+w	J4+8	172.8 *5*	926.8+w	J4+7		
		336.1 *4*	763.9+w	J4+6	0.91 *10*	
1282.6+w	J4+9	182.7 *5*	1099.9+w	J4+8		
		355.9 *5*	926.8+w	J4+7	0.87 *8*	
1475.2+w	J4+10	193.0 *5*	1282.6+w	J4+9		
		375.1 *5*	1099.9+w	J4+8	0.92 *10*	
1677.0+w	J4+11	201.9 *5*	1475.2+w	J4+10		
		394.4 *5*	1282.6+w	J4+9	0.95 *9*	
1888.7+w	J4+12	211.7 *5*	1677.0+w	J4+11		
		413.5 *5*	1475.2+w	J4+10	1.04 *14*	
2109.8+w	J4+13	221.0 *5*	1888.7+w	J4+12		
		432.8 *4*	1677.0+w	J4+11	1.02 *10*	
2340.0+w	J4+14	231[f]	2109.8+w	J4+13		
		451.2 *5*	1888.7+w	J4+12	0.89 *10*	
2580.4+w	J4+15	470.6 *4*	2109.8+w	J4+13	0.90 *9*	
2828.5+w	J4+16	488.6 *5*	2340.0+w	J4+14	0.73 *10*	
3087.8+w	J4+17	507.4 *4*	2580.4+w	J4+15	0.83 *9*	
3355.0+w	J4+18	526.5 *5*	2828.5+w	J4+16	0.95 *16*	
3631.3+w	J4+19	543.5 *5*	3087.8+w	J4+17	0.75 *7*	
3917.2+w	J4+20	562.2 *6*	3355.0+w	J4+18	0.71 *13*	
4211.0+w	J4+21	579.7 *5*	3631.3+w	J4+19	0.44 *7*	
4513.4+w	J4+22	596.2 *7*	3917.2+w	J4+20	0.35 *10*	
4825.6+w	J4+23	614.6 *7*	4211.0+w	J4+21	0.35 *7*	
5144.7+w	J4+24	631.3 *8*	4513.4+w	J4+22	0.43 *10*	
5475.1+w	J4+25	649.5 *5*	4825.6+w	J4+23	0.25 *7*	
5811.5+w	J4+26	666.8 *9*	5144.7+w	J4+24	0.18 *9*	

Adopted Levels, Gammas (continued)

γ(^{193}Pb) (continued)

E_i(level)	J^π_i	E_γ [†]	E_f	J^π_f	$I_{(\gamma+ce)}$	E_i(level)	J^π_i	E_γ [†]	E_f	J^π_f	$I_{(\gamma+ce)}$
6159.1+w	J4+27	684.0 *6*	5475.1+w	J4+25	0.13 *7*	1362.6+t	J6+8	398.5 *5*	964.1+t	J6+6	1.00 *17*
6512.0+w	J4+28	700.5 *8*	5811.5+w	J4+26	0.18 *9*	1798.5+t	J6+10	435.9 *4*	1362.6+t	J6+8	0.58 *11*
6877.0+w	J4+29	717.9 *7*	6159.1+w	J4+27	0.07 *7*	2270.8+t	J6+12	472.3 *6*	1798.5+t	J6+10	0.51 *7*
260.6+s	J5+2	260.6 *7*	s	J5	0.24 *4*	2778.9+t	J6+14	508.1 *6*	2270.8+t	J6+12	0.58 *8*
560.4+s	J5+4	299.8 *6*	260.6+s	J5+2	0.51 *7*	3322.1+t	J6+16	543.2 *6*	2778.9+t	J6+14	0.36 *7*
900.5+s	J5+6	340.1 *4*	560.4+s	J5+4	0.52 *7*	3900.1+t	J6+18	578.0 *5*	3322.1+t	J6+16	0.67 *8*
1279.4+s	J5+8	378.9 *5*	900.5+s	J5+6	0.63 *10*	4512.1+t	J6+20	612.0 *6*	3900.1+t	J6+18	0.29 *5*
1696.6+s	J5+10	417.2 *5*	1279.4+s	J5+8	1.00 *18*	5158.9+t	J6+22	646.8 *7*	4512.1+t	J6+20	0.43 *7*
2150.6+s	J5+12	454.0 *5*	1696.6+s	J5+10	0.69 *11*	212.9+a	J7+2	212.9 *5*	a	J7	0.40 *5*
2641.7+s	J5+14	491.1 *5*	2150.6+s	J5+12	0.54 *11*	468.7+a	J7+4	255.8 *5*	212.9+a	J7+2	1.00 *12*
3167.8+s	J5+16	526.1 *5*	2641.7+s	J5+14	0.82 *12*	766.0+a	J7+6	297.3 *6*	468.7+a	J7+4	0.36 *5*
3729.1+s	J5+18	561.3 *5*	3167.8+s	J5+16	0.80 *12*	1102.5+a	J7+8	336.6 *6*	766.0+a	J7+6	0.54 *7*
4325.5+s	J5+20	596.4 *6*	3729.1+s	J5+18	0.65 *12*	1478.3+a	J7+10	375.8 *5*	1102.5+a	J7+8	0.63 *7*
4956.6+s	J5+22	631.1 *7*	4325.5+s	J5+20	0.44 *10*	1894.2+a	J7+12	415.9 *4*	1478.3+a	J7+10	0.62 *7*
5620.8+s	J5+24	664.2 *7*	4956.6+s	J5+22	0.35 *10*	2349.7+a	J7+14	455.5 *4*	1894.2+a	J7+12	0.60 *5*
281.8+t	J6+2	281.8 *6*	t	J6	0.15 *2*	2845.3+a	J7+16	495.6 *6*	2349.7+a	J7+14	0.40 *7*
603.2+t	J6+4	321.5 *6*	281.8+t	J6+2	0.43 *7*	3380.7+a	J7+18	535.4 *7*	2845.3+a	J7+16	0.29 *5*
964.1+t	J6+6	360.9 *5*	603.2+t	J6+4	0.62 *11*	3956.0+a	J7+20	575.3 *8*	3380.7+a	J7+18	0.12 *4*

† From (^{30}Si,5nγ) and (HI,xnγ):SD data, except where noted.

‡ Magnetic dipole band 2 transition, common to both 1996Du18 (^{30}Si,5nγ) and 1996Ba54 (^{24}Mg,5nγ), but the latter reference shows the band levels shifted by ≈45 keV, relative to those given in 1996Du18, with respect to the 4297-keV bandhead (see notes in the respective datasets).

§ γ ray also observed and placed in dipole band 1a by 1996Ba54 (called Band 1b in the reference), but are unable to establish the level energies because they do not observe the transitions linking the members of this dipole cascade to lower lying levels.

& Photon branching for each level from (^{16}O,5nγ), except otherwise noted. For SD bands, the values are relative transition intensities within each band.

@ From (^{30}Si,5nγ).

From (^{24}Mg,5nγ).

[a] From (^{16}O,5nγ) – 1991La07, except otherwise noted.

[b] From (^{30}Si,5nγ).

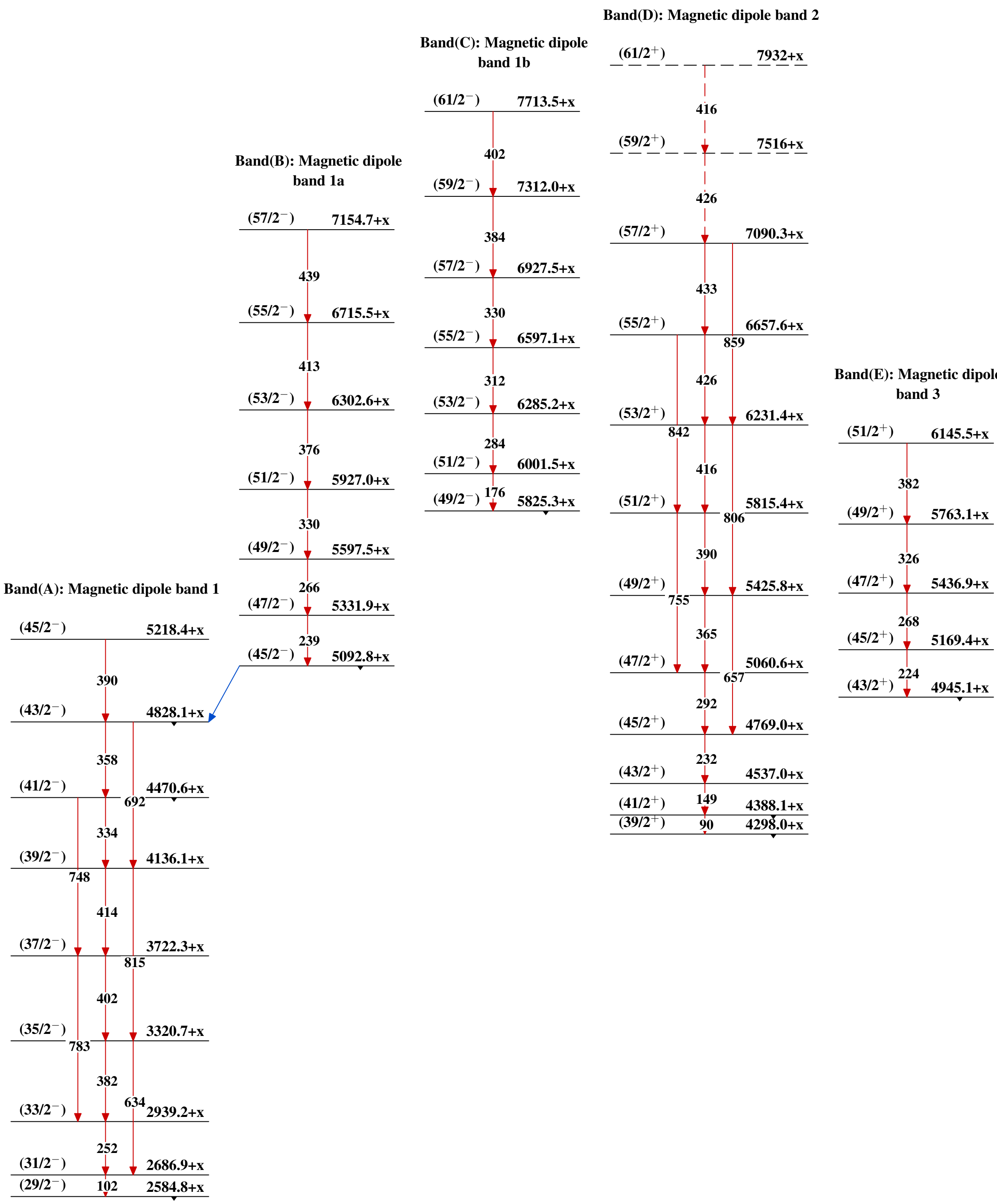
[c] Internal conversion coefficient calculated assuming an [M1] multipolarity.

[d] Internal conversion coefficient calculated assuming an [E2] multipolarity.

[e] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

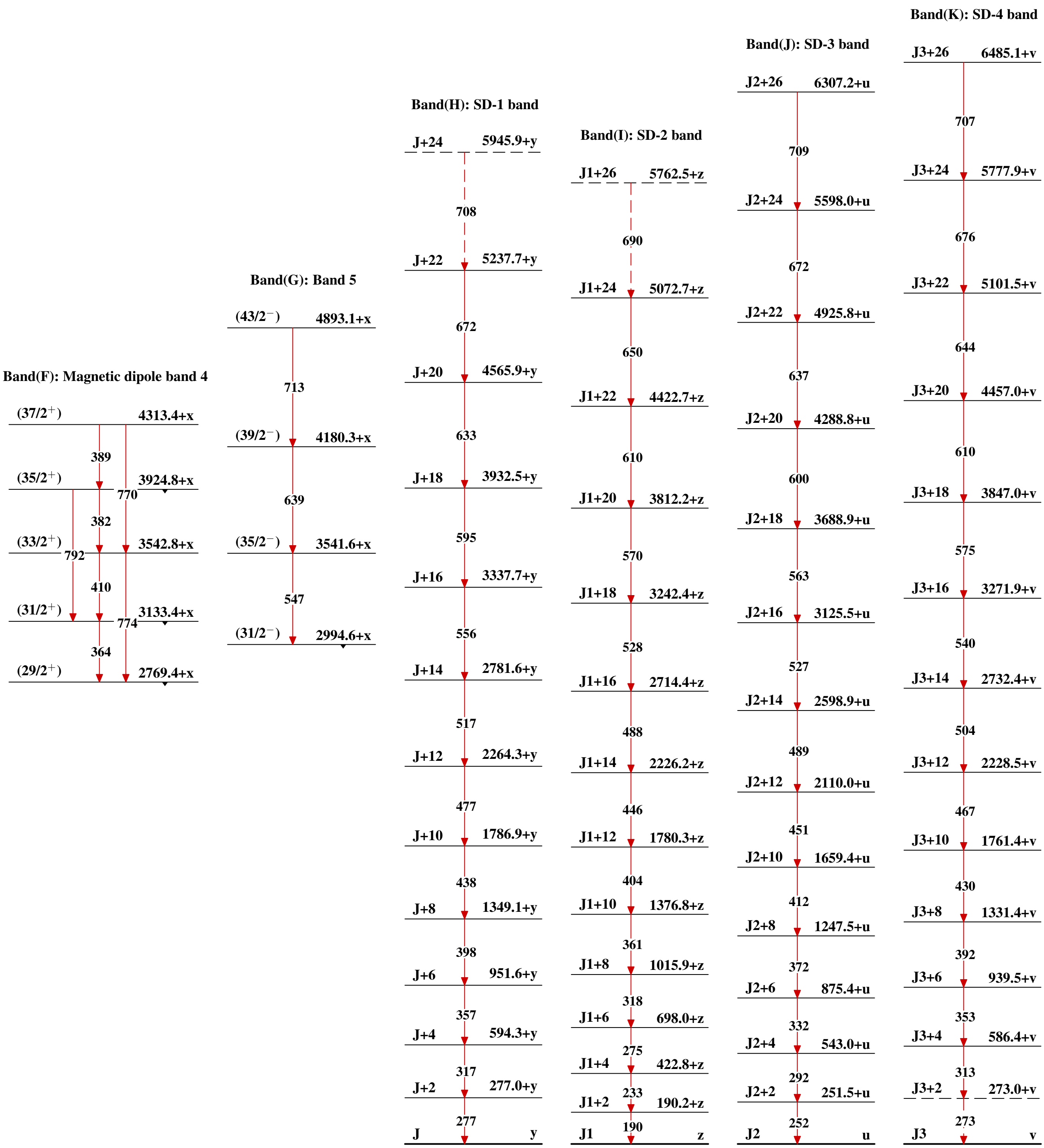
[f] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas



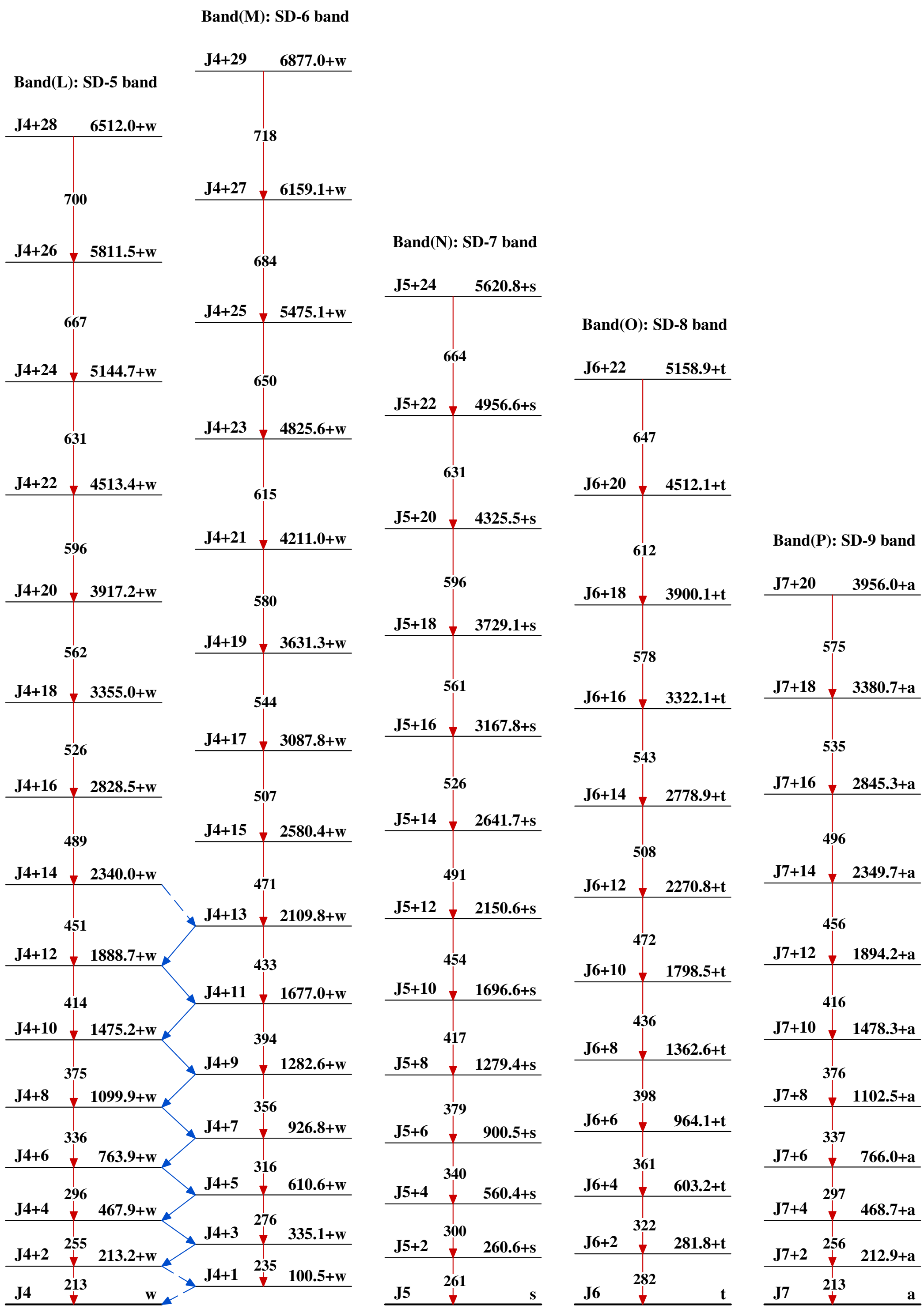
$^{193}_{82}Pb_{111}$

Adopted Levels, Gammas (continued)



$^{193}_{82}Pb_{111}$

Adopted Levels, Gammas (continued)



$^{193}_{82}Pb_{111}$

^{193}Bi ε decay 1984Co13,2010Co13

Parent: ^{193}Bi: E=0.0; J^{π}=(9/2^{-}); $T_{1/2}$=63.6 s *30*; Q(ε)=6310 *50*; %ε+%β^{+} decay=96.5 *15*

1984Co13: Sources from ^{16}O bombardments of natural rhenium, E(^{16}O)=170 MeV, and ^{20}Ne bombardments of ^{181}Ta, E(^{20}Ne)=137 MeV; mass separation; measured Eγ, Iγ, prompt and delayed $\gamma\gamma$ and xγ coin.

1984Co13 report the identification of 21 γ rays with $T_{1/2\,1/2}$=65 s *4*, but do not give energy and intensity values.

2010Co13: ^{193}Bi was produced from fusion-evaporation reactions using ^{14}N, ^{16}O and ^{20}Ne beams on natural Ir (37.3% ^{191}Ir, 62.7% ^{193}Ir), natural Re (37.4% ^{185}Re, 62.6% ^{187}Re) and ^{181}Ta targets, respectively. The radioactive recoils were subsequently ionized in a plasma ion source, mass separated and implanted in an aluminized mylar tape. Single γ-ray energy spectra were recorded with two coaxial HPGe detectors. Measured γ-ray energies and relative intensities along with possible cross-over (sum peak). γ-ray placements are not presented.

γ(^{193}Pb)

E_{γ}†	I_{γ}†	Comments
x174.5	100	
x196.8	5.4	
x290.6	7.8	
x320.1	7.7	
x354	8.7	
x505.9	5.2	
x554.2	38	
x621.2	9.2	
x681.1	48	
x687.2	12.4	
x711.1	48.8	
x739.1	13.5	
x750.1	6.3	E_{γ}: Possible cross-over of 196.8γ + 554.2γ.
x818.5	14.2	E_{γ}: Possible cross-over of 196.8γ + 621.2γ.
x861.8	20	E_{γ}: Possible cross-over of 174.5γ + 687.6γ.
x873.9	29.4	E_{γ}: Possible cross-over of 320.1γ + 554.2γ.
x995.7	23.8	
x1022.3	12.8	
x1049.1	9.9	E_{γ}: Possible cross-over of 174.5γ + 873.9γ.
x1116.1	8.4	
x1124.7	5.2	
x1171.6	10.1	E_{γ}: Possible cross-over of 174.5γ + 995.7γ.
x1630.6	0.4	E_{γ}: Possible cross-over of 505.9γ + 1124.7γ.

† From 2010Co13.
x γ ray not placed in level scheme.

^{197}Po α decay (53.6 s)

Parent: ^{197}Po: E=0.0; J$^{\pi}$=(3/2^{-}); $T_{1/2}$=53.6 s *10*; Q(α)=6412 *3*; %α decay=44 *7*

^{197}Po-$T_{1/2}$: Weighted average of 53 s *1* (1993Wa04), 58 s *3* (1967Le21), 52 s *4* (1967Si09), and 60 s *6* (1971Ho01). Other value: 84 s *16* (1996Ta18).

1981Sc01: sources from decay of ^{201}Rn parent; measured evaporation-residue α spectra (E and gas ΔE detectors), yields and angular distributions of fusion products. Deduced %α.

1971Ho01: sources from decay of ^{201}Rn parent, mass separation; measured Eα, Iα (silicon surface-barrier detectors, multispectrum analysis).

1967Si09: sources from ^{185,187}Re(^{19}F,xn), ^{194}Pt(^{12}C,xn), helium-jet transport; measured Eα, Iα (solid-state detectors).

1967Tr06: sources from decay of ^{197}At parent, helium-jet transport; measured Eα, Iα (silicon surface-barrier detectors).

Other: 1967Le21.

^{193}Pb Levels

E(level)	J$^{\pi}$†
0.0	(3/2^{-})

† From Adopted Levels.

α radiations

Eα	E(level)	Iα‡	HF†	Comments
6281 *4*	0.0	100	1.8	Eα: from 1991Ry01 (based on recalibrated values of: 1971Ho01 (6279 *9*), 1967Si09 (6290 *10*), 1967Tr06 (6280 *5*)). Other: 6326 keV *27* (2015We13).

† r_0(^{193}Pb)=1.501 Average of r_0(^{192}Pb)=1.506 *6* and r_0(^{194}Pb)=1.496 *3* (1998Ak04).

‡ For absolute intensity per 100 decays, multiply by 0.44 *7*.

^{197}Po α decay (25.8 s)

Parent: ^{197}Po: E=230 *SY*; J^π=(13/2$^+$); $T_{1/2}$=25.8 s *1*; Q(α)=6412 *3*; %α decay=84 *9*

^{197}Po-E: From 2017Au03 (systematics value: 230 keV *80*). 204 keV *sy* in ^{197}Po Adopted Levels (2005Hu03). An average value of E(ex)≈201 keV can be obtained using systematic values in 2017Au03 for ^{195}Po(E≈90 keV) and ^{199}Po(E=312 keV).

^{197}Po-$T_{1/2}$: From 1993Wa04. Other values: 29 s *9* (1967Le21), 26 s *2* (1967Si09), 27 s *3* (1971Ho01), 40 s *10* (1982Bo04), and 32 s *2* (1996Ta18).

2002Va13: ^{162}Dy(^{40}Ar,^{5}n) E(lab)=189 MeV. Magnetic mass separator for recoiling fragments. Implantation in position-sensitive Si strip detector. Reaction product identification by coincidences between recoil fragments and links in the α-ray decay chain. Determine α-γ and α-x-ray coincidences.

1982Bo04: sources from spallation of uranium, thorium, gold, and tantalum by 5-GeV protons, helium-jet transport; measured Eα (silicon surface-barrier detectors).

1981Sc01: sources from decay of ^{201}Rn parent; measured evaporation-residue α spectra (E and gas ΔE detectors), yields and angular distributions of fusion products. Deduced %α.

1971Ho01: sources from decay of ^{201}Rn parent, mass separation; measured Eα, Iα (silicon surface-barrier detectors, multispectrum analysis).

1967Si09: sources from ^{185,187}Re(^{19}F,xn), ^{194}Pt(^{12}C,xn), helium-jet transport; measured Eα, Iα (solid-state detectors).

1967Tr06: sources from decay of ^{197}At parent, helium-jet transport; measured Eα, Iα (silicon surface-barrier detectors).

Other: 1967Le21.

^{193}Pb Levels

E(level)	J^π	$T_{1/2}$	Comments
0+x	(13/2$^+$)	5.8 min *2*	E(level): Level energy 130 keV *80* in 2017Au03 from systematics. J^π,$T_{1/2}$: From Adopted Levels.
757+x	(13/2$^+$)		E(level): Based on two pairs of 5622α and 757 keV *1* γ-ray coincidences in ^{197}Po decay (2002Va13). J^π: Suggested in 2002Va13, based on the low hindrance factor for the 5622 keV α ray feeding this level from the 13/2$^+$ state in ^{197}Po.

α radiations

Eα	E(level)	Iα‡	HF†	Comments
5622# *25*	757+x	≥0.05	≤1.3	HF: In 2002Va13 ≤1.7 *10*. Eα,Iα: From 2002Va13. Intensity listed as ≥0.05 *3* because of the nonobservation of α-e$^-$ coincidences.
6383.4# *24*	0+x	99.3 *35*	1.2	Eα: from 1991Ry01 (based on recalibrated values of: 1982Bo04 (6385 *3*), 1971Ho01 (6380 *9*), 1967Si09 (6387 *8*), 1967Tr06 (6378 *5*)). Other value: 6385 keV *10* (2002Va13). Iα: from 2002Va13. HF: 2002Va13 gives a value of 2.0 *2*, no details for calculations are presented.

† r_0(^{193}Pb)=1.501 *5* From average of r_0(^{192}Pb)=1.506 *6* and r_0(^{194}Pb)=1.496 *3* (1998Ak04). For ^{193}Pb level energies, X=130 keV was considered (see 0+x level comment).

‡ For absolute intensity per 100 decays, multiply by 0.84 *9*.

Estimated for a range of levels.

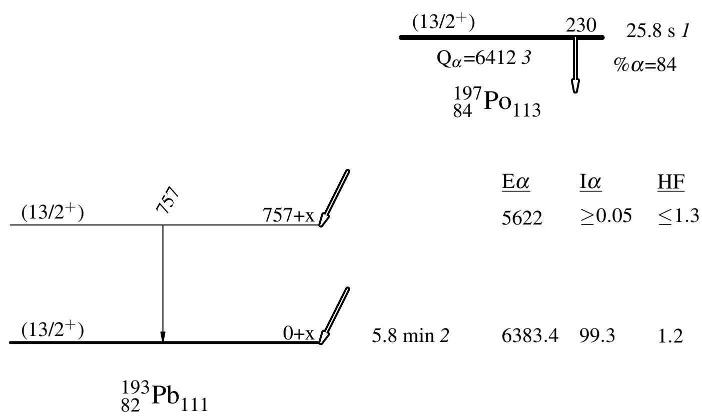
^{197}Po α decay (25.8 s) (continued)

$\gamma(^{193}Pb)$

E_γ	E_i(level)	J^π_i	E_f	J^π_f	Comments
757 *1*	757+x	$(13/2^+)$	0+x	$(13/2^+)$	E_γ: From 2002Va13.

^{197}Po α decay (25.8 s)

Decay Scheme



^{168}Er(^{30}Si,5nγ) 1996Du18

1996Du18: ^{168}Er(^{30}Si,^{5}nγ) E=159 MeV; EUROGAM II spectrometer, analysis performed by multi gated spectra and two-dimensional matrices; measured γ, $\gamma\gamma\gamma$, $\gamma(\theta)$.

^{193}Pb Levels

For a discussion of the configurations, bands, and band systematics in Pb nuclei, see 1996Ba54 and 1996Du18.
All level energies are expressed relative to the 13/2^{+} isomeric state.

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]	Comments
0.0+x[@]	(13/2^{+})	5.8 min *2*	E(level): 130 keV *80* from 13/2^{+} level systematics (2017Au03). J$^{\pi}$: From Adopted Levels.
881.6+x[@] *2*	(17/2^{+})		
1022.2+x[@] *3*	(15/2^{+})		
1401.7+x[@] *3*	(21/2^{+})		
1519.5+x[@] *5*	(19/2^{+})		
1550.0+x[@] *3*	(19/2^{+})		
1585.9+x[@] *4*	(21/2^{-})	20.5 ns *4*	
1994.5+x[@] *4*	(25/2^{+})		
2058.8+x[a] *5*	(23/2^{-})		
2141.3+x[@] *4*	(23/2^{+})		
2142.0+x[a] *5*	(25/2^{-})		
2172.4+x[@] *6*	(23/2^{+})		
2213.5+x[@] *4*	(25/2^{+})		
2322.0+x[a] *5*	(27/2^{-})		
2426.4+x[@] *4*	(27/2^{+})		
2524.6+x[&] *5*	(27/2^{+})		
2526.8+x[&] *4*	(29/2^{+})		Conf.: $\nu(i_{13/2}) \otimes \pi([505]9/2^{-} \otimes [514]7/2^{-})_{K=8}+$ suggested in 1996Du18.
2584.5+x[c] *5*	(29/2^{-})	9.4 ns *7*	
2612.4+x[&] *5*	(33/2^{+})	180 ns *15*	
2653.7+x[a] *7*	(27/2^{-})		
2671.9+x[&] *6*	(29/2^{+})		
2686.6+x[c] *6*	(31/2^{-})		
2707.0+x[a] *6*	(29/2^{-})		
2769.1+x[&] *5*	(29/2^{+})		
2938.8+x[c] *7*	(33/2^{-})		
2994.7+x[a] *7*	(31/2^{-})		
3079.9+x[&] *6*	(29/2^{+})		
3128.4+x[a] *6*	(31/2^{-})		
3133.1+x[&] *5*	(31/2^{+})		
3249.7+x[a] *8*	(31/2^{-})		
3260.4+x[b] *7*	(31/2^{-})		
3281.8+x[&] *7*	(33/2^{+})		
3320.3+x[c] *7*	(35/2^{-})		
3376.2+x[&] *6*	(31/2^{+})		
3414.5+x[&] *6*	(33/2^{+})		
3418.4+x[b] *7*	(33/2^{-})		
3541.7+x[a] *9*	(35/2^{-})		

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^{168}Er(^{30}Si,5nγ) 1996Du18 (continued)

^{193}Pb Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	S	E(level)[†]	J$^{\pi}$[‡]	E(level)[†]	J$^{\pi}$[‡]
3542.5+x[&] 6	(33/2$^+$)		4399.0+x[a] 11	(39/2$^-$)	5425.5+x[f] 9	(49/2$^+$)
3639.9+x[b] 8	(37/2$^-$)		4435.0+x[a] 11	(39/2$^-$)	5436.6+x[g] 9	(47/2$^+$)
3672.7+x[&] 7	(33/2$^+$)		4445.2+x[&] 6	(39/2$^+$)	5439.4+x[b] 10	(45/2$^-$)
3702.0+x[&] 6	(33/2$^+$)		4470.2+x[c] 8	(41/2$^-$)	5501.3+x[b] 9	(47/2$^-$)
3721.9+x[c] 7	(37/2$^-$)		4532.5+x[b] 8	(41/2$^-$)	5597.2+x[d] 9	(49/2$^-$)
3741.6+x[a] 9	(35/2$^-$)		4536.7+x[f] 7	(43/2$^+$)	5667.9+x[b] 15	(45/2$^-$)
3771.8+x[&] 6	(35/2$^+$)		4538.4+x[b] 10	(41/2$^-$)	5762.8+x[g] 10	(49/2$^+$)
3822.2+x[&] 9	(35/2$^+$)		4564.3+x[&] 9	(39/2$^+$)	5801.8+x[b] 11	(47/2$^-$)
3839.2+x[&] 6	(33/2$^+$)		4576.9+x[&] 7	(41/2$^+$)	5815.1+x[f] 9	(51/2$^+$)
3906.2+x[b] 8	(35/2$^-$)		4590.9+x[b] 8	(41/2$^-$)	5824.9+x[e] 9	(49/2$^-$)
3924.5+x[&] 6	(35/2$^+$)		4661.5+x[&] 11		5926.7+x[d] 9	(51/2$^-$)
3991.4+x[&] 7	(35/2$^+$)		4760.3+x[&] 11	(41/2$^+$)	6001.2+x[e] 10	(51/2$^-$)
3996.8+x[&] 6	(37/2$^+$)		4768.7+x[f] 8	(45/2$^+$)	6145.2+x[g] 11	(51/2$^+$)
4003.2+x[&] 6	(35/2$^+$)		4784.0+x[&] 7	(41/2$^+$)	6231.2+x[f] 10	(53/2$^+$)
4055.5+x[b] 9	(39/2$^-$)		4827.8+x[c] 8	(43/2$^-$)	6284.9+x[e] 10	(53/2$^-$)
4062.7+x[b] 8	(37/2$^-$)		4861.3+x[b] 8	(43/2$^-$)	6302.3+x[d] 10	(53/2$^-$)
4116.2+x[&] 10	(37/2$^+$)	1.7 3	4894.0+x[a] 11	(43/2$^-$)	6596.8+x[e] 11	(55/2$^-$)
4135.7+x[c] 8	(39/2$^-$)		4916.6+x[b] 8	(43/2$^-$)	6657.3+x[f] 10	(55/2$^+$)
4149.1+x[&] 6	(37/2$^+$)		4944.8+x[g] 8	(43/2$^+$)	6715.2+x[d] 11	(55/2$^-$)
4166.8+x[b] 8	(39/2$^-$)		5032.9+x[b] 9	(43/2$^-$)	6927.2+x[e] 11	(57/2$^-$)
4181.2+x[a] 8	(39/2$^-$)		5060.3+x[f] 9	(47/2$^+$)	7090.0+x[f] 11	(57/2$^+$)
4191.1+x[&] 7	(39/2$^+$)		5092.5+x[d] 8	(45/2$^-$)	7154.4+x[d] 12	(57/2$^-$)
4210.7+x[&] 6	(37/2$^+$)		5165.6+x[a] 12	(43/2$^-$)	7311.7+x[e] 12	(59/2$^-$)
4270.8+x[b] 8	(39/2$^-$)		5169.1+x[g] 9	(45/2$^+$)	7516.0+x?[f]	(59/2$^+$)
4297.7+x[&] 7	(39/2$^+$)		5181.6+x[b] 8	(45/2$^-$)	7713.2+x[e] 13	(61/2$^-$)
4313.1+x[&] 7	(37/2$^+$)		5218.1+x[c] 9	(45/2$^-$)	7932.0+x?[f]	(61/2$^+$)
4360.5+x[&] 11	(37/2$^+$)		5280.7+x[b] 15	(43/2$^-$)		
4387.8+x[f] 7	(41/2$^+$)		5331.6+x[d] 8	(47/2$^-$)		

[†] From least-squares fit to Eγ.
[‡] From 1996Du18 based on $\gamma(\theta)$, rotational behaviour with regularly spaced transitions, and literature data.
[#] From Adopted values.
[@] Group A Group of low-energy positive-parity states, which connect all higher-lying levels with the 13/2$^+$ isomeric state.
[&] Group B Group of positive-parity states linking Bands 2 and 3, plus some other medium-energy positive-parity levels, with those of Group A.
[a] Group C Negative-parity levels above the 1586-keV 21/2$^-$ isomeric state.
[b] Group D Negative-parity levels above the 2584-keV 29/2$^-$ isomeric state, excluding those grouped in Bands 1, 1a and 1b.
[c] Band(A): Magnetic dipole band 1 (A11). Configuration ν(i13/2) $\otimes$ π([505]9/2$^-$ $\otimes$ [606]13/2$^+$)$_{K=11}$-. Extracted mean value B(M1)/B(E2)=22 7 (μ_n/eb)^2.
[d] Band(B): Magnetic dipole band 1a (ABC11). Configuration ν(i13/2)^3 $\otimes$ π([505]9/2$^-$ $\otimes$ [606]13/2$^+$)$_{K=11}$-.
[e] Band(C): Magnetic dipole band 1b. Configuration unknown.
[f] Band(D): Magnetic dipole band 2 (ABE11). Configuration ν((i13/2)^2 $\otimes$ ((p3/2) or (f5/2))) $\otimes$ π([505]9/2$^-$ $\otimes$ [606]13/2$^+$)$_{K=11}$-.
[g] Band(E): Magnetic dipole band 3 (ABF11). Configuration ν((i13/2)^2 $\otimes$ ((p3/2) or (f5/2))) $\otimes$ π([505]9/2$^-$ $\otimes$ [606]13/2$^+$)$_{K=11}$-.

$^{168}Er(^{30}Si,5n\gamma)$ 1996Du18 (continued)

$\gamma(^{193}Pb)$

E_γ[†]	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[g]	α[h]	$I_{(\gamma+ce)}$[f]	Comments
(40.9[‡])		2213.5+x	(25/2+)	2172.4+x	(23/2+)				
(41.5[§])		4191.1+x	(39/2+)	4149.1+x	(37/2+)				
(66.5[‡])		1585.9+x	(21/2−)	1519.5+x	(19/2+)				
72.1[‡]		2213.5+x	(25/2+)	2141.3+x	(23/2+)				
85.6[§] *3*		2612.4+x	(33/2+)	2526.8+x	(29/2+)	Q			
90.0[c] *3*		4387.8+x	(41/2+)	4297.7+x	(39/2+)				
98.2[§] *3*		2524.6+x	(27/2+)	2426.4+x	(27/2+)			5.5 *5*	
102.1[#] *3*		2686.6+x	(31/2−)	2584.5+x	(29/2−)	D		16.5 *15*	A_2=−0.35 *13*.
146.0[§] *3*	1.48 *19*	4149.1+x	(37/2+)	4003.2+x	(35/2+)	D		6.2 *8*	A_2=−0.35 *11*. α: 3.18 for (M1).
148.4[§] *3*		4297.7+x	(39/2+)	4149.1+x	(37/2+)	D		9.7 *16*	A_2=−0.42 *14*.
148.9[c] *3*		4536.7+x	(43/2+)	4387.8+x	(41/2+)	D		6.6 *10*	A_2=−0.62 *19*.
156.5[@] *3*		4062.7+x	(37/2−)	3906.2+x	(35/2−)			0.7 *3*	
158.0[@] *3*	0.17 *8*	3418.4+x	(33/2−)	3260.4+x	(31/2−)	[M1]	2.54	0.6 *3*	
158.1[‡] *3*		2584.5+x	(29/2−)	2426.4+x	(27/2+)	D		18.6 *17*	A_2=−0.21 *4*.
164.0[§] *3*	2.25 *24*	4003.2+x	(35/2+)	3839.2+x	(33/2+)	D		7.4 *8*	A_2=−0.41 *10*. α: 2.29 for (M1).
175.9[@] *3*	0.07 *7*	5092.5+x	(45/2−)	4916.6+x	(43/2−)	D		0.2 *2*	A_2=−0.32 *15*. α: 1.88 for (M1).
176.3[b] *3*		6001.2+x	(51/2−)	5824.9+x	(49/2−)	D+Q		0.6 *2*	A_2=−0.47 *9*.
180.0[&] *3*	3.4 *2*	2322.0+x	(27/2−)	2142.0+x	(25/2−)	D		5.7 *4*	A_2=−0.12 *6*. α: 0.69 for (M1).
184.0[‡] *3*		1585.9+x	(21/2−)	1401.7+x	(21/2+)	D+Q		13.6 *13*	A_2=+0.12 *5*.
196.9[§] *3*	1.48 *34*	4387.8+x	(41/2+)	4191.1+x	(39/2+)	D		3.5 *8*	A_2=−0.19 *15*. α: 1.368 for (M1).
204.6[&] *3*		2526.8+x	(29/2+)	2322.0+x	(27/2−)			0.3 *1*	
208.0[@] *3*		4270.8+x	(39/2−)	4062.7+x	(37/2−)	D		1.2 *3*	A_2=−0.06 *12*.
212.9[‡] *3*		2426.4+x	(27/2+)	2213.5+x	(25/2+)	D		25.9 *22*	A_2=−0.18 *7*.
219.0[‡] *3*		2213.5+x	(25/2+)	1994.5+x	(25/2+)			8.4 *8*	A_2=+0.19 *11*. Mult.: The angular distribution coefficient value indicates stretched quadrupole. (M1) in Adopted Gammas.
224.3[d] *3*		5169.1+x	(45/2+)	4944.8+x	(43/2+)	D+Q		2.5 *4*	A_2=−0.57 *10*.
231.1[@] *3*	0.54 *21*	5092.5+x	(45/2−)	4861.3+x	(43/2−)	D		1.0 *4*	A_2=−0.22 *15*. α: 0.875 for (M1).
232.0[c] *3*		4768.7+x	(45/2+)	4536.7+x	(43/2+)	D		6.9 *10*	A_2=−0.34 *9*.
234.5[§] *3*	0.60 *16*	4445.2+x	(39/2+)	4210.7+x	(37/2+)	[M1]	0.840	1.1 *3*	
239.1[a] *3*		5331.6+x	(47/2−)	5092.5+x	(45/2−)	D		0.6 *3*	A_2=−0.20 *14*.
252.3[#] *3*		2938.8+x	(33/2−)	2686.6+x	(31/2−)	D		17.2 *11*	A_2=−0.32 *5*.
261.7[@] *3*	0.50 *18*	4532.5+x	(41/2−)	4270.8+x	(39/2−)	D		0.8 *3*	A_2=−0.32 *11*. α: 0.62 for (M1).
263.1[&] *3*	0.6 *2*	2322.0+x	(27/2−)	2058.8+x	(23/2−)	[E2]	0.1727	0.7 *2*	
264.8[@] *3*	0.19	5092.5+x	(45/2−)	4827.8+x	(43/2−)	[M1]	0.601	0.3 *2*	
265.6[a] *3*		5597.2+x	(49/2−)	5331.6+x	(47/2−)	D		0.5 *2*	A_2=−0.30 *16*.
267.5[d] *3*		5436.6+x	(47/2+)	5169.1+x	(45/2+)	D		2.8 *3*	A_2=−0.24 *12*.
279.2[§] *3*		4576.9+x	(41/2+)	4297.7+x	(39/2+)	D		5.4 *6*	A_2=−0.19 *19*.

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^{168}Er(^{30}Si,5nγ) 1996Du18 (continued)

γ(^{193}Pb) (continued)

E_γ[†]	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[g]	α[h]	$I_{(\gamma+ce)}$[f]	Comments
283.7[b] *3*		6284.9+x	(53/2⁻)	6001.2+x	(51/2⁻)	D		0.5 *2*	A_2=−0.39 *9*.
291.6[c] *3*		5060.3+x	(47/2⁺)	4768.7+x	(45/2⁺)	D		7.0 *7*	A_2=−0.33 *5*.
294.8[§] *3*	0.18 *9*	3996.8+x	(37/2⁺)	3702.0+x	(33/2⁺)	(Q)		0.2 *1*	A_2=+0.13 *19*. α: 0.1217 for (E2).
295.2[@] *3*	0.21 *14*	4827.8+x	(43/2⁻)	4532.5+x	(41/2⁻)	D		0.3 *2*	A_2=−0.17 *16*. α: 0.446 for (M1).
296.3[§] *3*		3376.2+x	(31/2⁺)	3079.9+x	(29/2⁺)	D		7.9 *5*	A_2=−0.40 *9*.
296.4[§] *3*	0.42 *21*	4445.2+x	(39/2⁺)	4149.1+x	(37/2⁺)	[M1]	0.441	0.6 *3*	
303.4[@] *3*		4470.2+x	(41/2⁻)	4166.8+x	(39/2⁻)	D		0.8 *3*	A_2=−0.39 *11*.
311.1[§] *3*		2524.6+x	(27/2⁺)	2213.5+x	(25/2⁺)			16.3 *10*	Mult.: A_2=−0.32 *10* indicates D. Placement from (27/2⁺) to (23/2⁺).
311.9[b] *3*		6596.8+x	(55/2⁻)	6284.9+x	(53/2⁻)	D		0.4 *3*	A_2=−0.38 *14*.
319.6[@] *3*		3639.9+x	(37/2⁻)	3320.3+x	(35/2⁻)	D		1.6 *4*	A_2=−0.39 *19*.
319.7[@] *3*		5501.3+x	(47/2⁻)	5181.6+x	(45/2⁻)	D		0.7 *3*	A_2=−0.27 *19*.
323.6[@] *3*		5824.9+x	(49/2⁻)	5501.3+x	(47/2⁻)	D		0.9 *3*	A_2=−0.34 *11*.
324.0[§] *3*	0.18 *9*	3996.8+x	(37/2⁺)	3672.7+x	(33/2⁺)	[E2]	0.0922	0.2 *1*	
325.7[@] *3*		4916.6+x	(43/2⁻)	4590.9+x	(41/2⁻)			0.3 *2*	
326.2[d] *3*		5762.8+x	(49/2⁺)	5436.6+x	(47/2⁺)	D		2.2 *2*	A_2=−0.34 *10*.
328.8[@] *3*	0.30 *15*	4861.3+x	(43/2⁻)	4532.5+x	(41/2⁻)	[M1]	0.332	0.4 *2*	
329.5[a] *3*		5926.7+x	(51/2⁻)	5597.2+x	(49/2⁻)	D+Q		0.5 *3*	A_2=−0.53 *13*.
330.4[b] *3*		6927.2+x	(57/2⁻)	6596.8+x	(55/2⁻)	D+Q		0.4 *2*	A_2=−0.44 *10*.
334.5[#] *3*		4470.2+x	(41/2⁻)	4135.7+x	(39/2⁻)	D		2.8 *2*	A_2=−0.33 *13*.
338.7[§] *3*		4784.0+x	(41/2⁺)	4445.2+x	(39/2⁺)			0.5 *2*	
341.0[&] *3*		2994.7+x	(31/2⁻)	2653.7+x	(27/2⁻)	(Q)		0.6 *2*	A_2=+0.13 *19*.
342.7[§] *3*		2769.1+x	(29/2⁺)	2426.4+x	(27/2⁺)	D		10.5 *6*	A_2=−0.28 *5*.
353.7[@] *4*		5181.6+x	(45/2⁻)	4827.8+x	(43/2⁻)	D		1.2 *3*	A_2=−0.31 *9*.
357.7[a] *4*	1.4 *3*	4827.8+x	(43/2⁻)	4470.2+x	(41/2⁻)	D		1.8 *4*	A_2=−0.57 *16*. α: 0.264 for (M1).
362.4[@] *4*		5801.8+x	(47/2⁻)	5439.4+x	(45/2⁻)			0.2 *2*	
364.0[§] *4*	6.2 *4*	3133.1+x	(31/2⁺)	2769.1+x	(29/2⁺)	D		7.8 *5*	A_2=−0.36 *11*. α: 0.252 for (M1).
365.2[c] *4*	4.6 *4*	5425.5+x	(49/2⁺)	5060.3+x	(47/2⁺)	D		5.7 *5*	A_2=−0.38 *5*. α: 0.25 for (M1).
367.9[§] *4*		4944.8+x	(43/2⁺)	4576.9+x	(41/2⁺)	D		4.3 *6*	A_2=−0.19 *8*.
375.6[a] *4*		6302.3+x	(53/2⁻)	5926.7+x	(51/2⁻)	D+Q		0.4 *3*	A_2=−0.59 *15*.
377.3[§] *4*	0.49 *24*	4149.1+x	(37/2⁺)	3771.8+x	(35/2⁺)	[M1]	0.229	0.6 *3*	
381.5[#] *4*		3320.3+x	(35/2⁻)	2938.8+x	(33/2⁻)	D		13.0 *5*	A_2=−0.36 *5*.
382.0[§] *4*	2.0 *3*	3924.5+x	(35/2⁺)	3542.5+x	(33/2⁺)	D		2.4 *4*	A_2=−0.18 *12*. α: 0.221 for (M1).
382.4[d] *4*		6145.2+x	(51/2⁺)	5762.8+x	(49/2⁺)	D+Q		1.4 *3*	A_2=−0.43 *8*.
384.5[b] *4*		7311.7+x	(59/2⁻)	6927.2+x	(57/2⁻)	D		0.3 *2*	A_2=−0.21 *19*.
385.0[&] *4*		2707.0+x	(29/2⁻)	2322.0+x	(27/2⁻)			0.6 *3*	
388.7[§] *4*	1.0 *4*	4313.1+x	(37/2⁺)	3924.5+x	(35/2⁺)	[M1]	0.211	1.2 *5*	
389.6[c] *4*	3.41 *33*	5815.1+x	(51/2⁺)	5425.5+x	(49/2⁺)	D		4.1 *4*	A_2=−0.29 *7*. α: 0.21 for (M1).
390.3[a] *4*		5218.1+x	(45/2⁻)	4827.8+x	(43/2⁻)	D		1.3 *3*	A_2=−0.29 *13*.

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^{168}Er(^{30}Si,5nγ) 1996Du18 (continued)

γ(^{193}Pb) (continued)

E_γ[†]	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[g]	α[h]	$I_{(\gamma+ce)}$[f]	Comments
390.8 4	0.33 25	4861.3+x	(43/2⁻)	4470.2+x	(41/2⁻)	D		0.4 3	A_2=−0.34 21. α: 0.208 for (M1).
395.8[§] 4		3771.8+x	(35/2⁺)	3376.2+x	(31/2⁺)	Q		5.6 6	A_2=+0.21 6.
396.6[@] 4	0.34 25	4532.5+x	(41/2⁻)	4135.7+x	(39/2⁻)	[M1]	0.2	0.4 3	
401.5[b] 4		7713.2+x	(61/2⁻)	7311.7+x	(59/2⁻)			0.2 1	
401.6[#] 4		3721.9+x	(37/2⁻)	3320.3+x	(35/2⁻)	D		7.7 4	A_2=−0.37 7.
406.5[@] 4		5439.4+x	(45/2⁻)	5032.9+x	(43/2⁻)	D		0.5 3	A_2=−0.18 26.
409.5[§] 4		3542.5+x	(33/2⁺)	3133.1+x	(31/2⁺)	D		4.7 4	A_2=−0.46 8.
412.9[a] 4		6715.2+x	(55/2⁻)	6302.3+x	(53/2⁻)			0.3 1	
413.8[#] 4		4135.7+x	(39/2⁻)	3721.9+x	(37/2⁻)	D		4.0 3	A_2=−0.39 14.
415.6[@] 4		4055.5+x	(39/2⁻)	3639.9+x	(37/2⁻)	(D)		1.3 3	A_2=−0.08 15.
416.1[c] 4	2.74 34	6231.2+x	(53/2⁺)	5815.1+x	(51/2⁺)	[M1]	0.176	3.2 4	
416.1[ci] 10		7932.0+x?	(61/2⁺)	7516.0+x?	(59/2⁺)			0.2 2	
419.6[§] 4		4191.1+x	(39/2⁺)	3771.8+x	(35/2⁺)	Q		1.5 4	A_2=+0.23 10.
421.4[&] 4		3128.4+x	(31/2⁻)	2707.0+x	(29/2⁻)			0.5 2	
424.1[@] 4		4590.9+x	(41/2⁻)	4166.8+x	(39/2⁻)	D		1.1 2	A_2=−0.20 13.
426.1[c] 4	1.04 17	6657.3+x	(55/2⁺)	6231.2+x	(53/2⁺)	[M1]	0.1652	1.2 2	
426.1[ci] 10		7516.0+x?	(59/2⁺)	7090.0+x	(57/2⁺)			0.4 3	
431.9[‡] 4		2426.4+x	(27/2⁺)	1994.5+x	(25/2⁺)			3.4 7	A_2=+0.28 14. Mult.: A2 value implies Q, however, placement 27/2⁺ to 25/2⁺ in 1996Du18.
432.7[c] 4	0.52 17	7090.0+x	(57/2⁺)	6657.3+x	(55/2⁺)	[M1]	0.1586	0.6 2	
438.7[§] 4		4210.7+x	(37/2⁺)	3771.8+x	(35/2⁺)	D		1.7 4	A_2=−0.27 10.
439.2[a] 4		7154.4+x	(57/2⁻)	6715.2+x	(55/2⁻)	D		0.2 1	A_2=−0.20 26.
442.0[@] 4		5032.9+x	(43/2⁻)	4590.9+x	(41/2⁻)	D		0.4 3	A_2=−0.49 19.
444.9[@] 4		4166.8+x	(39/2⁻)	3721.9+x	(37/2⁻)	D		2.5 4	A_2=−0.23 8.
448.1[§] 4	1.31 35	4445.2+x	(39/2⁺)	3996.8+x	(37/2⁺)	[M1]	0.1444	1.5 4	
448.9[§] 4		3991.4+x	(35/2⁺)	3542.5+x	(33/2⁺)			0.6 3	
455.3[@] 5		4590.9+x	(41/2⁻)	4135.7+x	(39/2⁻)			0.6 3	
461.2[§] 5	0.44 18	4003.2+x	(35/2⁺)	3542.5+x	(33/2⁺)	[M1]	0.1338	0.5 2	
461.5[§] 5	0.56 24	3133.1+x	(31/2⁺)	2671.9+x	(29/2⁺)	[M1]	0.1335	0.7 3	
462.9[§] 5		3839.2+x	(33/2⁺)	3376.2+x	(31/2⁺)	D		14.3 11	A_2=−0.35 10.
472.7[&] 5		2058.8+x	(23/2⁻)	1585.9+x	(21/2⁻)	D		1.3 5	A_2=−0.30 13.
482.9[@] 5		4538.4+x	(41/2⁻)	4055.5+x	(39/2⁻)	D		1.0 2	A_2=−0.21 11.
487.8[@] 5		3906.2+x	(35/2⁻)	3418.4+x	(33/2⁻)	D		0.6 3	A_2=−0.18 11.
497.3[‡] 5		1519.5+x	(19/2⁺)	1022.2+x	(15/2⁺)	Q		1.0 4	A_2=+1.1 4.
510.2[§] 5	0.46 18	3924.5+x	(35/2⁺)	3414.5+x	(33/2⁺)	[M1]		0.5 2	
520.1[‡] 2		1401.7+x	(21/2⁺)	881.6+x	(17/2⁺)	Q		81.9 35	A_2=+0.20 5.
527.8[‡] 3		1550.0+x	(19/2⁺)	1022.2+x	(15/2⁺)	Q		13.8 10	A_2=+0.18 10.
532.4[§] 3		2526.8+x	(29/2⁺)	1994.5+x	(25/2⁺)			3.5 5	A_2=+0.10 8.
540.4[§] 5		3822.2+x	(35/2⁺)	3281.8+x	(33/2⁺)			0.2 2	
542.7[&] 5		3249.7+x	(31/2⁻)	2707.0+x	(29/2⁻)			0.4 2	A_2=+0.01 19.
545.3[§] 5		4661.5+x		4116.2+x	(37/2⁺)			0.2 1	
547.0[&] 5		3541.7+x	(35/2⁻)	2994.7+x	(31/2⁻)	Q		1.3 4	A_2=0.26 12.
555.4[§] 6		3079.9+x	(29/2⁺)	2524.6+x	(27/2⁺)	D		12.2 1	A_2=−0.43 8.

Continued on next page (footnotes at end of table)

^{168}Er(^{30}Si,5nγ) 1996Du18 (continued)

γ(^{193}Pb) (continued)

E_γ[†]	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[g]	α[h]	$I_{(\gamma+ce)}$[f]	Comments
556.0[&] 4		2142.0+x	(25/2⁻)	1585.9+x	(21/2⁻)	Q		6.1 5	A_2=+0.30 5.
565.0[&] 6		2707.0+x	(29/2⁻)	2142.0+x	(25/2⁻)			1.3 3	A_2=+0.26 12.
567.5[§] 6		4564.3+x	(39/2⁺)	3996.8+x	(37/2⁺)			1.2 4	
581.8[§] 6	1.1 4	3996.8+x	(37/2⁺)	3414.5+x	(33/2⁺)	(Q)		1.1 4	A_2=+0.15 14. α: 0.0206 for (E2).
591.1[‡] 4		2141.3+x	(23/2⁺)	1550.0+x	(19/2⁺)	Q		28.3 17	A_2=+0.22 10.
593.1[‡] 4		1994.5+x	(25/2⁺)	1401.7+x	(21/2⁺)	Q		34.6 21	A_2=+0.19 7.
595.0[&] 6		2653.7+x	(27/2⁻)	2058.8+x	(23/2⁻)			0.7 4	
609.9[§] 6	1.2 3	3281.8+x	(33/2⁺)	2671.9+x	(29/2⁺)	Q		1.2 3	A_2=+0.50 14. α: 0.0185 for (E2).
613.2[&] 6		3741.6+x	(35/2⁻)	3128.4+x	(31/2⁻)	Q		1.7 5	A_2=+0.30 11.
622.3[‡] 6		2172.4+x	(23/2⁺)	1550.0+x	(19/2⁺)			4.4 8	
633.8[#] 6		3320.3+x	(35/2⁻)	2686.6+x	(31/2⁻)			0.5 2	
638.7[&] 6		4181.2+x	(39/2⁻)	3541.7+x	(35/2⁻)	Q		0.8 3	A_2=+0.21 13.
644.1[§] 6		4760.3+x	(41/2⁺)	4116.2+x	(37/2⁺)	Q		0.4 2	A_2=+0.39 23.
656.8[c] 7	0.6 2	5425.5+x	(49/2⁺)	4768.7+x	(45/2⁺)	[E2]	0.01576	0.6 2	
657.4[&] 7		4399.0+x	(39/2⁻)	3741.6+x	(35/2⁻)	Q		0.4 2	A_2=+0.21 25.
668.2[‡] 3		1550.0+x	(19/2⁺)	881.6+x	(17/2⁺)	D+Q		18.9 13	A_2=−0.46 11.
672.6[&] 7		2994.7+x	(31/2⁻)	2322.0+x	(27/2⁻)	Q		1.2 4	A_2=+0.19 12.
675.8[@] 7		3260.4+x	(31/2⁻)	2584.5+x	(29/2⁻)			1.0 3	
677.6[§] 7		2671.9+x	(29/2⁺)	1994.5+x	(25/2⁺)	Q		12.5 12	A_2=+0.19 8.
692.3[a] 7	0.1 1	4827.8+x	(43/2⁻)	4135.7+x	(39/2⁻)	[E2]	0.01407	0.1 1	
693.4[&] 7		4435.0+x	(39/2⁻)	3741.6+x	(35/2⁻)	Q		0.5 2	A_2=+0.39 22.
701.7[§] 7		4116.2+x	(37/2⁺)	3414.5+x	(33/2⁺)	Q			A_2=+0.24 12.
706.7[§] 7	1.6 2	3133.1+x	(31/2⁺)	2426.4+x	(27/2⁺)	[E2]	0.01346	1.6 2	A_2=+0.40 23.
711.7[@] 7		5181.6+x	(45/2⁻)	4470.2+x	(41/2⁻)			0.1 1	
712.8[&] 7		4894.0+x	(43/2⁻)	4181.2+x	(39/2⁻)	Q		0.4 2	A_2=+0.83 33.
730.6[&] 7		5165.6+x	(43/2⁻)	4435.0+x	(39/2⁻)	Q		0.4 2	
739.7[‡] 3		2141.3+x	(23/2⁺)	1401.7+x	(21/2⁺)	D+Q		23.8 14	A_2=−0.45 7.
742.3[§] 7		3414.5+x	(33/2⁺)	2671.9+x	(29/2⁺)	Q		5.3 8	A_2=+0.22 8.
748.3[#] 7		4470.2+x	(41/2⁻)	3721.9+x	(37/2⁻)			0.4 2	
754.7[c] 8	0.8 2	5815.1+x	(51/2⁺)	5060.3+x	(47/2⁺)	[E2]	0.01173	0.8 2	
755.1[§] 8	1.0 2	3281.8+x	(33/2⁺)	2526.8+x	(29/2⁺)	Q		1.0 2	A_2=+0.37 12. α: 0.0117 for (E2).
759.4[§] 8		3839.2+x	(33/2⁺)	3079.9+x	(29/2⁺)	Q		2.6 3	A_2=+0.25 11.
766.6[&] 8		5165.6+x	(43/2⁻)	4399.0+x	(39/2⁻)			0.2 1	
770.2[§] 8	0.4 5	4313.1+x	(37/2⁺)	3542.5+x	(33/2⁺)	[E2]	0.01124	0.4 5	
773.5[§] 8		3542.5+x	(33/2⁺)	2769.1+x	(29/2⁺)			0.7 3	
783.1[#] 8		3721.9+x	(37/2⁻)	2938.8+x	(33/2⁻)	Q		1.0 2	A_2=+0.20 19.
791.5[§] 8	0.8 2	3924.5+x	(35/2⁺)	3133.1+x	(31/2⁺)	Q		0.8 2	A_2=+0.8 3. α: 0.01063 for (E2).
805.6[c] 8	0.2 1	6231.2+x	(53/2⁺)	5425.5+x	(49/2⁺)	[E2]	0.01025	0.2 1	
806.4[&] 8		3128.4+x	(31/2⁻)	2322.0+x	(27/2⁻)	Q		2.0 4	A_2=+0.37 18.
811.9[‡] 4		2213.5+x	(25/2⁺)	1401.7+x	(21/2⁺)	Q		8.0 5	A_2=+0.25 8.
815.4[#] 8		4135.7+x	(39/2⁻)	3320.3+x	(35/2⁻)			0.8 2	

Continued on next page (footnotes at end of table)

^{168}Er(^{30}Si,5nγ) 1996Du18 (continued)

γ(^{193}Pb) (continued)

E_γ[†]	I_γ[e]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[g]	α[h]	$I_{(\gamma+ce)}$[f]	Comments
834.0[@] 8	1.3 4	3418.4+x	(33/2−)	2584.5+x	(29/2−)	Q		1.3 4	A_2=+0.56 14. α: 0.00955 for (E2).
842.2[c] 8	0.3 1	6657.3+x	(55/2+)	5815.1+x	(51/2+)	[E2]	0.00936	0.3 1	
846.5[@] 8		4166.8+x	(39/2−)	3320.3+x	(35/2−)			0.2 1	
851.7[§] 9		3376.2+x	(31/2+)	2524.6+x	(27/2+)	Q		15.4 12	A_2=+0.17 9.
858.8[c] 9	0.1 1	7090.0+x	(57/2+)	6231.2+x	(53/2+)	[E2]	0.009	0.1 1	
869.1[@] 9		4590.9+x	(41/2−)	3721.9+x	(37/2−)			0.1 1	
881.6[‡] 2		881.6+x	(17/2+)	0.0+x	(13/2+)	Q		100	A_2=+0.19 5.
946.0[§] 9		4360.5+x	(37/2+)	3414.5+x	(33/2+)			0.1 1	
1022.3[‡] 3		1022.2+x	(15/2+)	0.0+x	(13/2+)	D+Q		14.3 5	A_2=−0.11 9.
1030.1[§] 10	0.1 1	3702.0+x	(33/2+)	2671.9+x	(29/2+)	[E2]	0.00629	0.1 1	
1129.5[@] 11		5667.9+x	(45/2−)	4538.4+x	(41/2−)			0.2 1	
1145.2[§] 11		3672.7+x	(33/2+)	2526.8+x	(29/2+)	Q		0.3 1	A_2=+0.38 33.
1174.9[§] 11	0.2 1	3702.0+x	(33/2+)	2526.8+x	(29/2+)	[E2]	0.00489	0.2 1	
1225.2[@] 12		5280.7+x	(43/2−)	4055.5+x	(39/2−)			0.2 1	

[†] Energy uncertainty not specified by the authors. An uncertainty of ≈ 0.1% (with a minimum uncertainty ≈ 0.3 keV) was assigned in previous evaluations (1998Ar07) from comparison with other results from EUROGRAM II (see e.g. 1996Du05). For the present revision the evaluator have adopted slightly narrower error bounds, based on the excellent overall agreement with the energy differences obtained from the least-squares level energy adjustment.

[‡] Group A. γ rays between low-lying positive-parity states, which carry all the transition intensity from higher-lying groups and bands, feeding the 5.8 min, $13/2^+$ isomeric level.

[§] Group B. γ rays between medium-energy positive-parity states, carrying the transitions intensity from Bands 2 and 3, and from some other medium-energy levels, and feeding those of Group A.

[&] Group C. γ rays connecting negative parity-levels above the 1586-keV isomeric state.

[@] Group D. γ rays connecting negative parity-levels above the 2584-keV isomeric state. Transitions in this group also connect to levels in Band 1, and to those deexciting Bands 1a and 1b.

[#] Band 1 transition.

[a] Band 1a transition.

[b] Band 1b transition.

[c] Band 2 transition.

[d] Band 3 transition.

[e] Deduced by evaluator using reported total transition intensity in 1996Du18 and conversion coefficients for assigned/assumed multipolarity. Assuming (M1) for d, (E2) for Q, and (M1+E2) for D+Q or from level scheme.

[f] Total transition intensity values reported in 1996Du18.

[g] Assigned by the evaluator based on A_2 values and proposed level scheme of 1996Du18. Assumed multipolarities in square brakets were used to obtain conversion coefficient to estimate Iγ from reported total transition intensity by 1996Du18.

[h] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[i] Placement of transition in the level scheme is uncertain.

^{170}Er(^{28}Si,5nγ) 2011Ba02,2005Gl09,2004Io01

Other: 2004Ba31.

2011Ba02: E=143 MeV. Pulsed beam with a width of 1.5 ns and repetition rate of 800 ns. The ^{193}Pb nuclei recoiled out of ^{170}Er foil and deposited into solid 0.2 mm Hg layer mounted on a Cu finger cooled to 170.0 K. Quadrupole interaction was investigated in the electric field gradient of solid polycrystalline Hg by time-differential perturbed angular distribution (TDPAD) method. The γ rays were detected using planar HPGe detectors placed at angles of 0° and 90°. Measured Eγ, Iγ, $\gamma(\theta)$, half-lives of isomers by γ(t), TDPAD spectra.

2005Gl09: E=149 MeV, γ-rays were detected using 4π γ-ray spectrometer GASP, consisting of 40 Compton-suppressed Ge detectors, grouped in seven rings covering backward and forward angles. Measured lifetime by recoil-distance (RDDM) and Doppler-shift attenuation method (DSAM).

2004Io01: 97% enriched ^{170}Er target; Pulse ^{28}Si beam, E=143 MeV. The target was placed between pole tips of an electromagnet, γ rays were detected by two planar HPGe detectors and two HPGe detectors of 20% efficiency placed at 135° and 45° with respect to beam direction. The quadrupole interaction has been investigated in the electric field gradient (efg) of the polycrystalline lattice of metallic solid Hg. The excited lead nuclei recoiled out of the 0.5 mg/cm^2 target foil into a solid 0.2 mm Hg layer mounted on a Cu cold finger held at the temperature $T_{1/2}$=170.0 K. The γ rays were detected by the planar HPGe detectors placed at 0° and 90° to the beam direction. Measured isomer half-life and spectroscopic quadrupole moments.

^{193}Pb Levels

E(level)†	J$^\pi$@	$T_{1/2}$	Comments
0+x	(13/2$^+$)	5.8 min *2*	%ε+%β^+=100 Configuration=$\nu(1i^{-2}_{13/2})$. $T_{1/2}$: From Adopted Levels.
882+x	(17/2$^+$)		
1022+x	(15/2$^+$)		
1402+x	(21/2$^+$)		
1519+x	(19/2$^+$)		
1550+x	(19/2$^+$)		
1586+x	(21/2$^-$)	20.5 ns *4*	Configuration=$\nu(1i^{-2}_{13/2},3p_{3/2})$. $T_{1/2}$: From 184γ(t) (2004Io01).
1995+x	(25/2$^+$)		
2059+x	(23/2$^-$)		
2141+x	(23/2$^+$)		
2142+x	(25/2$^-$)		
2214+x	23/2$^+$&		J$^\pi$: (25/2$^+$) in Adopted Levels.
2322+x	(27/2$^-$)	5.3 ns *6*	Q≤0.5 (2011Ba02) g=+0.68 *3* (2011Ba02) $T_{1/2}$: from time spectra of 180γ and 556γ (2011Ba02). Configuration=$\nu(1i^{-2}_{13/2},3p_{3/2})$ (2011Ba02).
2427+x	25/2$^+$&		J$^\pi$: (27/2$^+$) in Adopted Levels. See comments in Adopted Levels.
2527+x	(29/2$^+$)		
2585+x	27/2$^-$&	9.4 ns *5*	Q=2.6 *3* (2011Ba02) $T_{1/2}$: From time spectra of 213γ (2011Ba02). Configuration=$\nu(1i^{-1}_{13/2})\otimes\pi(1h_{9/2}1i_{13/2})_{11}$. Bandhead of a magnetic-dipole rotational (shears) band.
2613+x	(33/2$^+$)	180 ns *15*	Configuration=$\nu(1i^{-3}_{13/2})$. $T_{1/2}$: From 532γ(t), placement from 2527+x (2004Io01).
2686.9+x# *6*	(31/2$^-$)		
2939+x‡	(33/2$^-$)	2.2 ps *6*	$T_{1/2}$: From measured lifetime of 3.2 ps *8* (2005Gl09).
3321+x‡ *7*	(35/2$^-$)	≤0.7 ps	$T_{1/2}$: From measured lifetime of ≤1 ps (2005Gl09).

† From 2011Ba02 (except otherwise noted). An unknown quantity of “X” added to represent corresponding Adopted Levels.
‡ From 20005Gl09.
# From Adopted Levels for γ ray placement from 2939+x and 3321+x levels (by the evaluator).

Continued on next page (footnotes at end of table)

^{170}Er(^{28}Si,5nγ) 2011Ba02,2005Gl09,2004Io01 (continued)

^{193}Pb Levels (continued)

@ From Adopted Levels, unless otherwise stated.

& Spin-parity assigned by 2011Ba02 based on revised assignment of ΔJ=1, M1+E2 for the 812γ from 2214+x level. The value is 1ℏ lower compared to those in the (^{30}Si,5nγ) and (^{16}O,5nγ) datasets, where 812γ assigned as ΔJ=2, E2.

γ(^{193}Pb)

E_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult. ‡	δ	Comments
67	1586+x	(21/2−)	1519+x	(19/2+)			
72	2214+x	23/2+	2141+x	(23/2+)			
86	2613+x	(33/2+)	2527+x	(29/2+)			
158	2585+x	27/2−	2427+x	25/2+			
180	2322+x	(27/2−)	2142+x	(25/2−)			
184	1586+x	(21/2−)	1402+x	(21/2+)			
205	2527+x	(29/2+)	2322+x	(27/2−)			
213	2427+x	25/2+	2214+x	23/2+	D+Q	−0.13 *2*	A_2=−0.38 *9* δ: From 2011Ba02.
219	2214+x	23/2+	1995+x	(25/2+)			
252.3 *3*	2939+x	(33/2−)	2686.9+x	(31/2−)			E_γ: From Adopted Gammas.
263	2322+x	(27/2−)	2059+x	(23/2−)			
381.5 *3*	3321+x	(35/2−)	2939+x	(33/2−)	(M1)		E_γ,Mult.: From Adopted Gammas.
432	2427+x	25/2+	1995+x	(25/2+)			
473	2059+x	(23/2−)	1586+x	(21/2−)			
497	1519+x	(19/2+)	1022+x	(15/2+)			
520	1402+x	(21/2+)	882+x	(17/2+)	Q		R_{ADO} ≈ 1.3.
528	1550+x	(19/2+)	1022+x	(15/2+)	Q		R_{ADO} ≈ 1.3.
532	2527+x	(29/2+)	1995+x	(25/2+)			
556	2142+x	(25/2−)	1586+x	(21/2−)	Q		R_{ADO} ≈ 1.3.
591	2141+x	(23/2+)	1550+x	(19/2+)			
593	1995+x	(25/2+)	1402+x	(21/2+)			
633.8 *6*	3321+x	(35/2−)	2686.9+x	(31/2−)			E_γ: From Adopted Gammas.
669	1550+x	(19/2+)	882+x	(17/2+)			
740	2141+x	(23/2+)	1402+x	(21/2+)	D+Q		R_{ADO}=0.5 *1*.
812	2214+x	23/2+	1402+x	(21/2+)	D+Q		Mult.: 2011Ba02 revised the assignment. E2 in earlier literature/evaluation (1991La07, 2006Ac01). R_{ADO}=1.0 *1*.
882	882+x	(17/2+)	0+x	(13/2+)	Q		R_{ADO} ≈ 1.3.
1022	1022+x	(15/2+)	0+x	(13/2+)	D+Q		R_{ADO}=0.9 *1*.

† From 2011Ba02, except otherwise noted.

‡ Assigned by evaluator based on R_{ADO}=Iγ(0°)/Iγ(90°) values (2011Ba02). Values are ≈1.3 for ΔJ=2, Q transition, ≈0.8 for ΔJ=1, dipole, <0.8 for ΔJ=1, D+Q transition with δ<0, and >0.8 for ΔJ=1, D+Q transition with δ>0.

^{174}Yb(^{24}Mg,5nγ) 1996Ba54

1996Ba54: ^{174}Yb(^{24}Mg,5nγ), HERA with E=129, 134 MeV and GAMMASPHERE with E=131 MeV; measured γγ, γγγ, γ(θ).

^{193}Pb Levels

The level scheme proposed by 1996Ba54 expands on the one of 1991La07, but in several cases the transition intensities differ significantly among the two references. See the Adopted values dataset for further discussion.

There is a more or less systematic shift in the tabulated Eγ values from this work, as compared to results from other references. This adds up, shifting the energies of some of the higher lying levels downwards by up to ≈5 keV as compared with the adopted values.

E(level)[†]	J^π[g]	$T_{1/2}$[‡]	Comments
0.0+x[#]	(13/2+)	5.8 min *2*	E(level),J^π: from Adopted Levels.
881.3+x[#] *2*	(17/2+)		
1022.1+x[#] *4*	(15/2+)		
1400.9+x[#] *3*	(21/2+)		
1549.3+x[#] *3*	(19/2+)		
1585.2+x[a] *4*	(21/2−)	20.5 ns *4*	
1993.5+x[#] *4*	(25/2+)		
2057.5+x[a] *6*	(23/2−)		
2139.9+x[#] *4*	(23/2+)		
2140.7+x[a] *5*	(23/2−)		
2212.5+x[#] *4*	(25/2+)		
2320.9+x[a] *6*	(25/2)		
2404.1+x[a] *5*			E(level): Level not established by other groups.
2425.5+x[#] *5*	(27/2+)		
2523.3+x[@] *6*	(27/2)		
2525.0+x[&] *7*	(29/2+)		
2583.9+x[#] *6*	(29/2−)	9.4 ns *7*	
2610.5+x[&] *11*	(33/2+)	180 ns *15*	
2652.0+x[a] *6*			
2670.5+x[&] *6*	(29/2+)		
2686.4+x[c] *8*	(31/2−)		
2705.5+x[a] *6*			
2768.1+x[f] *6*	(29/2+)		
2938.6+x[c] *8*	(33/2−)		
2992.8+x[a] *6*	(29/2)		
3078.3+x[@] *7*	(29/2)		
3126.7+x[a] *6*	(29/2)		
3131.5+x[f] *7*	(31/2+)		B(M1)/B(E2)(exp)=7.0 *13* $(\mu_N/eb)^2$.
3247.7+x[a] *8*			
3319.8+x[c] *8*	(35/2−)		B(M1)/B(E2)(exp)=16.4 *52* $(\mu_N/eb)^2$.
3364.9+x[&] *12*			E(level): Level not established by other groups.
3374.6+x[@] *7*	(31/2)		
3412.4+x[&] *8*	(33/2+)		
3417.9+x[b] *8*			
3539.1+x[a] *8*	(33/2)		
3540.8+x[f] *7*	(33/2+)		B(M1)/B(E2)(exp)=4.1 *8* $(\mu_N/eb)^2$.
3607.0+x[&] *12*			E(level): Level not established by other groups.

Continued on next page (footnotes at end of table)

^{174}Yb(^{24}Mg,5nγ) 1996Ba54 (continued)

^{193}Pb Levels (continued)

E(level)[†]	J$^{\pi}$[g]	Comments
3639.3+x[b] *10*		
3721.1+x[c] *9*	(37/2$^-$)	B(M1)/B(E2)(exp)=12.8 *26* (μ_N/eb)^2.
3739.3+x[a] *7*	(33/2)	
3770.0+x[@] *8*		
3837.2+x[@] *7*	(33/2)	
3860.0+x[&] *10*		E(level): Level not established by other groups.
3904.4+x[&] *13*		E(level): Level not established by other groups.
3922.6+x[f] *8*	(35/2$^+$)	B(M1)/B(E2)(exp)=4.9 *10* (μ_N/eb)^2.
3987.2+x[a] *9*		E(level): Level not established by other groups.
4001.5+x[@] *9*	(35/2)	
4054.6+x[b] *11*		
4113.6+x[&] *9*		
4134.3+x[c] *9*	(39/2$^-$)	B(M1)/B(E2)(exp)=7.9 *20* (μ_N/eb)^2.
4147.9+x[@] *10*	(37/2)	
4165.6+x[b] *9*	(39/2$^-$)	
4177.4+x[a] *10*	(37/2)	
4208.3+x[@] *10*		
4239.2+x[&] *14*		E(level): Level not established by other groups.
4296.6+x[@] *11*	(39/2)	
4395.0+x[a] *8*	(37/2)	
4432.2+x[a] *8*	(37/2)	
4441.4+x[&] *12*		E(level): Level not adopted. A comparable 581.8γ placed from 3997.1+x in Adopted Levels.
4468.6+x[c] *9*	(41/2$^-$)	B(M1)/B(E2)(exp)=28 *12* (μ_N/eb)^2.
4493.6+x[eh] *13*	(41/2)	
4537.1+x[b] *12*		
4575.7+x[@] *12*		
4588.9+x[b] *9*	(41/2$^-$)	
4634.7+x[a] *11*		E(level): Level not established by other groups.
4725.6+x[eh] *14*	(43/2)	
4757.6+x[&] *11*		
4826.0+x[c] *10*	(43/2$^-$)	B(M1)/B(E2)(exp)=22 *8* (μ_N/eb)^2.
4888.9+x[a] *11*		
4943.5+x[@] *13*		
5017.0+x[eh] *15*	(45/2)	
5030.6+x[b] *11*		
5161.5+x[a] *8*	(41/2)	Despite the 4.4 keV energy difference, this Group 4 level appears to be the equivalent of the 5165.9 keV (43/2$^-$) Group C level in 1996Du18 (see note in caption for Level table, and footnote for Group 4 regarding the difference in J).
5167.8+x[@] *14*		
5179.3+x[c] *10*	(45/2$^-$)	B(M1)/B(E2)(exp)=10.0 *38* (μ_N/eb)^2.
5381.9+x[eh] *15*	(47/2)	
5770.9+x[eh] *15*	(49/2)	B(M1)/B(E2)(exp)=8.2 *22* (μ_N/eb)^2.
6186.6+x[eh] *16*	(51/2)	
6612.3+x[eh] *17*	(53/2)	E(level): Level not confirmed in later work (^{30}Si,5nγ). 426.1γ placed from 6657.6+x in Adopted Level. Level not adopted.

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^{174}Yb(^{24}Mg,5nγ) 1996Ba54 (continued)

^{193}Pb Levels (continued)

E(level)[†]	Jπ[g]	Comments
7044.6+x[eh] *18*	(55/2)	
0.0+y[d]	J	J≈(47/2) (1996Ba54). E(level): In Adopted Levels y≈5092.5 keV+X, Jπ=(45/2⁻).
239.1+y[d] *6*	J+1	
504.2+y[d] *9*	J+2	
833.6+y[d] *11*	J+3	
1208.5+y[d] *12*	J+4	

[†] From least-squares fit to Eγ.
[‡] From Adopted values.
[#] Group 1 Set of positive parity levels on top of the 13/2⁺ 5.8 min isomeric state. All the higher lying levels decay through this group.
[@] Group 2 Group comprising levels below Band 2, as well as a few other states.
[&] Group 3 Group of positive parity levels, feeding the 1993-keV level.
[a] Group 4 Group of levels above the 1586-keV isomeric level. Note that the spin sequence adopted for several of the levels in this group differ by one unit from those proposed in 1996Du18. This is a consequence of the ΔJ=2 value adopted in this latter reference for the 556 keV transition feeding the isomeric state.
[b] Group 5 Set of negative-parity levels above the 3320-keV level.
[c] Band(A): Magnetic dipole band 1a. Group of negative parity levels connected by strong M1 γ rays, with E2 cross-over transitions.
[d] Band(B): Magnetic dipole band 1b. Possible extension of Band 1a towards higher energies. The connecting transitions could not be observed, as the levels are only weakly populated in the reaction.
[e] Band(C): Magnetic dipole band 2. Set of levels connected by a cascade of (M1) transition, feeding the 4297-keV bandhead level. The level and transition sequence is the same as in 1996Du18. Note however that the level spins and energies differ from those of Band 2 in 1996Du18, because there the 232-keV γ connects to the 4297-keV bandhead state via a sequence of two γ rays (149 and 90 keV), while the present authors show only a single 197-keV γ ray as first transition in the band. This produces a downward shift of about 45 keV in the Band 2 levels from the present dataset, as compared to the energies from 1996Du18. The different assignment for the lowest transitions for Band 2 also implies differences in the proposed Jπ values for the band levels.
[f] Band(D): Magnetic dipole band 3. Weakly populated band, connected by M1 γ rays. with E2 cross-over transitions.
[g] The authors have adopted spins and parities for Group 1 transitions from 1991La07.
[h] Band 2 level. Its energy is about 45 keV lower than the same level in Band 2 from 1996Du18. See footnote comment for Band 2 for a discussion of the source of this difference.

γ(^{193}Pb)

Eγ[&]	Iγ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Comments
72.7[@] *10*		2212.5+x	(25/2⁺)	2139.9+x	(23/2⁺)	
85.5[a] *8*		2610.5+x	(33/2⁺)	2525.0+x	(29/2⁺)	
97.7[#] *5*	2.2 *8*	2523.3+x	(27/2)	2425.5+x	(27/2⁺)	
102.5[d] *5*	3.4 *8*	2686.4+x	(31/2⁻)	2583.9+x	(29/2⁻)	
146.4[#] *5*	4.8 *18*	4147.9+x	(37/2)	4001.5+x	(35/2)	DCO=0.48 *21*. The multipolarity of this transition is in doubt, since the authors, based on intensity balance arguments, suggest an E1 character, and therefore a parity change between the connected levels. This change does not agree with the proposed character of positive-parity levels suggested by 1996Du18.

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$^{174}Yb(^{24}Mg,5n\gamma)$ 1996Ba54 (continued)

$\gamma(^{193}Pb)$ (continued)

E_γ[&]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[†]	Comments
148.7[#] *5*	4.5 *23*	4296.6+x	(39/2)	4147.9+x	(37/2)	D	DCO=0.53 *18*.
158.4[@] *3*	28 *4*	2583.9+x	(29/2⁻)	2425.5+x	(27/2⁺)	D(+Q)	DCO=0.67 *20*.
164.3[#] *5*	7.5 *21*	4001.5+x	(35/2)	3837.2+x	(33/2)		DCO=0.51 *16*. From a comparison of the total intensity for the 462.6 keV transition with that for the one of 164.3 keV, the authors argue that this γ ray cannot have an M1 multipolarity, leading to an E1 assignment. While the resultant I(γ+ce)=8.4 *24* is then in very good agreement with that reported in 1996Du18, the required parity change also implies that one (or possibly more) of the transitions on top of the 4001.5-keV level have to be of parity-changing character.
180.2[b] *3*	12.1 *29*	2320.9+x	(25/2)	2140.7+x	(23/2⁻)	D(+Q)	DCO=0.61 *16*.
184.3[b] *3*	19.5 *30*	1585.2+x	(21/2⁻)	1400.9+x	(21/2⁺)		Mult.: DCO=1.07 *28* indicates Q, however, placement 21/2⁻ to 21/2⁺
197.0[f] *6*	2.0 *8*	4493.6+x	(41/2)	4296.6+x	(39/2)	D	DCO=0.52 *16*. E_γ: a comparable 196.9γ placed as deexciting 4388+x in Adopted Levels. In 1996Ba54, authors propose it to be the lowest member of the cascade of magnetic dipole transitions in Band 2.
213.0[@] *3*	23.0 *34*	2425.5+x	(27/2⁺)	2212.5+x	(25/2⁺)	D(+Q)	DCO=0.60 *17*.
219.1[@] *5*	4.2 *10*	2212.5+x	(25/2⁺)	1993.5+x	(25/2⁺)		DCO=1.04 *26* indicates Q, however, placement 25/2⁺ to 25/2⁺.
224.3[#] *5*	1.7 *8*	5167.8+x		4943.5+x			
232.0[f] *5*	5.5 *17*	4725.6+x	(43/2)	4493.6+x	(41/2)	D	DCO=0.44 *12*. E_γ: This γ ray has been placed by 1996Du18 as deexciting their 4769-keV level, which is not established by the present authors.
239.1[e] *6*	1.0 *6*	239.1+y	J+1	0.0+y	J		
252.3[d] *3*	19 *4*	2938.6+x	(33/2⁻)	2686.4+x	(31/2⁻)	D	DCO=0.50 *10*.
265.1[e] *6*	1.6 *9*	504.2+y	J+2	239.1+y	J+1		
279.1[#] *5*	3.4 *13*	4575.7+x		4296.6+x	(39/2)		
291.4[f] *5*	5.6 *18*	5017.0+x	(45/2)	4725.6+x	(43/2)	D	DCO=0.52 *10*. This γ ray has been placed by 1996Du18 as deexciting their 5061-keV level.
296.3[#] *5*	4.9 *15*	3374.6+x	(31/2)	3078.3+x	(29/2)	D	DCO=0.53 *11*.
301.6[b] *5*	1.8 *6*	2705.5+x		2404.1+x			This γ ray has not been reported in other references.
302.8[c] *5*	1.0 *4*	4468.6+x	(41/2⁻)	4165.6+x	(39/2⁻)	D	DCO=0.45 *12*.
310.8[#] *5*	9.9 *19*	2523.3+x	(27/2)	2212.5+x	(25/2⁺)		DCO=0.63 *13* indicates d(+Q), placement 27/2 to 25/2⁺ in 1996Ba54. 25/2⁺ at 2213.8+x is 23/2⁺ in Adopted Levels.
319.5[c] *5*	2.4 *8*	3639.3+x		3319.8+x	(35/2⁻)		DCO=0.53 *10*.
329.4[e] *6*	1.1 *7*	833.6+y	J+3	504.2+y	J+2		
331.3[b] *6*	0.5 *3*	2652.0+x		2320.9+x	(25/2)		This γ ray not reported in other references. The closest match is the 330.4-keV transition from 1996Du18, placed there as deexciting their 6927-keV level.
334.4[d] *5*	3.5 *9*	4468.6+x	(41/2⁻)	4134.3+x	(39/2⁻)	D	DCO=0.51 *7*.
340.7[b] *5*	1.9 *6*	2992.8+x	(29/2)	2652.0+x			
342.6[g] *5*	6.4 *12*	2768.1+x	(29/2⁺)	2425.5+x	(27/2⁺)	D	DCO=0.48 *7*.

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^{174}Yb(^{24}Mg,5nγ) 1996Ba54 (continued)

γ(^{193}Pb) (continued)

E_γ [&]	I_γ [‡]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [†]	Comments
353.3[d] *6*	1.4 *6*	5179.3+x	(45/2⁻)	4826.0+x	(43/2⁻)	D(+Q)	DCO=0.59 *12*.
357.4[d] *5*	2.9 *9*	4826.0+x	(43/2⁻)	4468.6+x	(41/2⁻)	D	DCO=0.49 *7*.
363.5[g] *5*	4.7 *10*	3131.5+x	(31/2⁺)	2768.1+x	(29/2⁺)	D	DCO=0.41 *7*.
365.0[f] *5*	4.3 *14*	5381.9+x	(47/2)	5017.0+x	(45/2)	D	DCO=0.53 *9*.
367.8[#] *5*	2.5 *10*	4943.5+x		4575.7+x			
374.9[e] *6*	0.4 *3*	1208.5+y	J+4	833.6+y	J+3		
381.2[d] *3*	18.5 *39*	3319.8+x	(35/2⁻)	2938.6+x	(33/2⁻)	D	DCO=0.48 *5*.
381.7[g] *6*	1.5 *5*	3922.6+x	(35/2⁺)	3540.8+x	(33/2⁺)		DCO=0.38 *8*.
384.4[b] *5*	1.5 *7*	2705.5+x		2320.9+x	(25/2)		
389.1[f] *5*	2.5 *8*	5770.9+x	(49/2)	5381.9+x	(47/2)	D	DCO=0.53 *11*. This γ ray has been placed by 1996Du18 as deexciting their 5815-keV level (Band 2).
395.4[#] *5*	5.5 *17*	3770.0+x		3374.6+x	(31/2)		
401.3[d] *4*	11.1 *24*	3721.1+x	(37/2⁻)	3319.8+x	(35/2⁻)	D	DCO=0.48 *5*.
409.3[g] *5*	2.2 *5*	3540.8+x	(33/2⁺)	3131.5+x	(31/2⁺)	D	DCO=0.40 *8*.
413.3[d] *5*	6.8 *16*	4134.3+x	(39/2⁻)	3721.1+x	(37/2⁻)	D	DCO=0.50 *6*.
415.3[c] *5*	1.9 *10*	4054.6+x		3639.3+x			
415.7[f] *5*	1.6 *6*	6186.6+x	(51/2)	5770.9+x	(49/2)	D	DCO=0.54 *12*.
421.2[b] *5*	4.4 *13*	3126.7+x	(29/2)	2705.5+x			DCO=0.89 *17* indicates Q. No Jπ assignment for final level in 1996Ba54.
423.3[c] *5*	1.3 *5*	4588.9+x	(41/2⁻)	4165.6+x	(39/2⁻)	D	DCO=0.44 *9*.
425.7[f] *6*	0.9 *4*	6612.3+x	(53/2)	6186.6+x	(51/2)	D	DCO=0.50 *13*.
431.9[@] *5*	1.7 *7*	2425.5+x	(27/2⁺)	1993.5+x	(25/2⁺)	D(+Q)	DCO=0.59 *14*.
432.3[f] *6*	0.6 *3*	7044.6+x	(55/2)	6612.3+x	(53/2)		
438.3[#] *5*	2.1 *8*	4208.3+x		3770.0+x			
441.7[c] *5*	1.0 *4*	5030.6+x		4588.9+x	(41/2⁻)		
444.4[c] *5*	3.4 *11*	4165.6+x	(39/2⁻)	3721.1+x	(37/2⁻)	D	DCO=0.46 *8*.
447.6[a] *6*	0.9 *3*	3860.0+x		3412.4+x	(33/2⁺)		This γ ray has not been reported in other references.
454.6[c] *5*	0.7 *4*	4588.9+x	(41/2⁻)	4134.3+x	(39/2⁻)		
462.6[#] *4*	13.0 *33*	3837.2+x	(33/2)	3374.6+x	(31/2)	D	DCO=0.49 *7*.
472.1[b] *5*	4.8 *14*	2057.5+x	(23/2⁻)	1585.2+x	(21/2⁻)	D	DCO=0.46 *13*.
482.5[c] *5*	1.9 *9*	4537.1+x		4054.6+x		D	DCO=0.45 *8*.
519.6[@] *2*	82 *10*	1400.9+x	(21/2⁺)	881.3+x	(17/2⁺)	Q	DCO=0.96 *11*.
527.3[@] *4*	10.2 *19*	1549.3+x	(19/2⁺)	1022.1+x	(15/2⁺)	Q	DCO=1.05 *15*.
531.5[a] *5*	3.8 *11*	2525.0+x	(29/2⁺)	1993.5+x	(25/2⁺)	Q	DCO=0.93 *17*.
539.5[a] *6*	1.8 *12*	3904.4+x		3364.9+x			This γ ray may be the same as the 540.4 keV transition from 1996Du18, who place it as deexciting their 3822-keV level.
542.2[b] *5*	2.8 *10*	3247.7+x		2705.5+x			
546.3[b] *5*	6.4 *17*	3539.1+x	(33/2)	2992.8+x	(29/2)	Q	DCO=1.11 *17*.
555.0[#] *4*	6.6 *23*	3078.3+x	(29/2)	2523.3+x	(27/2)	D(+Q)	DCO=0.62 *7*.
555.5[b] *3*	30 *10*	2140.7+x	(23/2⁻)	1585.2+x	(21/2⁻)	D+Q	DCO=0.77 *9*.
564.6[b] *4*	7.2 *19*	2705.5+x		2140.7+x	(23/2⁻)		Mult.: DCO=0.89 *15* indicates Q, however, no spin assigned for depopulating level in 1996Ba54.
581.4[a] *6*	0.8 *3*	4441.4+x		3860.0+x			a 581.8 keV γ is placed from 3997.1+x in Adopted Levels.

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^{174}Yb(^{24}Mg,5nγ) 1996Ba54 (continued)

γ(^{193}Pb) (continued)

Eγ[&]	Iγ[‡]	Ei(level)	J_i^π	Ef	J_f^π	Mult.[†]	Comments
590.6[@] 3	30 6	2139.9+x	(23/2+)	1549.3+x	(19/2+)	Q	DCO=0.97 15.
592.5[@] 3	35 9	1993.5+x	(25/2+)	1400.9+x	(21/2+)	Q	DCO=1.08 14.
594.3[b] 5	2.6 13	2652.0+x		2057.5+x	(23/2−)		
612.6[b] 3	8.3 22	3739.3+x	(33/2)	3126.7+x	(29/2)	Q	DCO=0.96 13.
632.2[a] 6	1.3 9	4239.2+x		3607.0+x			This γ ray has not been reported in other references.
633.2[d] 6	1.4 5	3319.8+x	(35/2−)	2686.4+x	(31/2−)	[§]	
638.3[b] 5	3.2 10	4177.4+x	(37/2)	3539.1+x	(33/2)	Q	DCO=1.13 19.
644.0[a] 6	0.6 3	4757.6+x		4113.6+x			
647.5[b] 5	1.3 5	4634.7+x		3987.2+x			This γ ray has not been reported in other references.
655.7[b] 4	1.9 8	4395.0+x	(37/2)	3739.3+x	(33/2)		
668.0[@] 4	9.0 17	1549.3+x	(19/2+)	881.3+x	(17/2+)	D+Q	DCO=0.58 7.
672.0[b] 4	6.9 18	2992.8+x	(29/2)	2320.9+x	(25/2)	Q	DCO=1.09 15.
677.0[a] 4	9.9 19	2670.5+x	(29/2+)	1993.5+x	(25/2+)	Q	DCO=0.93 11.
691.7[d] 6	0.3 1	4826.0+x	(43/2−)	4134.3+x	(39/2−)	[§]	
692.8[b] 4	3.2 10	4432.2+x	(37/2)	3739.3+x	(33/2)	Q	DCO=0.89 15.
701.2[a] 5	1.6 5	4113.6+x		3412.4+x	(33/2+)		
705.9[g] 6	1.7 4	3131.5+x	(31/2+)	2425.5+x	(27/2+)	[§]	
710.7[d] 6	0.4 2	5179.3+x	(45/2−)	4468.6+x	(41/2−)	[§]	
711.5[b] 6	0.7 4	4888.9+x		4177.4+x	(37/2)		
729.3[b] 4	1.5 6	5161.5+x	(41/2)	4432.2+x	(37/2)	Q	DCO=0.97 30.
739.0[@] 3	19 4	2139.9+x	(23/2+)	1400.9+x	(21/2+)	D+Q	DCO=0.58 15.
739.5[b] 5	1.8 6	3987.2+x		3247.7+x			This γ ray has not been reported in other references. 1996Du18 list a 739.7 keV γ with Iγ=23.3 14. The sum of the γ intensities of the 739.0 and 739.5 keV τransitions from the present authors is 20.8 40. Therefore the transition seen in 1996Du18 may be an unresolved doublet.
741.9[a] 5	4.5 12	3412.4+x	(33/2+)	2670.5+x	(29/2+)	Q	DCO=0.97 17.
747.6[d] 6	0.5 2	4468.6+x	(41/2−)	3721.1+x	(37/2−)	[§]	
753.8[f] 6	0.9 3	5770.9+x	(49/2)	5017.0+x	(45/2)	[§]	
754.4[a] 5	5.6 30	3364.9+x		2610.5+x	(33/2+)		1996Du18 report a 755.1 keV transition deexciting their level at 3282 keV.
758.9[#] 5	2.3 9	3837.2+x	(33/2)	3078.3+x	(29/2)	Q	DCO=1.16 31.
766.5[b] 6	0.8 4	5161.5+x	(41/2)	4395.0+x	(37/2)		
772.8[g] 6	1.5 4	3540.8+x	(33/2+)	2768.1+x	(29/2+)	[§]	
782.5[d] 6	2.8 7	3721.1+x	(37/2−)	2938.6+x	(33/2−)	Q[§]	DCO=1.09 21.
791.1[g] 6	1.2 3	3922.6+x	(35/2+)	3131.5+x	(31/2+)	[§]	
805.9[b] 3	8.8 22	3126.7+x	(29/2)	2320.9+x	(25/2)	Q	DCO=0.91 11.
811.7[@] 4	9.8 19	2212.5+x	(25/2+)	1400.9+x	(21/2+)	Q	DCO=0.91 12.
814.5[d] 5	3.0 9	4134.3+x	(39/2−)	3319.8+x	(35/2−)	[§]	
819.0[b] 3	3.3 10	2404.1+x		1585.2+x	(21/2−)		This γ ray has not been reported in other references.
834.0[c] 5	2.8 13	3417.9+x		2583.9+x	(29/2−)		
845.8[c] 5	1.1 5	4165.6+x	(39/2−)	3319.8+x	(35/2−)		
851.3[#] 4	16 6	3374.6+x	(31/2)	2523.3+x	(27/2)	Q	DCO=0.96 14.
867.8[c] 5	1.2 5	4588.9+x	(41/2−)	3721.1+x	(37/2−)		
881.3[@] 2	100 11	881.3+x	(17/2+)	0.0+x	(13/2+)	Q	DCO=0.96 11.

Continued on next page (footnotes at end of table)

^{174}Yb(^{24}Mg,5nγ) 1996Ba54 (continued)

γ(^{193}Pb) (continued)

$E_γ$[&]	$I_γ$[‡]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[†]	Comments
996.5[a] *6*	3.0 *18*	3607.0+x		2610.5+x	(33/2$^+$)		This γ ray has not been reported in other references.
1022.1[@] *4*	12.2 *21*	1022.1+x	(15/2$^+$)	0.0+x	(13/2$^+$)	D+Q	DCO=0.77 *14*.

[†] Assigned by the evaluator based on DCO ratios, normalized to E2 quadrupole transitions by 1996Ba54.
[‡] The quoted uncertainty for the γ intensity does not contain the uncertainty listed for the 881-keV transition.
[§] Crossover stretched quadrupole transition between alternate levels in magnetic dipole band, connected by stretched (M1) transitions.
[&] An uncertainty of 0.1% (with a minimum value of ± 0.3 keV) has been assigned by the evaluator from comparison with previous HERA and GAMMASPHERE results.
[@] Group 1.
[#] Group 2.
[a] Group 3.
[b] Group 4.
[c] Group 5.
[d] Band 1a.
[e] Band 1b.
[f] Band 2.
[g] Band 3.

^{182}W(^{16}O,5nγ) 1991La07

1991La07: ^{182}W(^{16}O,^{5}nγ) E(^{16}O)=109 MeV; intrinsic Ge and Si(Li) detectors and magnetic spectrometer, pulsed beam (200 ns period); measured Eγ, Iγ, Ice, $\gamma\gamma$ coin, γ-ce coin, $\gamma(\theta)$, $\gamma\gamma$(t).

^{193}Pb Levels

E(level)	J$^\pi$	$T_{1/2}$ †	Comments
0.0+x	(13/2$^+$)	5.8 min *2*	J$^\pi$,$T_{1/2}$: From Adopted Levels.
881.6+x *2*	(17/2$^+$)		
1022.0+x *2*	(15/2$^+$)		
1401.8+x *3*	(21/2$^+$)		
1550.1+x *3*	(19/2$^+$)		
1585.9+x *4*	(21/2$^-$)	22 ns *2*	
1994.4+x *4*	(25/2$^+$)		
2141.3+x *4*	(23/2$^+$)		
2142.0+x *4*	(23/2$^-$)		
2214.0+x *5*	(25/2$^+$)		
2322.4+x *5*	(27/2$^-$)		
2426.9+x *5*	(27/2$^+$)		
2527.1+x *5*	(29/2$^+$)		
2585.1+x *5*	(29/2$^-$)	11 ns *2*	
2612.6+x *6*	(33/2$^+$)	135 ns *+25−15*	
2966.8+x? *7*	(31/2$^+$)		
3220.4+x? *7*	(33/2$^+$)		E(level): Uncertain level − not adopted. 253.6γ of this placed from 2939.2+x in Adopted Levels.

† Half-lives obtained here from γ(t) or $\gamma\gamma$(t), except as noted.

γ(^{193}Pb)

E_γ	I_γ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	δ†	α§&	$I_{(\gamma+ce)}$	Comments
72.6 *5*		2214.0+x	(25/2+)	2141.3+x	(23/2+)	M1+E2	0.21 *+4−3*	5.3 *4*		Mult.,δ: From α((L1+L2)/L3)(exp)=8.8 *20*.
85.5 *5*		2612.6+x	(33/2+)	2527.1+x	(29/2+)	E2		12.1 *4*		Mult.: α(L12/L3)(exp)=0.93 *19*, α(L/M)(exp)=5.1 *17*; theory: α(L12/L3)(M1)=125.2, α(L12/L3)(E2)=1.23, α(L/M)(M1)=4.26, α(L/M)(E2)=3.79.
158.2 *2*	45.0 *53*	2585.1+x	(29/2−)	2426.9+x	(27/2+)	E1		0.1394	50.8 *60*	Mult.: A_2=−0.15 *5*, A_4=−0.002 *74*. α_{L12}(exp)=0.0077 *71*; theory: α_{L12}=0.0170.
180.4 *4*	2.9 *10*	2322.4+x	(27/2−)	2142.0+x	(23/2−)				4.8 *16*	Mult.,δ: E2 in 1991La07. But α_K(exp)=0.283 *51*, α_L(exp)=0.36 *4* indicates M1+E2 and a mixing ratio of 4 *+5−1* for which theory value is α_k=0.28 *5*. Also A_2=+0.20 *7*, A_4=−0.21 *10*. In Adopted Levels placement from (27/2−) to (25/2−).
184.1 *3*	53.0 *36*	1585.9+x	(21/2−)	1401.8+x	(21/2+)	E1+M2	0.049 *+15−20*	0.116 *14*	59.1 *40*	Mult.,δ: From α_K(exp)=0.0916 *92*. Also A_2=+0.19 *5*, A_4=−0.02 *6*.
204.8 *4*	0.7 *6*	2527.1+x	(29/2+)	2322.4+x	(27/2−)	E1+M2	0.63 *14*	0.0736	2.5 *16*	Mult.,δ: From α_K(exp)=1.9 *16*, α_{L12}(exp)=0.21 *12*; Also A_2=−0.29 *6*, A_4=+0.33 *12*. theory: α_K(E1)=0.0594, α_K(M2)=4.18, α_{L12}(E1)=0.0090, α_{L12}(M2)=1.087.
212.9 *3*	26.0 *33*	2426.9+x	(27/2+)	2214.0+x	(25/2+)	M1		1.100	54.5 *70*	Mult.: A_2=−0.19 *4*, A_4=+0.03 *7*. α_K(exp)=1.05 *6*, α_{L12}(exp)=0.146 *10*.
219.1 *3*	1.6 *7*	2214.0+x	(25/2+)	1994.4+x	(25/2+)	(M1)		1.015	3.1 *12*	Mult.: α_K(exp)=1.14 *13*, α_{L12}(exp)=0.107 *57*; Theory: α_K(M1)=0.829. The anomalously high α(K) conversion coefficient might be due to a significant E0 component in the transition, ΔJ=0.
253.6 *10*		3220.4+x?	(33/2+)	2966.8+x?	(31/2+)					E_γ: a comparable 252.3γ from 2939.2+x in Adopted Levels.
381.7 *10*		2966.8+x?	(31/2+)	2585.1+x	(29/2−)					
ˣ497.7 *4*	8.3 *5*					E2		0.0297	8.5 *5*	Mult.: α_K(exp)=0.0224 *51*; α_{L12}(exp)=0.0044 *22*.
520.2 *2*	88.1 *78*	1401.8+x	(21/2+)	881.6+x	(17/2+)	E2		0.0267	90.4 *80*	Mult.: A_2=+0.24 *5*, A_4=−0.12 *8*. α_K(exp)=0.0225 *15*, α_{L12}(exp)=0.00433 *32*, α_{L3}(exp)=0.0011 *3*.
528.0 *4*	6.0 *10*	1550.1+x	(19/2+)	1022.0+x	(15/2+)	E2		0.0258	6.2 *10*	Mult.: A_2=+0.35 *5*, A_4=−0.16 *10*. α_K(exp)=0.0210 *39*.
532.2 *3*	8.5 *5*	2527.1+x	(29/2+)	1994.4+x	(25/2+)	E2(+M3)	0.14 *+5−7*	0.0370 *96*	8.8 *5*	Mult.: A_2=+0.10 *3*, A_4=−0.01 *5*. α_K(exp)=0.0208 *22*, α_{L12}(exp)=0.0091

$\gamma(^{193}Pb)$ (continued)

E_γ	I_γ‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	δ†	α§&	$I_{(\gamma+ce)}$	Comments
										15. δ: Average of δ=0.08 +*3*−*5* from α_K, and δ=0.20 +*3*−*4* from α_{L12}.
556.1 *4*	6.5 *5*	2142.0+x	(23/2$^-$)	1585.9+x	(21/2$^-$)	E2		0.0229	6.6 *5*	Mult.: From α_K(exp)=0.015 *3*. Also A_2=+0.13 *5*, A_4=+0.06 *9*.
591.2 *4*	12.5 *29*	2141.3+x	(23/2$^+$)	1550.1+x	(19/2$^+$)	E2		0.0199	12.7 *30*	Mult.: α_K(exp)=0.0189 *29*.
593.1 *4*	15.6 *19*	1994.4+x	(25/2$^+$)	1401.8+x	(21/2$^+$)	E2(+M3)	0.16 *3*	0.0289 *85*	16.0 *20*	Mult.,δ: α_K(exp)=0.0232 *35*, α_{L12}(exp)=0.0048 *10*.
668.7 *3*	9.9 *10*	1550.1+x	(19/2$^+$)	881.6+x	(17/2$^+$)	M1+E2	1.8 +*9*−*5*	0.023 *4*	10.1 *10*	Mult.,δ: From α_K(exp)=0.0183 *32*.
739.6 *3*	13.9 *24*	2141.3+x	(23/2$^+$)	1401.8+x	(21/2$^+$)	M1+E2	0.63 *17*	0.031 *3*	14.3 *25*	Mult.,δ: From α_K(exp)=0.0255 *23*. Also A_2=−0.47 *8*, A_4=+0.27 *10*.
812.2 *4*	5.0 *15*	2214.0+x	(25/2$^+$)	1401.8+x	(21/2$^+$)	(E2)		0.01008	5.0 *15*	Mult.: α_K(exp)=0.0038 *28*; Theory: α_K(E2)=0.00785 − inconsistent with experimental value.
881.6 *2*	100	881.6+x	(17/2$^+$)	0.0+x	(13/2$^+$)	E2		0.00854	100	Mult.: A_2=+0.25 *6*, A_4=−0.02 *9*. α_K(exp)=0.0074 *5*, α_{L12}(exp)=0.00147 *16*.
1022.0 *2*	14.5 *18*	1022.0+x	(15/2$^+$)	0.0+x	(13/2$^+$)	(M1+E2)		0.0116 *53*	14.7 *18*	Mult.: A_2=−0.01 *5*, A_4=+0.01 *8*. α_K(exp)=0.0051 *7*.

† The multipolarities have been deduced from the measured conversion coefficients, and the angular distribution coefficients. The mixing ratio for a few transitions has been deduced from the experimental conversion coefficients. Additional information from the other (HI,xnγ) datasets has been also used in assigning the multipolarities listed here (see Adopted dataset).

‡ The γ-ray intensities have been calculated by the evaluator using the measured total intensities and the conversion coefficients obtained from the quoted multipolarities. The calculated relative γ intensities have been normalized to 100 for the 881.6-keV transition.

§ Theoretical total conversion coefficients for the stated multipolarities, and mixing ratio, if available.

& Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

x γ ray not placed in level scheme.

(HI,xnγ):SD 1999Ro21,1995Hu01,1996Du05

1999Ro21: ^{168}Er(^{30}Si,^{5}nγ) E=160 MeV. Measured Eγ, Iγ, $\gamma\gamma$ using GAMMASPHERE array of 101 large Compton-suppressed Ge detectors. Three new SD bands were deduced while confirming six previously known SD bands. No evidence was found for three high energy transitions of 2222, 2282 and 2352 (as reported by 1996Du05) linking SD-1 band to normal-deformed states.

1998Va18: ^{172}Yb(^{26}Mg,5nγ) E=139 MeV. GAMMASPHERE array of 98 large- volume Compton-suppressed Ge detectors. Measured lifetimes by DSAM (line-shape and centroid-shift analyses).

1996Du05, 1996Pe20: ^{168}Er(^{30}Si,5nγ) E=159 MeV. Measured Eγ, Iγ, $\gamma\gamma$ coin using EUROGAM 2 array with 15 escape suppressed Ge detectors at forward and backward angles and 24 “CLOVER” escape-suppressed Ge detectors near 90° to the beam direction. 1996Du05 confirm six SD bands; 1996Pe20 report transitions connecting SD1 band with the non-deformed levels. These transitions, however, have not been confirmed by 1999Ro21 using a larger detector array.

1995Hu01: ^{174}Yb(^{24}Mg,5nγ); E=131 MeV, GAMMASPHERE 36-detector array; measured Eγ, Iγ, $\gamma\gamma$ coin, γ asymmetry; deduced six SD bands; cranked-shell model calculations.

Calculations, compilations: 1997Hu13, 1997Wu06, 1999Ha56, 1991Ch36.

^{193}Pb Levels

E(level)	J$^{\pi}$ †	Comments
y ‡	J	E(level): 4217 relative to the 13/2^{+} isomer was suggested by 1996Pe20 on the basis of a tentative 2222γ to 1995+x level. But this transition has not been confirmed in the work of 1999Ro21 using a larger detector array. J$^{\pi}$: ≈(23/2).
277.0+y ‡ *3*	J+2	2282γ (Iγ=0.035 *20*) and 2352γ (Iγ=0.034 *20*) proposed by 1996Du05 as linking transitions to normal-deformed states have not been confirmed by 1999Ro21 using a larger detector array, thus these γ rays together with a 2222γ (1996Du05) have been omitted here.
594.3+y ‡ *5*	J+4	
951.6+y ‡ *6*	J+6	
1349.1+y ‡ *6*	J+8	
1786.9+y ‡ *7*	J+10	
2264.3+y ‡ *8*	J+12	
2781.6+y ‡ *9*	J+14	
3337.7+y ‡ *9*	J+16	
3932.5+y ‡ *10*	J+18	
4565.9+y ‡ *11*	J+20	
5237.7+y ‡ *13*	J+22	
5945.9+y? ‡ *15*	J+24	
z #	J1	J$^{\pi}$: ≈(17/2).
190.2+z # *5*	J1+2	
422.8+z # *6*	J1+4	
698.0+z # *7*	J1+6	
1015.9+z # *8*	J1+8	
1376.8+z # *8*	J1+10	
1780.3+z # *9*	J1+12	
2226.2+z # *9*	J1+14	
2714.4+z # *10*	J1+16	
3242.4+z # *11*	J1+18	
3812.2+z # *13*	J1+20	
4422.7+z # *15*	J1+22	
5072.7+z # *16*	J1+24	
5762.5+z? # *18*	J1+26	
u @	J2	J$^{\pi}$: ≈(21/2).

Continued on next page (footnotes at end of table)

(HI,xnγ):SD 1999Ro21,1995Hu01,1996Du05 (continued)

^{193}Pb Levels (continued)

E(level)	J^{π}[†]	Comments
251.5+u[@] *6*	J2+2	
543.0+u[@] *7*	J2+4	
875.4+u[@] *8*	J2+6	
1247.5+u[@] *8*	J2+8	
1659.4+u[@] *9*	J2+10	
2110.0+u[@] *9*	J2+12	
2598.9+u[@] *10*	J2+14	
3125.5+u[@] *11*	J2+16	
3688.9+u[@] *11*	J2+18	
4288.8+u[@] *13*	J2+20	
4925.8+u[@] *14*	J2+22	
5598.0+u[@] *15*	J2+24	
6307.2+u[@] *16*	J2+26	
v[&]	J3	J^{π}: ≈(23/2).
273.0+v?[&] *7*	J3+2	
586.4+v[&] *10*	J3+4	
939.5+v[&] *10*	J3+6	
1331.4+v[&] *11*	J3+8	
1761.4+v[&] *11*	J3+10	
2228.5+v[&] *12*	J3+12	
2732.4+v[&] *13*	J3+14	
3271.9+v[&] *13*	J3+16	
3847.0+v[&] *14*	J3+18	
4457.0+v[&] *15*	J3+20	
5101.5+v[&] *16*	J3+22	
5777.9+v[&] *17*	J3+24	
6485.1+v[&] *19*	J3+26	
w[a]	J4	J^{π}: ≈(17/2).
100.5+w[b] *8*	J4+1	
213.2+w[a] *4*	J4+2	
335.1+w[b] *6*	J4+3	
467.9+w[a] *7*	J4+4	
610.6+w[b] *7*	J4+5	
763.9+w[a] *7*	J4+6	
926.8+w[b] *8*	J4+7	
1099.9+w[a] *8*	J4+8	
1282.6+w[b] *8*	J4+9	
1475.2+w[a] *9*	J4+10	
1677.0+w[b] *9*	J4+11	
1888.7+w[a] *9*	J4+12	
2109.8+w[b] *9*	J4+13	
2340.0+w[a] *10*	J4+14	
2580.4+w[b] *10*	J4+15	
2828.5+w[a] *12*	J4+16	
3087.8+w[b] *11*	J4+17	

Continued on next page (footnotes at end of table)

(HI,xnγ):SD 1999Ro21,1995Hu01,1996Du05 (continued)

^{193}Pb Levels (continued)

E(level)	J$^{\pi}$†	E(level)	J$^{\pi}$†	E(level)	J$^{\pi}$†	E(level)	J$^{\pi}$†
3355.0+w[a] *13*	J4+18	s[c]	J5	5620.8+s[c] *20*	J5+24	5158.9+t[d] *19*	J6+22
3631.3+w[b] *12*	J4+19	260.6+s[c] *7*	J5+2	t[d]	J6	a[e]	J7
3917.2+w[a] *14*	J4+20	560.4+s[c] *10*	J5+4	281.8+t[d] *6*	J6+2	212.9+a[e] *5*	J7+2
4211.0+w[b] *13*	J4+21	900.5+s[c] *10*	J5+6	603.2+t[d] *9*	J6+4	468.7+a[e] *7*	J7+4
4513.4+w[a] *16*	J4+22	1279.4+s[c] *12*	J5+8	964.1+t[d] *10*	J6+6	766.0+a[e] *10*	J7+6
4825.6+w[b] *15*	J4+23	1696.6+s[c] *13*	J5+10	1362.6+t[d] *11*	J6+8	1102.5+a[e] *11*	J7+8
5144.7+w[a] *18*	J4+24	2150.6+s[c] *14*	J5+12	1798.5+t[d] *12*	J6+10	1478.3+a[e] *13*	J7+10
5475.1+w[b] *16*	J4+25	2641.7+s[c] *15*	J5+14	2270.8+t[d] *14*	J6+12	1894.2+a[e] *13*	J7+12
5811.5+w[a] *20*	J4+26	3167.8+s[c] *15*	J5+16	2778.9+t[d] *15*	J6+14	2349.7+a[e] *14*	J7+14
6159.1+w[b] *17*	J4+27	3729.1+s[c] *16*	J5+18	3322.1+t[d] *16*	J6+16	2845.3+a[e] *15*	J7+16
6512.0+w[a] *22*	J4+28	4325.5+s[c] *17*	J5+20	3900.1+t[d] *17*	J6+18	3380.7+a[e] *17*	J7+18
6877.0+w[b] *18*	J4+29	4956.6+s[c] *19*	J5+22	4512.1+t[d] *18*	J6+20	3956.0+a[e] *19*	J7+20

† Band SD-1 from 1996Pe20, others from 1996Du05; based on band structure and γ anisotropy. The lowest-level spin in each band has been estimated using the spin fit method.

‡ Band(A): SD-1 band. (1999Ro21,1995Hu01,1996Du05,1996Pe20). Configuration=ν3/2[761] α=−1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.5%. Q(intrinsic)=17.3 *+7−8* (1998Va18).

Band(B): SD-2 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν3/2[761] α=+1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.3% (1995Hu01). Band intensity relative to SD-1 band=50% (1996Du05), 38% *8* (1999Ro21). SD-1 and SD-2 represent favored and unfavored signature components (with a large observed splitting) of the low-K, 3/2[761], N=7 neutron orbital (from (^{24}Mg,5nγ)).

@ Band(C): SD-3 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν3/2[642] α=+1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.25% (1995Hu01). Band intensity relative to SD-1 band=50% (1996Du05), 46% *9* (1999Ro21).

& Band(D): SD-4 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν3/2[642] α=−1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.25% (1995Hu01). Band intensity relative to SD-1 band=50% (1996Du05), 23% *5* (1999Ro21). SD-3 and SD-4 are interpreted as signature partners (no signature splitting) based on a high K, 3/2[642] neutron orbital. The 5/2[512] neutron orbital suggested by 1995Hu01 is not supported by calculations and experimental comparisons of 1996Du05 and 1999Ro21.

a Band(E): SD-5 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν9/2[624] α=+1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.2% (1995Hu01). Band intensity relative to SD-1 band=30% (1996Du05), 15% *3* (1999Ro21).

b Band(F): SD-6 band. (1999Ro21,1995Hu01,1996Du05). Configuration=ν9/2[624] α=−1/2. From (^{24}Mg,5nγ); band intensity relative to total ^{193}Pb channel is 0.2% (1995Hu01). Band intensity relative to SD-1 band=30% (1996Du05), 20% *4* (1999Ro21). SD-5 and SD-6 are interpreted as signature partners (no signature splitting) based on a high K, 9/2[624] neutron orbital. From dipole interband transitions, 1996Du05 deduce B(M1)/B(E2)=0.15 *4*. g_K=−0.39 *12* (1996Du05), −0.27 *9* (1999Ro21) from M1/E2 branching ratios, using Θ_0=18.4 and K=9/2.

c Band(G): SD-7 band. (1999Ro21). Band intensity relative to SD-1 band=17% *3* (1999Ro21). SD-7 and SD-8 are proposed as signature partners with configuration=ν5/2[512].

d Band(H): SD-8 band. (1999Ro21). Band intensity relative to SD-1 band=14% *3* (1999Ro21). SD-7 and SD-8 are proposed as signature partners with configuration=ν5/2[512].

e Band(I): SD-9 band. (1999Ro21). Band intensity relative to SD-1 band=5% *1* (1999Ro21). Configuration=$\nu 7_3$ intruder orbital.

(HI,xnγ):SD 1999Ro21,1995Hu01,1996Du05 (continued)

γ(^{193}Pb)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Comments
101[‡@]		100.5+w	J4+1	w	J4	
112[‡@]		213.2+w	J4+2	100.5+w	J4+1	
122.0[‡] 5		335.1+w	J4+3	213.2+w	J4+2	
132.9[‡] 5		467.9+w	J4+4	335.1+w	J4+3	
142.5[‡] 5		610.6+w	J4+5	467.9+w	J4+4	
153.2[‡] 5		763.9+w	J4+6	610.6+w	J4+5	
163.0[‡] 5		926.8+w	J4+7	763.9+w	J4+6	
172.8[‡] 5		1099.9+w	J4+8	926.8+w	J4+7	
182.7[‡] 5		1282.6+w	J4+9	1099.9+w	J4+8	
190.2 5	0.19 5	190.2+z	J1+2	z	J1	I_γ: 0.40 7 (1995Hu01).
193.0[‡] 5		1475.2+w	J4+10	1282.6+w	J4+9	
201.9[‡] 5		1677.0+w	J4+11	1475.2+w	J4+10	
211.7[‡] 5		1888.7+w	J4+12	1677.0+w	J4+11	
212.9 5	0.40 5	212.9+a	J7+2	a	J7	
213.2 4	0.53 10	213.2+w	J4+2	w	J4	I_γ: 0.96 19 (1995Hu01).
221.0[‡] 5		2109.8+w	J4+13	1888.7+w	J4+12	
231[‡@]		2340.0+w	J4+14	2109.8+w	J4+13	
232.6 3	0.55 5	422.8+z	J1+4	190.2+z	J1+2	I_γ: 0.61 9 (1995Hu01).
234.6 5	0.13 7	335.1+w	J4+3	100.5+w	J4+1	I_γ: 0.26 6 (1995Hu01).
251.5 6	0.07 7	251.5+u	J2+2	u	J2	
254.6 7	0.72 11	467.9+w	J4+4	213.2+w	J4+2	I_γ: 1.00 19 (1995Hu01).
255.8 5	1.00 12	468.7+a	J7+4	212.9+a	J7+2	
260.6 7	0.24 4	260.6+s	J5+2	s	J5	
273.0[§@] 7	0.17 7	273.0+v?	J3+2	v	J3	
275.2 3	0.68 5	698.0+z	J1+6	422.8+z	J1+4	I_γ: 1.00 10 (1995Hu01).
275.5 5	0.35 7	610.6+w	J4+5	335.1+w	J4+3	I_γ: 0.39 6 (1995Hu01).
277.0 3	0.47 5	277.0+y	J+2	y	J	I_γ: 0.51 7 (1995Hu01).
281.8 6	0.15 2	281.8+t	J6+2	t	J6	
291.5 3	0.76 7	543.0+u	J2+4	251.5+u	J2+2	I_γ: 0.58 8 (1995Hu01).
296.2 5	0.71 14	763.9+w	J4+6	467.9+w	J4+4	I_γ: 0.60 10 (1995Hu01).
297.3 6	0.36 5	766.0+a	J7+6	468.7+a	J7+4	
299.8 6	0.51 7	560.4+s	J5+4	260.6+s	J5+2	
313.4 6	0.44 7	586.4+v	J3+4	273.0+v?	J3+2	I_γ: 0.42 8 (1995Hu01).
316.2 5	0.45 7	926.8+w	J4+7	610.6+w	J4+5	I_γ: 0.40 8 (1995Hu01).
317.3 3	0.95 9	594.3+y	J+4	277.0+y	J+2	I_γ: 0.82 7 (1995Hu01).
317.9 3	0.91 9	1015.9+z	J1+8	698.0+z	J1+6	I_γ: 0.84 10 (1995Hu01).
321.5 6	0.43 7	603.2+t	J6+4	281.8+t	J6+2	
332.4 3	0.86 7	875.4+u	J2+6	543.0+u	J2+4	I_γ: 0.77 9 (1995Hu01).
336.1 4	0.91 10	1099.9+w	J4+8	763.9+w	J4+6	I_γ: 0.45 10 (1995Hu01).
336.6 6	0.54 7	1102.5+a	J7+8	766.0+a	J7+6	
340.1 4	0.52 7	900.5+s	J5+6	560.4+s	J5+4	
353.1 4	0.68 7	939.5+v	J3+6	586.4+v	J3+4	I_γ: 0.71 10 (1995Hu01).
355.9 5	0.87 8	1282.6+w	J4+9	926.8+w	J4+7	I_γ: 0.70 9 (1995Hu01).
357.3 3	0.90 9	951.6+y	J+6	594.3+y	J+4	I_γ: 0.82 7 (1995Hu01).
360.9 3	1.07 10	1376.8+z	J1+10	1015.9+z	J1+8	I_γ: 0.76 10 (1995Hu01).
360.9 5	0.62 11	964.1+t	J6+6	603.2+t	J6+4	
372.1 3	1.03 9	1247.5+u	J2+8	875.4+u	J2+6	I_γ: 1.00 11 (1995Hu01).
375.1 5	0.92 10	1475.2+w	J4+10	1099.9+w	J4+8	I_γ: 0.90 18 (1995Hu01).
375.8 5	0.63 7	1478.3+a	J7+10	1102.5+a	J7+8	
378.9 5	0.63 10	1279.4+s	J5+8	900.5+s	J5+6	
391.9 3	0.85 7	1331.4+v	J3+8	939.5+v	J3+6	I_γ: 0.80 11 (1995Hu01).
394.4 5	0.95 9	1677.0+w	J4+11	1282.6+w	J4+9	I_γ: 0.60 7 (1995Hu01).

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(HI,xnγ):SD 1999Ro21,1995Hu01,1996Du05 (continued)

γ(^{193}Pb) (continued)

E_γ [†]	I_γ [&]	E_i(level)	J_i^π	E_f	J_f^π	Comments
397.5 *3*	1.05 *11*	1349.1+y	J+8	951.6+y	J+6	I_γ: 0.84 *7* (1995Hu01).
398.5 *5*	1.00 *17*	1362.6+t	J6+8	964.1+t	J6+6	
403.5 *3*	0.97 *10*	1780.3+z	J1+12	1376.8+z	J1+10	I_γ: 0.98 *10* (1995Hu01).
411.9 *3*	1.04 *9*	1659.4+u	J2+10	1247.5+u	J2+8	I_γ: 0.95 *11* (1995Hu01).
413.5 *5*	1.04 *14*	1888.7+w	J4+12	1475.2+w	J4+10	I_γ: 0.90 *18* (1995Hu01).
415.9 *4*	0.62 *7*	1894.2+a	J7+12	1478.3+a	J7+10	
417.2 *5*	1.00 *18*	1696.6+s	J5+10	1279.4+s	J5+8	
430.0 *3*	0.81 *8*	1761.4+v	J3+10	1331.4+v	J3+8	I_γ: 0.65 *10* (1995Hu01).
432.8 *4*	1.02 *10*	2109.8+w	J4+13	1677.0+w	J4+11	I_γ: 0.73 *9* (1995Hu01).
435.9 *4*	0.58 *11*	1798.5+t	J6+10	1362.6+t	J6+8	
437.8 *3*	0.90 *9*	1786.9+y	J+10	1349.1+y	J+8	I_γ: 0.82 *7* (1995Hu01).
445.9 *3*	0.78 *7*	2226.2+z	J1+14	1780.3+z	J1+12	I_γ: 0.82 *10* (1995Hu01).
450.6 *3*	1.04 *10*	2110.0+u	J2+12	1659.4+u	J2+10	I_γ: 0.79 *10* (1995Hu01).
451.2 *5*	0.89 *10*	2340.0+w	J4+14	1888.7+w	J4+12	I_γ: 0.87 *18* (1995Hu01).
454.0 *5*	0.69 *11*	2150.6+s	J5+12	1696.6+s	J5+10	
455.5 *4*	0.60 *5*	2349.7+a	J7+14	1894.2+a	J7+12	
467.1 *4*	0.97 *10*	2228.5+v	J3+12	1761.4+v	J3+10	I_γ: 0.76 *10* (1995Hu01).
470.6 *4*	0.90 *9*	2580.4+w	J4+15	2109.8+w	J4+13	I_γ: 0.90 *10* (1995Hu01).
472.3 *6*	0.51 *7*	2270.8+t	J6+12	1798.5+t	J6+10	
477.4 *3*	0.86 *9*	2264.3+y	J+12	1786.9+y	J+10	I_γ: 0.75 *7* (1995Hu01).
488.2 *4*	0.68 *6*	2714.4+z	J1+16	2226.2+z	J1+14	I_γ: 0.59 *9* (1995Hu01).
488.6 *5*	0.73 *10*	2828.5+w	J4+16	2340.0+w	J4+14	I_γ: 0.69 *16* (1995Hu01).
488.9 *3*	1.00 *10*	2598.9+u	J2+14	2110.0+u	J2+12	I_γ: 0.94 *11* (1995Hu01).
491.1 *5*	0.54 *11*	2641.7+s	J5+14	2150.6+s	J5+12	
495.6 *6*	0.40 *7*	2845.3+a	J7+16	2349.7+a	J7+14	
503.9 *4*	1.00 *10*	2732.4+v	J3+14	2228.5+v	J3+12	I_γ: 1.00 *16* (1995Hu01).
507.4 *4*	0.83 *9*	3087.8+w	J4+17	2580.4+w	J4+15	I_γ: 1.00 *10* (1995Hu01).
508.1 *6*	0.58 *8*	2778.9+t	J6+14	2270.8+t	J6+12	
517.3 *4*	0.73 *6*	2781.6+y	J+14	2264.3+y	J+12	I_γ: 1.00 *10* (1995Hu01).
526.1 *5*	0.82 *12*	3167.8+s	J5+16	2641.7+s	J5+14	
526.5 *5*	0.95 *16*	3355.0+w	J4+18	2828.5+w	J4+16	I_γ: 0.30 *19* (1995Hu01).
526.6 *4*	0.95 *10*	3125.5+u	J2+16	2598.9+u	J2+14	I_γ: 0.88 *11* (1995Hu01).
528.0 *5*	0.30 *5*	3242.4+z	J1+18	2714.4+z	J1+16	I_γ: 0.46 *8* (1995Hu01).
535.4 *7*	0.29 *5*	3380.7+a	J7+18	2845.3+a	J7+16	
539.5 *4*	1.02 *10*	3271.9+v	J3+16	2732.4+v	J3+14	I_γ: 0.51 *9* (1995Hu01).
543.2 *6*	0.36 *7*	3322.1+t	J6+16	2778.9+t	J6+14	
543.5 *5*	0.75 *7*	3631.3+w	J4+19	3087.8+w	J4+17	I_γ: 0.72 *8* (1995Hu01).
556.1 *3*	0.74 *6*	3337.7+y	J+16	2781.6+y	J+14	I_γ: 0.93 *7* (1995Hu01).
561.3 *5*	0.80 *12*	3729.1+s	J5+18	3167.8+s	J5+16	
562.2 *6*	0.71 *13*	3917.2+w	J4+20	3355.0+w	J4+18	
563.4 *4*	0.54 *7*	3688.9+u	J2+18	3125.5+u	J2+16	I_γ: 0.74 *10* (1995Hu01).
569.8 *6*	0.15 *5*	3812.2+z	J1+20	3242.4+z	J1+18	
575.1 *3*	0.82 *8*	3847.0+v	J3+18	3271.9+v	J3+16	I_γ: 0.53 *9* (1995Hu01).
575.3 *8*	0.12 *4*	3956.0+a	J7+20	3380.7+a	J7+18	
578.0 *5*	0.67 *8*	3900.1+t	J6+18	3322.1+t	J6+16	
579.7 *5*	0.44 *7*	4211.0+w	J4+21	3631.3+w	J4+19	I_γ: 0.48 *6* (1995Hu01).
594.8 *4*	0.46 *5*	3932.5+y	J+18	3337.7+y	J+16	I_γ: 0.60 *7* (1995Hu01).
596.2 *7*	0.35 *10*	4513.4+w	J4+22	3917.2+w	J4+20	
596.4 *6*	0.65 *12*	4325.5+s	J5+20	3729.1+s	J5+18	
599.9 *5*	0.36 *7*	4288.8+u	J2+20	3688.9+u	J2+18	I_γ: 0.40 *8* (1995Hu01).
610.0 *5*	0.66 *7*	4457.0+v	J3+20	3847.0+v	J3+18	I_γ: 0.57 *8* (1995Hu01).
610.5 *7*	0.08 *5*	4422.7+z	J1+22	3812.2+z	J1+20	
612.0 *6*	0.29 *5*	4512.1+t	J6+20	3900.1+t	J6+18	
614.6 *7*	0.35 *7*	4825.6+w	J4+23	4211.0+w	J4+21	
631.1 *7*	0.44 *10*	4956.6+s	J5+22	4325.5+s	J5+20	

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(HI,xnγ):SD 1999Ro21,1995Hu01,1996Du05 (continued)

γ(^{193}Pb) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Comments
631.3 *8*	0.43 *10*	5144.7+w	J4+24	4513.4+w	J4+22	
633.4 *5*	0.22 *5*	4565.9+y	J+20	3932.5+y	J+18	I_γ: 0.22 *7* (1995Hu01).
637.0 *5*	0.30 *7*	4925.8+u	J2+22	4288.8+u	J2+20	
644.5 *6*	0.31 *7*	5101.5+v	J3+22	4457.0+v	J3+20	
646.8 *7*	0.43 *7*	5158.9+t	J6+22	4512.1+t	J6+20	
649.5 *5*	0.25 *7*	5475.1+w	J4+25	4825.6+w	J4+23	
650.0 *7*	0.05 *4*	5072.7+z	J1+24	4422.7+z	J1+22	
664.2 *7*	0.35 *10*	5620.8+s	J5+24	4956.6+s	J5+22	
666.8 *9*	0.18 *9*	5811.5+w	J4+26	5144.7+w	J4+24	
671.8 *6*	0.14 *5*	5237.7+y	J+22	4565.9+y	J+20	
672.2 *6*	0.15 *6*	5598.0+u	J2+24	4925.8+u	J2+22	
676.4 *6*	0.20 *7*	5777.9+v	J3+24	5101.5+v	J3+22	
684.0 *6*	0.13 *7*	6159.1+w	J4+27	5475.1+w	J4+25	
689.8[§@] *8*	0.04 *4*	5762.5+z?	J1+26	5072.7+z	J1+24	
700.5 *8*	0.18 *9*	6512.0+w	J4+28	5811.5+w	J4+26	E_γ: from 1999Ro21 only.
707.2 *8*	0.07 *7*	6485.1+v	J3+26	5777.9+v	J3+24	E_γ: 707.3 *6* (1996Du05) was assigned to SD-3 band.
708.2[§@] *8*	0.05 *4*	5945.9+y?	J+24	5237.7+y	J+22	
709.2 *7*	0.07 *6*	6307.2+u	J2+26	5598.0+u	J2+24	E_γ: 709.3 *6* (1996Du05) was assigned to SD-4 band.
717.9 *7*	0.07 *7*	6877.0+w	J4+29	6159.1+w	J4+27	

[†] From 1999Ro21. Values are also available from 1995Hu01 and 1996Du05 for SD-1 to SD-6. SD-7, SD-8 and SD-9 bands are reported by 1999Ro21 only.

[‡] From 1996Du05.

[§] From 1996Du05, but not confirmed by 1999Ro21.

[&] Relative transition intensities within each band, read by evaluator of 1998Ar07 from Fig. 1 of 1996Du05. Values from 1995Hu01 (Fig. 1) are given in comments. Intensity plots are given by 1999Ro21 for SD-7, SD-8 and SD-9 bands.

[@] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Q(β^-)=−7559 *16*; S(n)=1.042×10^4 *3*; S(p)=618 *15*; Q(α)=6307 *5* 2017Wa10

Identification: ^{181}Ta(^{20}Ne,8n), mass separation (1970Ta14); excitation functions and cross bombardments for several (HI,xnγ) reactions (1974Le02).

^{193}Bi Levels

Cross Reference (XREF) Flags

- A ^{197}At α decay (381 ms)
- B ^{197}At α decay (2.0 s)
- C ^{165}Ho(^{32}S,4nγ)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	XREF	Comments
0.0	(9/2$^-$)	63.6 s *30*	A C	%α=3.5 *15*; %ε+%β^+=96.5 *15* Q=−1.88 *38*; μ=3.734 *95* (2016Ba42) δ<r^2>$^{209-193}$ = −0.729 fm^2 *7* (stat) *51* (syst). J$^\pi$: From systematics for ground states for odd-A Bi, and for At parent and Tl daughter nuclei; from the hindrance factors for the 6960-keV α transition from the (9/2$^-$) ^{197}At g.s. (HF=1.2) (see ^{197}At α-decay dataset below), and for the 5899-keV α decay to the 281-keV 9/2$^-$ level in ^{189}Tl (HF 5); and from shell-model and TRS calculations (2004Ni06 – (^{32}S,4nγ)). T$_{1/2}$: Weighted average of 63 s *5* (1985Co06), 64 s *4* (1974Le02). Other: 62.2 s *36* (1972Ga27). %α: From 2005De01. Others: 3.5% *15* quoted in 1993An19 from 1990AnZR and 2≤I$_\alpha$≤8% (1986Co12). %ε+%β^+: T$_{1/2}$(β^+)=55 s (1997Mo25, theory) suggests predominately ε+β^+ decay. μ: from in-source laser spectroscopy (2016Ba42). Value is given as 3.734 μ_N *59* (stat) *74* (syst); listed combined uncertainties in quadrature. μ=4.1103 *5* for ^{209}Bi was used as reference value. Q: from in-source laser spectroscopy (2016Ba42). Q=−0.420 *8* for ^{209}Bi was used as reference value.
278.44[@] *18*	7/2$^-$		C	
305[c] *6*	(1/2$^+$)	3.12 s *26*	BC	%α=84 *16*; %ε+%β^+=16 *16* μ=1.500 *33* (2016Ba42) δ<r^2>$^{209-193}$ = −0.606 fm^2 *8* (stat) *42* (syst) (2016Ba42). δ<r^2>^{m,g}=0.123 fm^2 *7* (stat) *9* (syst) (2016Ba42). E(level): From NUBASE2016 (2017Au03). J$^\pi$: This level decays by an E(α)=6475 keV *5* transition to the (1/2$^+$) ^{189}Tl g.s. Values for the hindrance factor for this decay are HF=0.75 *45* (1985Co06), and 0.9 *2* (1986Co12), indicating that the initial and final states have the same configuration. T$_{1/2}$: From 1.4 s *+38−6* (2005Uu02), 3.5 s *2* (1974Le02, 1972Ga27), 1.9 s *4* (1985Co06), and 3.07 s *7* (2015He27) using the Limitation of Relative Statistical Weight (lwm) method (1985ZiZY). Other: 3.15 s (1970Ta14). %α: Average from: a) comparison of intensity of ^{193}Bi (3.3 s) α peak with that of ^{197}At (2.0 s) parent peak, 90 *+10−20* (1986Co12), and b) 75 *25* (1985Co06). μ: from in-source laser spectroscopy (2016Ba42). Value is given as 1.500 μ_N *14* (stat) *30* (syst); compiler has combined uncertainties in quadrature. μ=4.1103 *5* for ^{209}Bi was used as reference value.
464.66[@] *18*	9/2$^-$		C	
505.1[c] *3*	3/2$^+$		C	
605.53[#] *18*	13/2$^+$	153 ns *10*	C	%IT=100 T$_{1/2}$: From 2004Ni06 (^{32}S,4nγ).

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Adopted Levels, Gammas (continued)

^{193}Bi Levels (continued)

E(level)[†]	Jπ[‡]	XREF
619.60[@] 15	11/2−	C
641.8 5	(7/2−)	C
662.08[a] 20	9/2−	C
734.2[c] 3	5/2+	C
817.72[@] 17	13/2−	C
915.30[a] 17	11/2−	C
928.93[#] 21	15/2+	C
964.6 5		C
1013.3[c] 4	(7/2+)	C
1066.35 17	13/2−	C
1117.06 22	13/2+	C
1169.67[@] 18	15/2−	C
1203.5[c] 4	(9/2+)	C
1228.13[#] 21	17/2+	C
1249.06[a] 21	13/2−	C
1257.88 21	(11/2−)	C
1321.0 8		C
1414.64[@] 22	17/2−	C
1514.34 21	(17/2+)	C
1517.4[c] 6	(11/2+)	C
1520.95 21	13/2−	C
1535.73 21	15/2+	C
1555.30[#] 25	19/2+	C
1562.41[a] 21	15/2−	C
1609.9 4	(15/2−)	C
1636.5[c] 5	(13/2+)	C
1651.5 4	(15/2−)	C
1673.49 19	17/2+	C
1736.96 24	17/2−	C
1762.3 4	(15/2−)	C
1794.03[@] 25	19/2−	C
1858.5 4	(17/2+)	C
1859.1 4	15/2−	C
1875.1[#] 3	21/2+	C
1910.06[a] 23	17/2−	C
1950.09 24	19/2+	C
1979.8 5		C
2045.8 4	(19/2−)	C
2048.6 5	(21/2+)	C
2048.7[@] 3	21/2−	C
2057.6 3	21/2+	C
2090.41 18	17/2−	C
2109.7 3	19/2+	C
2128.8 4	21/2+	C
2139.6[c] 6	(17/2+)	C
2193.75[&] 21	19/2−	C
2220.6[#] 3	23/2+	C
2240.3[a] 6	19/2−	C
2253.6 4		C

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Bi Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
2265.8 *5*	25/2$^+$		C	
2278.6 *5*	25/2$^+$		C	
2321.7 *4*	(21/2$^+$)		C	
2336.9[&] *3*	21/2$^-$		C	
2349.6 *6*	29/2$^+$	85 μs *3*	C	%IT=100 $T_{1/2}$: measured by 2015He27 (^{32}S,4nγ) from (recoil)(455.4γ)(t). Proposed configuration=$\pi i_{13/2}$ coupled to oblate 8$^+$ state in ^{192}Pb with configuration=$\pi h^2_{9/2}$.
2356.3 *4*	25/2$^-$		C	
2405.1[b] *7*	(29/2$^-$)	3.02 μs *8*	C	%IT=100 $T_{1/2}$: measured by 2015He27 (^{32}S,4nγ) from (recoil)(307.4γ)(t).
2428.3 *4*	23/2$^-$		C	
2432.9 *3*	23/2$^+$		C	
2448.1 *5*			C	
2462.9[@] *3*	23/2$^-$		C	
2483.9[&] *3*	23/2$^-$		C	
2509.8 *6*	23/2$^+$		C	
2525.4 *4*	23/2$^-$		C	
2535.8[#] *4*	25/2$^+$		C	
2547.3 *5*	(21/2$^-$)		C	
2578.0 *4*	23/2$^-$		C	
2587.2[@] *4*	25/2$^-$		C	
2591.5 *4*	25/2$^+$		C	
2669.4[&] *4*	25/2$^-$		C	
2708.9 *4*	(25/2$^+$)		C	
2710.3 *5*			C	
2718.0 *6*	27/2$^+$		C	
2721.7[@] *4*	27/2$^-$		C	
2723.4 *4*	25/2$^-$		C	
2756.0[#] *4*	27/2$^+$		C	
2762.8 *4*	25/2$^+$		C	
2774.8 *5*			C	
2804.1[b] *8*	(31/2$^-$)		C	
2832.3 *5*	29/2$^-$		C	
2873.2[#] *5*	29/2$^+$		C	
2893.0 *4*	(25/2$^+$)		C	
2921.9[&] *5*	27/2$^-$		C	
2928.0[@] *5*	(29/2$^-$)		C	
2956.7 *5*	25/2$^{(+)}$		C	
2958.7 *6*	31/2$^+$		C	
2963.5[#] *6*	31/2$^+$		C	
2986.9 *6*	29/2$^+$		C	
2996.1 *7*	29/2$^+$		C	
3103.6 *9*			C	
3117.1[#] *6*	33/2$^+$		C	
3118.4 *7*	(23/2$^-$)		C	
3159.2[b] *8*	(33/2$^-$)		C	
3200.4[&] *5*	29/2$^-$		C	
3220.5 *8*			C	
3282.9 *8*	(33/2$^-$)		C	

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Adopted Levels, Gammas (continued)

^{193}Bi Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
3304.2 6	33/2+	C	3976.7 9		C	4961.2 12		C
3321.0# 7	35/2+	C	4008.8& 6	35/2−	C	5679.6 14		C
3349.2 8	33/2+	C	4028.7b 9	(39/2−)	C	x^d	(11/2+)	C
3448.6b 8	(35/2−)	C	4029.7 11		C	126.6+x^d 4	(15/2+)	C
3496.3& 5	31/2−	C	4059.1 6	(35/2−)	C	294.9+x^d 5	(19/2+)	C
3560.9# 7	37/2+	C	4137.3# 8	41/2+	C	504.4+x^d 6	(23/2+)	C
3563.1 8	(31/2+)	C	4213.2 6	(37/2−)	C	755.3+x^d 7	(27/2+)	C
3622.7 7		C	4240.7& 8	(37/2−)	C	1047.0+x^d 8	(31/2+)	C
3638.6 11		C	4272.2 7	(37/2+)	C	1378.7+x^d 8	(35/2+)	C
3669.3 9	(37/2−)	C	4284.0 9		C	1750.9+x^d 9	(39/2+)	C
3709.9b 8	(37/2−)	C	4292.3 8		C	2162.7+x^d 9	(43/2+)	C
3749.1 9		C	4345.1 8	37/2−	C	2613.1+x^d 10	(47/2+)	C
3796.0& 5	33/2−	C	4467.7# 8	43/2+	C	3102.3+x^d 11	(51/2+)	C
3816.5 7	35/2−	C	4544.1 9		C	3630.1+x^d 11	(55/2+)	C
3837.4# 7	39/2+	C	4574.5 9		C	4196.1+x?^d 12	(59/2+)	C
3886.2 7	35/2+	C	4586.7 9		C	4800.6+x?^d 12	(63/2+)	C
3910.7 8		C	4824.4# 9	45/2+	C			
3969.1 9	37/2+	C	4898.1 10		C			

† From least-squares adjustment to γ-ray energies.

‡ From (^{32}S,4nγ), based on rotational structure and γ-ray multipolarities, and systematics of shell-model intruder states in odd-mass Bi and Tl nuclei.

\# Band(A): π13/2[606],$i_{13/2}$ orbital. A sharp band crossing is observed at ħω≈0.2 MeV, Jπ=25/2+, interpreted as due to two $i_{13/2}$ neutrons.

@ Band(B): π7/2[514],($h_{9/2}/f_{7/2}$).

& Band(C): 3-qp band based on 19/2−. Possible configuration=$\pi i_{13/2}\otimes\nu(i^{-1}_{13/2}p^{-1}_{3/2})$ mixed with $\pi i_{13/2}\otimes\nu(i^{-1}_{13/2}f^{-1}_{5/2})$.

a Band(D): π9/2[505].

b Band(E): 3-qp band based on (29/2−). Proposed configuration=$\pi h_{9/2}\otimes\nu i^{-2}_{13/2}{}_{12+}$.

c Band(F): Band based on 1/2+. This band is built on 1/2+ proton-intruder state of 2p-1h configuration.

d Band(G): SD band built on π1/2[651],$i_{11/2}$.

γ(^{193}Bi)

E_i(level)	J^π_i	Eγ†	Iγ†	E_f	J^π_f	Mult.‡	α§	Comments
278.44	7/2−	278.5 3	100	0.0	(9/2−)	D		
464.66	9/2−	186.3 3	100 4	278.44	7/2−	D		
		465.2 7	17 4	0.0	(9/2−)	D		
505.1	3/2+	200.2 3	100	305	(1/2+)	D		
605.53	13/2+	604.7 3	100	0.0	(9/2−)	[M2]	0.193	B(M2)(W.u.)=0.063 5
619.60	11/2−	155.2 3	1.96 14	464.66	9/2−			
		341.1 4	1.51 20	278.44	7/2−			
		619.7 3	100 8	0.0	(9/2−)	M1	0.0666	
641.8	(7/2−)	363.4 4	100	278.44	7/2−	D		
662.08	9/2−	383.8 3	100 5	278.44	7/2−	D		
		661.6 4	44 7	0.0	(9/2−)	D+Q		
734.2	5/2+	229.3 3	100 5	505.1	3/2+	M1	0.974	
		429.0 4	80 12	305	(1/2+)			
817.72	13/2−	198.2 3	7.7 5	619.60	11/2−	D		
		353.1 4	2.04 16	464.66	9/2−			

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Adopted Levels, Gammas (continued)

$\gamma(^{193}Bi)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	α§
817.72	13/2−	817.9 *3*	100 *5*	0.0	(9/2−)	E2	0.01043
915.30	11/2−	253.1 *3*	14.4 *10*	662.08	9/2−	M1	0.741
		450.6 *3*	20.5 *13*	464.66	9/2−	M1	0.1546
		636.7 *3*	36 *3*	278.44	7/2−	Q	
		915.5 *3*	100 *7*	0.0	(9/2−)	M1+E2	0.016 *8*
928.93	15/2+	323.4 *3*	100	605.53	13/2+	M1	0.378
964.6		459.5 *4*	100	505.1	3/2+		
1013.3	(7/2+)	278.9 *8*	5.1 *20*	734.2	5/2+		
		508.2 *3*	100 *6*	505.1	3/2+	Q	
1066.35	13/2−	446.8 *3*	25.0 *19*	619.60	11/2−	M1	0.1581
		1066.6 *3*	100 *10*	0.0	(9/2−)	Q	
1117.06	13/2+	188.3 *3*	13.3 *11*	928.93	15/2+		
		299.4 *5*	5.3 *13*	817.72	13/2−		
		497.5 *4*	17.1 *13*	619.60	11/2−	(E1)	0.01001
		511.3 *3*	100 *9*	605.53	13/2+	M1+E2	0.07 *4*
1169.67	15/2−	352.1 *3*	89 *3*	817.72	13/2−	M1	0.300
		550.0 *3*	100 *4*	619.60	11/2−	E2	0.0245
1203.5	(9/2+)	190.1 *3*	29.5 *21*	1013.3	(7/2+)		
		469.3 *3*	100 *6*	734.2	5/2+		
1228.13	17/2+	299.2 *3*	100 *3*	928.93	15/2+	M1	0.467
		622.4 *3*	46.9 *19*	605.53	13/2+	E2	0.0186
1249.06	13/2−	333.7 *3*	100 *5*	915.30	11/2−	D	
		587.0 *3*	86 *5*	662.08	9/2−		
		784.5 *4*	40 *3*	464.66	9/2−	Q	
1257.88	(11/2−)	638.1 *4*	16 *3*	619.60	11/2−		
		793.1 *3*	33 *4*	464.66	9/2−	D+Q	
		1258.1 *3*	100 *11*	0.0	(9/2−)	D	
1321.0		356.4 *6*	100	964.6			
1414.64	17/2−	245.2 *3*	16.2 *8*	1169.67	15/2−	M1	0.808
		597.0 *3*	100 *4*	817.72	13/2−	E2	0.0204
1514.34	(17/2+)	585.3 *3*	100 *4*	928.93	15/2+	M1	0.0773
		908.7 *3*	86 *5*	605.53	13/2+	E2	0.00844
1517.4	(11/2+)	504.1 *4*	100	1013.3	(7/2+)		
1520.95	13/2−	351.1 *3*	6.7 *18*	1169.67	15/2−	D	
		455.1@ *6*	4.2 *18*	1066.35	13/2−		
		605.2 *4*	36 *3*	915.30	11/2−	D	
		901.7 *3*	100 *6*	619.60	11/2−	M1+E2	0.017 *9*
1535.73	15/2+	469.5 *3*	27.6 *17*	1066.35	13/2−	D	
		717.9 *3*	69 *3*	817.72	13/2−	E1	0.00482
		930.0 *3*	100 *7*	605.53	13/2+	M1	0.0232
1555.30	19/2+	327.4 *3*	100 *3*	1228.13	17/2+	M1	0.366
		626.2 *3*	52.0 *20*	928.93	15/2+	E2	0.0183
1562.41	15/2−	313.3 *3*	26.7 *16*	1249.06	13/2−	M1	0.412
		647.3 *3*	100 *5*	915.30	11/2−	Q	
1609.9	(15/2−)	352.3 *3*	100	1257.88	(11/2−)		
1636.5	(13/2+)	433.0 *3*	100	1203.5	(9/2+)		
1651.5	(15/2−)	393.4 *3*	100	1257.88	(11/2−)	Q	
1673.49	17/2+	137.6 *3*	20.0 *10*	1535.73	15/2+	M1	4.10 *7*
		159.3 *3*	11.2 *8*	1514.34	(17/2+)	D	
		445.4 *4*	21.2 *16*	1228.13	17/2+		
		504.0 *3*	76 *4*	1169.67	15/2−	E1	0.00975
		556.4 *3*	100 *4*	1117.06	13/2+	Q	
		744.7 *4*	23.0 *18*	928.93	15/2+	D	
		1067.8 *3*	86 *6*	605.53	13/2+	E2	0.00616

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Adopted Levels, Gammas (continued)

$\gamma(^{193}Bi)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.‡	α§	Comments
1736.96	17/2−	567.0 *3*	92 *8*	1169.67	15/2−	M1	0.0841	
		670.3 *3*	100 *8*	1066.35	13/2−	Q		
1762.3	(15/2−)	1156.8 *4*	100	605.53	13/2+			
1794.03	19/2−	379.4 *3*	61.8 *22*	1414.64	17/2−	M1	0.245	
		624.3 *3*	100 *4*	1169.67	15/2−	E2	0.0184	
1858.5	(17/2+)	929.6 *3*	100	928.93	15/2+	(M1+E2)	0.016 *8*	
1859.1	15/2−	793.5 *4*	100	1066.35	13/2−	D		
1875.1	21/2+	319.8 *3*	100 *4*	1555.30	19/2+	M1	0.390	
		646.9 *3*	86 *4*	1228.13	17/2+	E2	0.01706	
1910.06	17/2−	347.6 *4*	26 *4*	1562.41	15/2−			
		661.1 *4*	60 *6*	1249.06	13/2−			
		844.0 *3*	100 *12*	1066.35	13/2−			
1950.09	19/2+	435.7 *3*	100 *5*	1514.34	(17/2+)	M1	0.1691	
		721.6 *3*	51.2 *25*	1228.13	17/2+	D		
		1021.2 *3*	46.3 *25*	928.93	15/2+			
1979.8		913.4 *4*	100	1066.35	13/2−			
2045.8	(19/2−)	394.0 *3*	100 *6*	1651.5	(15/2−)	Q		
		436.3 *4*	33 *5*	1609.9	(15/2−)	Q		
2048.6	(21/2+)	534.3 *4*	100	1514.34	(17/2+)	Q		
2048.7	21/2−	255.1 *3*	12.4 *6*	1794.03	19/2−	D	0.725	
		634.1 *3*	100 *4*	1414.64	17/2−	E2	0.0178	
2057.6	21/2+	502.5 *3*	100 *5*	1555.30	19/2+	D		
		543.2 *3*	36.6 *22*	1514.34	(17/2+)	Q		
2090.41	17/2−	232.1 *4*	4.2 *9*	1859.1	15/2−			
		328.2 *4*	13.6 *22*	1762.3	(15/2−)			
		352.4 *4*	16.1 *19*	1736.96	17/2−			
		528.2 *4*	14.5 *16*	1562.41	15/2−	D		
		569.4 *3*	94 *6*	1520.95	13/2−	Q		
		862.4 *3*	49.4 *25*	1228.13	17/2+	E1	0.00341	
		920.9 *3*	100 *6*	1169.67	15/2−	M1	0.0238	
		1023.6 *4*	28.8 *19*	1066.35	13/2−			
		1272.8 *3*	46.4 *25*	817.72	13/2−	Q		
2109.7	19/2+	436.2 *3*	100 *4*	1673.49	17/2+	M1	0.1686	
		695.1 *3*	17.0 *12*	1414.64	17/2−	D		
		881.3 *4*	16.9 *13*	1228.13	17/2+	D		
2128.8	21/2+	455.4 *3*	100 *5*	1673.49	17/2+	E2	0.0386	
2139.6	(17/2+)	503.1 *4*	100	1636.5	(13/2+)			
2193.75	19/2−	103.4 *3*	40.4 *21*	2090.41	17/2−	D		
		242.9 *4*	22.9 *17*	1950.09	19/2+			
		284.0 *3*	24.6 *21*	1910.06	17/2−			
		631.4 *3*	55 *4*	1562.41	15/2−			
		679.2 *3*	100 *5*	1514.34	(17/2+)	E1	0.00536	
2220.6	23/2+	345.7 *3*	100 *4*	1875.1	21/2+	M1	0.315	
		665.2 *3*	93 *4*	1555.30	19/2+	E2	0.01606	
2240.3	19/2−	677.9 *5*	100	1562.41	15/2−	E2	0.01542	
2253.6		459.2 *4*	26.0 *24*	1794.03	19/2−			
		839.2 *3*	100 *5*	1414.64	17/2−			
2265.8	25/2+	137.1 *3*	100	2128.8	21/2+	E2	1.84	
2278.6	25/2+	149.8 *3*	100	2128.8	21/2+	E2	1.299 *21*	
2321.7	(21/2+)	371.7 *4*	66 *7*	1950.09	19/2+	M1	0.259	
		807.3 *4*	100 *9*	1514.34	(17/2+)	(E2)	0.01071	
2336.9	21/2−	143.0 *3*	100	2193.75	19/2−	M1	3.67	
2349.6	29/2+	84.0 *6*	100	2265.8	25/2+	E2	14.3 *6*	B(E2)(W.u.)=0.00157 *10*
2356.3	25/2−	307.4 *3*	100	2048.7	21/2−	E2	0.1122	

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Adopted Levels, Gammas (continued)

γ(^{193}Bi) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[§]	Comments
2405.1	(29/2−)	48.8 6	100	2356.3	25/2−	[E2]	196 13	B(E2)(W.u.)=0.052 5
2428.3	23/2−	634.3 3	100	1794.03	19/2−	Q		
2432.9	23/2+	212.3 4	20.1 22	2220.6	23/2+			
		375.4 3	100 5	2057.6	21/2+	D		
		557.5 4	38 4	1875.1	21/2+			
2448.1		654.1 4	100	1794.03	19/2−			
2462.9	23/2−	414.3 3	40.6 18	2048.7	21/2−	M1	0.194	
		668.9 3	100 4	1794.03	19/2−	E2	0.01587	
2483.9	23/2−	146.8 3	100 4	2336.9	21/2−	D		
		435.6 3	32.6 23	2048.7	21/2−	D		
		689.6 3	45.8 23	1794.03	19/2−	Q		
2509.8	23/2+	381.0 4	100	2128.8	21/2+	M1	0.242	
2525.4	23/2−	731.4 3	100	1794.03	19/2−	E2	0.01313	
2535.8	25/2+	315.2 3	85 3	2220.6	23/2+	D		
		660.7 3	100 4	1875.1	21/2+	E2	0.01630	
2547.3	(21/2−)	501.5 3	100	2045.8	(19/2−)	M1	0.1163	
2578.0	23/2−	784.0 3	100	1794.03	19/2−	Q		
2587.2	25/2−	124.6 3	27.2 14	2462.9	23/2−			
		538.4 3	100 7	2048.7	21/2−	E2	0.0258	
2591.5	25/2+	371.0 3	30.0 19	2220.6	23/2+			
		716.3 3	100 4	1875.1	21/2+	E2	0.01372	
2669.4	25/2−	185.5 3	100	2483.9	23/2−	D		
2708.9	(25/2+)	276.0 3	100 7	2432.9	23/2+			
		488.3 4	85 7	2220.6	23/2+	D+Q		
		651.5 5	38 8	2057.6	21/2+			
2710.3		619.9[&] 4	100[&]	2090.41	17/2−			
2718.0	27/2+	452.2 3	100	2265.8	25/2+	D		
2721.7	27/2−	134.7 3	100 4	2587.2	25/2−	D		
		365.1 4	33 4	2356.3	25/2−	D		
2723.4	25/2−	295.1 6	8.3 22	2428.3	23/2−			
		674.6 3	100 5	2048.7	21/2−	Q		
2756.0	27/2+	164.5 3	11.3 7	2591.5	25/2+			
		220.4 3	100 5	2535.8	25/2+	M1	1.087	
		535.2 3	37.9 17	2220.6	23/2+	Q		
2762.8	25/2+	542.2 4	30 6	2220.6	23/2+	D		
		887.7 3	100 7	1875.1	21/2+	Q		
2774.8		726.0 4	100	2048.7	21/2−			
2804.1	(31/2−)	398.8 3	100	2405.1	(29/2−)	M1	0.214	
2832.3	29/2−	476.0 3	100	2356.3	25/2−	Q		
2873.2	29/2+	117.1 3	100	2756.0	27/2+	D		
2893.0	(25/2+)	357.0 4	40 4	2535.8	25/2+	(M1)	0.289	
		672.5 3	100 6	2220.6	23/2+	D		
2921.9	27/2−	252.5 3	100 5	2669.4	25/2−	M1	0.745	
		334.7[@] 4	6.5 10	2587.2	25/2−			
		438.1 5	6.7 14	2483.9	23/2−			
2928.0	(29/2−)	206.3 3	100	2721.7	27/2−			
2956.7	25/2(+)	736.1 3	100	2220.6	23/2+	(D)		
2958.7	31/2+	609.1 3	100	2349.6	29/2+	M1	0.0696	
2963.5	31/2+	90.0 6	48 5	2873.2	29/2+			
		614.0 3	100 7	2349.6	29/2+	M1	0.0682	
2986.9	29/2+	268.9 3	67 4	2718.0	27/2+	M1	0.627	
		721.1[@] 4	100 8	2265.8	25/2+	(E2)	0.01353	
2996.1	29/2+	278.1 4	100	2718.0	27/2+	M1	0.571	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{193}Bi)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[§]
3103.6		754.0 *6*	100	2349.6	29/2+		
3117.1	33/2+	153.6 *3*	100 *4*	2963.5	31/2+	D	
		158.5 *4*	8.6 *14*	2958.7	31/2+		
3118.4	(23/2−)	571.1 *4*	100	2547.3	(21/2−)	D	
3159.2	(33/2−)	355.3 *3*	100 *4*	2804.1	(31/2−)	M1	0.293
		753.9 *4*	40 *5*	2405.1	(29/2−)		
3200.4	29/2−	278.6 *4*	100 *5*	2921.9	27/2−	M1	0.568
		530.9 *4*	18.3 *15*	2669.4	25/2−	Q	
3220.5		388.2[@] *6*	100	2832.3	29/2−		
3282.9	(33/2−)	478.5 *3*	100 *5*	2804.1	(31/2−)	D	0.1317
		879.0 *6*	29 *4*	2405.1	(29/2−)		
3304.2	33/2+	345.4 *3*	25.0 *23*	2958.7	31/2+	D	
		954.7 *3*	100 *14*	2349.6	29/2+	E2	0.00766
3321.0	35/2+	203.9 *3*	100	3117.1	33/2+	M1	1.351
3349.2	33/2+	390.5 *4*	100	2958.7	31/2+	D	
3448.6	(35/2−)	289.5 *3*	100 *5*	3159.2	(33/2−)	M1	0.512
		644.1 *5*	18 *5*	2804.1	(31/2−)		
3496.3	31/2−	295.7 *3*	100 *5*	3200.4	29/2−	M1	0.483
		574.3 *3*	45 *3*	2921.9	27/2−	E2	0.0222
3560.9	37/2+	239.8 *3*	100 *4*	3321.0	35/2+	M1	0.860
		443.8 *5*	18.7 *20*	3117.1	33/2+		
3563.1	(31/2+)	567.5[@] *3*	100 *6*	2996.1	29/2+		
		576.2 *4*	73 *6*	2986.9	29/2+	D	
3622.7		664.0 *3*	100	2958.7	31/2+		
3638.6		535.0 *6*	100	3103.6			
3669.3	(37/2−)	386.4 *4*	100	3282.9	(33/2−)	Q	
3709.9	(37/2−)	261.3 *3*	100 *7*	3448.6	(35/2−)	D	
		550.6 *4*	64 *10*	3159.2	(33/2−)	Q	
3749.1		466.2 *4*	100	3282.9	(33/2−)		
3796.0	33/2−	298.8 *4*	100 *7*	3496.3	31/2−	M1	0.469
		595.9 *3*	66 *4*	3200.4	29/2−		
3816.5	35/2−	512.3 *3*	100	3304.2	33/2+	E1	0.00942
3837.4	39/2+	276.5 *3*	100 *4*	3560.9	37/2+	M1	0.580
		516.4 *4*	28 *4*	3321.0	35/2+	Q	
3886.2	35/2+	582.1 *4*	100 *10*	3304.2	33/2+	D	
		927.9 *5*	20 *5*	2958.7	31/2+		
3910.7		606.5 *4*	100	3304.2	33/2+		
3969.1	37/2+	619.9[&] *4*	100[&]	3349.2	33/2+	E2	0.0187
3976.7		627.5 *5*	100	3349.2	33/2+		
4008.8	35/2−	212.7 *3*	61 *5*	3796.0	33/2−	D	
		512.7 *3*	100 *6*	3496.3	31/2−		
4028.7	(39/2−)	318.8 *3*	100 *8*	3709.9	(37/2−)		
		580.2 *4*	52 *8*	3448.6	(35/2−)		
4029.7		725.5[@] *9*	100	3304.2	33/2+		
4059.1	(35/2−)	263.1 *3*	100	3796.0	33/2−	D	
4137.3	41/2+	299.8 *3*	100 *6*	3837.4	39/2+	D	
		576.6 *7*	35 *6*	3560.9	37/2+		
4213.2	(37/2−)	204.4 *3*	100	4008.8	35/2−	D	
4240.7	(37/2−)	231.9 *5*	100	4008.8	35/2−		
4272.2	(37/2+)	386.5 *5*	64 *15*	3886.2	35/2+		
		967.7 *4*	100 *15*	3304.2	33/2+		
4284.0		661.3 *5*	100	3622.7			
4292.3		454.9 *4*	100	3837.4	39/2+		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{193}Bi)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.‡
4345.1	37/2⁻	528.6 *3*	100	3816.5	35/2⁻	D
4467.7	43/2⁺	330.3 *4*	100 *10*	4137.3	41/2⁺	D
		630.4 *5*	46 *8*	3837.4	39/2⁺	
4544.1		271.9 *6*	100	4272.2	(37/2⁺)	
4574.5		229.4 *4*	100	4345.1	37/2⁻	
4586.7		294.4 *3*	100	4292.3		
4824.4	45/2⁺	356.7 *4*	100	4467.7	43/2⁺	D
4898.1		323.6 *4*	100	4574.5		
4961.2		677.2 *8*	100	4284.0		
5679.6		718.4 *7*	100	4961.2		
126.6+x	(15/2⁺)	126.6 *4*	100	x	(11/2⁺)	
294.9+x	(19/2⁺)	168.3 *3*	100	126.6+x	(15/2⁺)	
504.4+x	(23/2⁺)	209.5 *3*	100	294.9+x	(19/2⁺)	
755.3+x	(27/2⁺)	250.9 *3*	100	504.4+x	(23/2⁺)	
1047.0+x	(31/2⁺)	291.7 *3*	100	755.3+x	(27/2⁺)	
1378.7+x	(35/2⁺)	331.7 *3*	100	1047.0+x	(31/2⁺)	
1750.9+x	(39/2⁺)	372.2 *3*	100	1378.7+x	(35/2⁺)	
2162.7+x	(43/2⁺)	411.8 *3*	100	1750.9+x	(39/2⁺)	
2613.1+x	(47/2⁺)	450.4 *4*	100	2162.7+x	(43/2⁺)	
3102.3+x	(51/2⁺)	489.2 *4*	100	2613.1+x	(47/2⁺)	
3630.1+x	(55/2⁺)	527.8 *3*	100	3102.3+x	(51/2⁺)	
4196.1+x?	(59/2⁺)	566.0@ *4*	100	3630.1+x	(55/2⁺)	
4800.6+x?	(63/2⁺)	604.5@ *3*	100	4196.1+x?	(59/2⁺)	

† From (^{32}S,4nγ) – 2015He27.

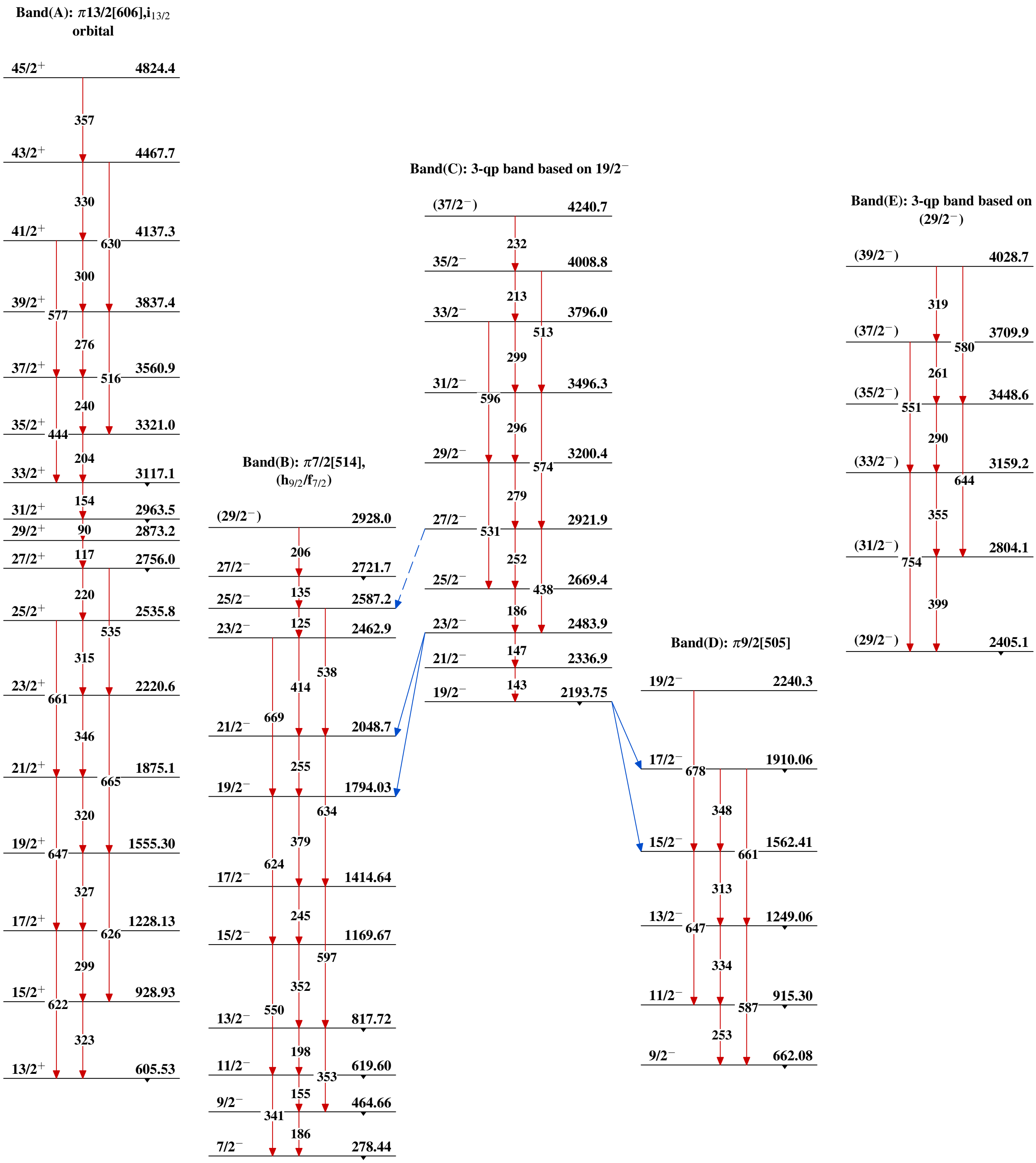
‡ Multipolarities from (^{32}S,4nγ) – 2015He27, based on γ-ray angular distribution (DCO ratio) and linear polarization measurements.

§ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

& Multiply placed with intensity suitably divided.

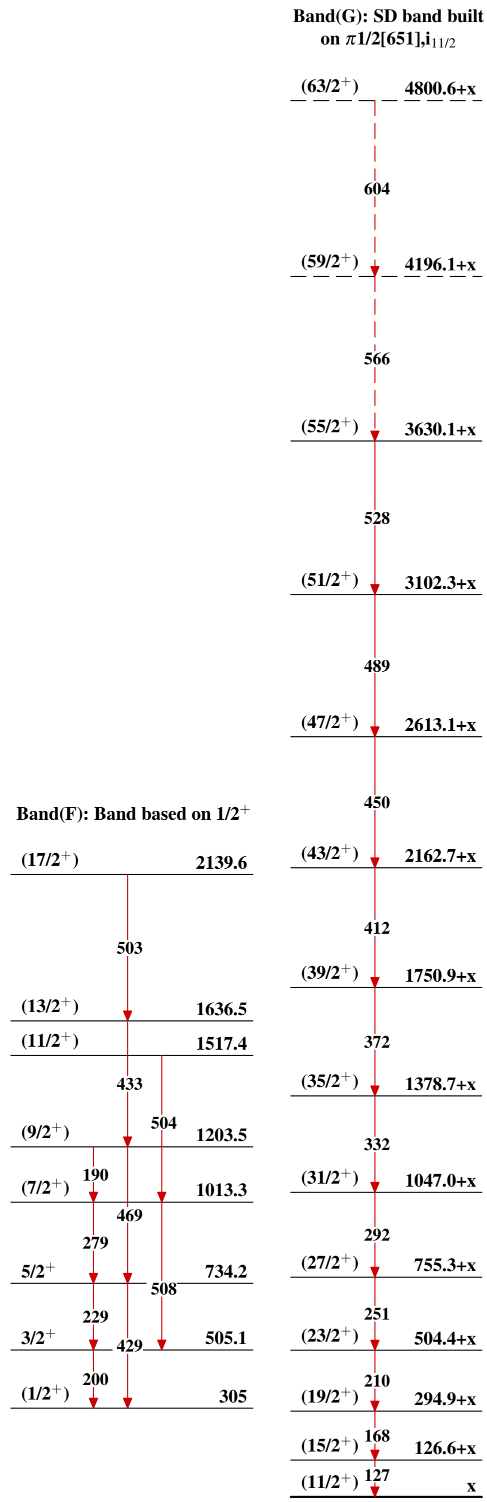
@ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas



$^{193}_{83}Bi_{110}$

Adopted Levels, Gammas (continued)



$^{193}_{83}Bi_{110}$

^{197}At α decay (381 ms) 1999Sm07,1986Co12,2014Ka23

Parent: ^{197}At: E=0.0; J$^{\pi}$=(9/2^{-}); $T_{1/2}$=381 ms *6*; Q(α)=7104 *3*; %α decay=96.1 *12*

^{197}At-Q(α): From 2017Wa10.

^{197}At-$T_{1/2}$: Weighted average of 388 ms *6* (1999Sm07), 354 ms *+17−15* (2014Ka23), 400 ms *100* (1967Tr06), 350 ms *40* (1986Co12), 390 ms *16* (2005De01), 340 ms *20* (2005Uu02), and 370 ms *+90−60* (1996En01).

^{197}At-%α decay: From ^{197}At Adopted Levels.

1999Sm07: ^{197}At produced from ^{165}Ho(^{36}Ar,4n), E=178 MeV; Recoiling fusion-evaporation products were magnetically separated in-flight from the primary beam and fission products using the RITU gas-filled recoil separator. The recoils were implanted into a 16-strip Si detector, three Clover-type Ge detectors for prompt γ-ray and another four Ge detectors for delayed γ ray detection. Measured Eγ, Eα, and half life using recoil-decay-tagging technique.

Sources from ^{185,187}Re(^{20}Ne,xn) (E(^{20}Ne)=100-200 MeV (1967Tr06), E(^{20}Ne)≤240 MeV (1986Co12)); helium-jet transport; measured Eα, Iα (silicon surface-barrier detectors).

2014Ka23: ^{197}At obtained from ^{201}Fr decay. ^{201}Fr produced in ^{149}Sm(^{56}Fe,p3n), E=275 MeV; Target=370 μg/cm^2 thick enriched to 96.9% in ^{149}Sm. Evaporation residues were separated using SHIP facility at GSI, and implanted into the detection system consisting of 16-strip position sensitive Si detectors (PSSD), a pack of six Si strip detectors (BOX) at the back to detect escaping α particles, and three time-of-flight detectors in front of PSSDs. Measured position and time correlations between evaporation residues (Er) and α events, Eα, half-lives of ground states and isomers of ^{201}Fr and ^{197}At, Er-α-α correlations.

^{193}Bi Levels

E(level)	J$^{\pi}$	$T_{1/2}$	Comments
0.0	(9/2^{-})	63.6 s *30*	J$^{\pi}$,$T_{1/2}$: From Adopted Levels.

α radiations

Eα	E(level)	Iα[†]	HF	Comments
6960 *3*	0.0	100	1.6	HF: Using r_0(^{193}Bi)=1.529, average of r_0(^{192}Pb)=1.506 *6* and r_0(^{194}Po)=1.551 *10* (1998Ak04). 1999Sm07 calculated a HF=0.95 *11*, assuming I(α)=100%. Eα: Weighted average of 6957 *5* (1967Tr06), 6960 *5* (1999Sm07), 6959 *6* (2005Uu02), and 6963 *5* (2014Ka23). Reduced α width δ^2_{α}=57 keV *+4−3* (2014Ka23).

† For absolute intensity per 100 decays, multiply by 0.961 *12*.

^{197}At α decay (2.0 s) 1999Sm07,1986Co12,2014Ka23

Parent: ^{197}At: E=52 *10*; J^{π}=(1/2^{+}); $T_{1/2}$=2.0 s *2*; Q(α)=7104 *3*; %α decay≤100
^{197}At-Q(α): From 2017Wa10. E_{ex}(^{197}At) from α-ray energy differences (1986Co12).
^{197}At-$T_{1/2}$: From 1999Sm07. Other values: 3.7 s *25* (1986Co12), 1.1 s *+11−4* (2005Uu02), and 2.8 s *+38−10* (2014Ka23).
^{197}At-%α decay: From ^{197}At Adopted Levels.
Other: 2005Uu02.
1999Sm07: ^{197}At produced from ^{165}Ho(^{36}Ar,4n), E=178 MeV; Recoiling fusion-evaporation products were magnetically separated in-flight from the primary beam and fission products using the RITU gas-filled recoil separator. The recoils were implanted into a 16-strip Si detector, three Clover-type Ge detectors for prompt γ-ray and another four Ge detectors for delayed γ ray detection. Measured Eγ, Eα, and half life using recoil-decay-tagging technique.
1986Co12: Sources from ^{185,187}Re(^{20}Ne,xn), E(^{20}Ne)≤240 MeV; helium-jet transport; measured Eα, Iα (silicon surface-barrier detectors).
2014Ka23: ^{197}At obtained from ^{201}Fr decay. ^{201}Fr produced in ^{149}Sm(^{56}Fe,p3n), E=275 MeV; Target=370 μg/cm^{2} thick enriched to 96.9% in ^{149}Sm. Evaporation residues were separated using SHIP facility at GSI, and implanted into the detection system consisting of 16-strip position sensitive Si detectors (PSSD), a pack of six Si strip detectors (BOX) at the back to detect escaping α particles, and three time-of-flight detectors in front of PSSDs. Measured position and time correlations between evaporation residues (Er) and α events, Eα, half-lives of ground states and isomers of ^{201}Fr and ^{197}At, Er-α-α correlations.

^{193}Bi Levels

E(level)	J^{π}	$T_{1/2}$	Comments
308 *7*	(1/2^{+})	3.12 s *26*	E(level),J^{π},$T_{1/2}$: From Adopted Levels.

α radiations

Eα	E(level)	Iα†	HF	Comments
6707 *4*	308	100	≥0.84	HF: Using r_0(^{193}Bi)=1.529, average of r_0(^{192}Pb)=1.506 *6* and r_0(^{194}Po)=1.551 *10* (1998Ak04). 1999Sm07 obtained a HF=1.2 *8*, assuming I(α)=100%. Eα: Weighted average of 6707 *5* (1999Sm07,2014Ka23) and 6706 *9* (2005Uu02). Other: 6707 (1986Co12). Reduced α width δ^2_{α}=70 keV *+90−30* (2014Ka23).

† Absolute intensity per 100 decays.

^{165}Ho(^{32}S,4nγ) 2015He27

2015He27: E(^{32}S)=152 MeV from JYFL K-130 cyclotron facility. Target=350 μg/cm^2 thick foil of ^{165}Ho. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma(\theta)$, $\gamma\gamma$(linear pol), ce, γ(ce) coin, isomer half-life using JUROGAM II array with 24 clover and 15 Eurogam Phase-1 or GASP Compton-suppressed HPGe detectors. RITU separator was used to select the nuclei of interest, which were passed through multiwire proportional counters and implanted in GREAT focal plane spectrometer for the identification of fusion products of interest. Double-sided silicon strip detectors (DSSD) were used for the implantation of recoils and for the detection of subsequent α decays. The data were analyzed by recoil-gating, recoil-α tagging and isomer-tagging techniques. Deduced high-spin levels, J, π, multipolarity, bands, SD band, B(M1)/B(E2), and configurations.

2004Ni06,2003NiZZ,2001Ni04 references published by the same research group of 2015He27. The latest publication contains extended data with better statistics. Most of the earlier data are consistent with the data in 2015He27. Evaluator considers 2015He27 data as a superceeding set over earlier data sets.

^{193}Bi Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
0.0	9/2$^-$	63.6 s *30*	T$_{1/2}$: From Adopted Levels.
278.44[@] *18*	7/2$^-$		
305[c] *6*	1/2$^+$	3.07 s *13*	%α=84 *16*; %ε+%β^+=16 *16* E(level): Level energy from 2017Au03: NUBASE-2016. 2015He27 list as 307 keV. %α: From Adopted Levels. T$_{1/2}$: Measured by 2015He27 from distribution of time difference between recoil implantations and detection of α particle from the decay of 1/2$^+$ isomer.
464.66[@] *18*	9/2$^-$		
505.1[c] *3*	3/2$^+$		
605.53[#] *18*	13/2$^+$	153 ns *10*	T$_{1/2}$: From 604.7γ(t) (2004Ni06).
619.60[@] *15*	11/2$^-$		
641.8 *5*	7/2$^-$		
662.08[a] *20*	9/2$^-$		
734.2[c] *3*	5/2$^+$		
817.73[@] *17*	13/2$^-$		
915.30[a] *17*	11/2$^-$		
928.93[#] *21*	15/2$^+$		
964.6 *5*			
1013.3[c] *4*	(7/2$^+$)		
1066.35 *17*	13/2$^-$		
1117.06 *22*	13/2$^+$		
1169.67[@] *18*	15/2$^-$		
1203.5[c] *4*	(9/2$^+$)		
1228.13[#] *21*	17/2$^+$		
1249.06[a] *21*	13/2$^-$		
1257.88 *21*	(11/2$^-$)		
1321.0 *8*			
1414.64[@] *22*	17/2$^-$		
1514.34 *21*	17/2$^+$		
1517.4[c] *6*	(11/2$^+$)		
1520.95 *21*	13/2$^-$		
1535.73 *21*	15/2$^+$		
1555.30[#] *25*	19/2$^+$		
1562.41[a] *21*	15/2$^-$		
1609.9 *4*	(15/2$^-$)		J$^\pi$: from Figure 2 of 2015He27, listed as (13/2$^-$) in Table I.

Continued on next page (footnotes at end of table)

^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

^{193}Bi Levels (continued)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
1636.5[c] *5*	(13/2$^+$)		
1651.5 *4*	(15/2$^-$)		
1673.49 *19*	17/2$^+$		
1736.96 *24*	17/2$^-$		
1762.3 *4*	(15/2$^-$)		
1794.03[@] *25*	19/2$^-$		
1858.5 *4*	(17/2$^+$)		
1859.1 *4*	15/2$^-$		
1875.1[#] *3*	21/2$^+$		
1910.06[a] *23*	17/2$^-$		
1950.09 *24*	19/2$^+$		
1979.8 *5*			
2045.8 *4*	(19/2$^-$)		
2048.6 *5*	(21/2$^+$)		
2048.7[@] *3*	21/2$^-$		
2057.6 *3*	21/2$^+$		
2090.41 *18*	17/2$^-$		
2109.65 *25*	19/2$^+$		
2128.8 *4*	21/2$^+$		
2139.6[c] *6*	(17/2$^+$)		
2193.75[&] *21*	19/2$^-$		
2220.6[#] *3*	23/2$^+$		
2240.3[a] *6*	19/2$^-$		
2253.6 *4*			J$^\pi$: Assigned as (19/2$^-$) in 2015He27. First author later stated that level should have no Jπ assignment due to lack of information on the depopulating transition (private communication by e-mail between first author and X̂UNDL compiler).
2265.8 *5*	25/2$^+$		
2278.6 *5*	25/2$^+$		
2321.7 *4*	(21/2$^+$)		
2336.9[&] *3*	21/2$^-$		
2349.6 *6*	29/2$^+$	85 μs *3*	$T_{1/2}$: measured by 2015He27 from (recoil)(455.4γ)(t). Proposed configuration=$\pi i_{13/2}$ coupled to oblate 8$^+$ state in ^{192}Pb with configuration=$\pi h^2_{9/2}$.
2356.3 *4*	25/2$^-$		
2405.1[b] *7*	(29/2$^-$)	3.02 μs *8*	$T_{1/2}$: Measured by 2015He27 from (recoil)(307.4γ)(t).
2428.3 *4*	23/2$^-$		
2432.9 *3*	23/2$^+$		
2448.1 *5*			
2462.9[@] *3*	23/2$^-$		
2483.9[&] *3*	23/2$^-$		
2509.8 *6*	23/2$^+$		
2525.4 *4*	23/2$^-$		
2535.8[#] *4*	25/2$^+$		
2547.3 *5*	(21/2$^-$)		
2578.0 *4*	23/2$^-$		
2587.2[@] *4*	25/2$^-$		
2591.5 *4*	25/2$^+$		
2669.4[&] *4*	25/2$^-$		
2708.9 *4*	(25/2$^+$)		
2710.3 *5*			
2718.0 *6*	27/2$^+$		

Continued on next page (footnotes at end of table)

^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

^{193}Bi Levels (continued)

E(level)[†]	J^{π}[‡]	Comments
2721.7[@] *4*	27/2^{-}	
2723.4 *4*	25/2^{-}	
2756.0[#] *4*	27/2^{+}	
2762.8 *4*	25/2^{+}	
2774.8 *5*		
2804.1[b] *8*	(31/2^{-})	
2832.3 *5*	29/2^{-}	
2873.2[#] *5*	29/2^{+}	
2893.0 *4*	(25/2^{+})	
2921.9[&] *5*	27/2^{-}	
2928.0[@] *5*	(29/2^{-})	
2956.7 *5*	25/2$^{(+)}$	
2958.7 *6*	31/2^{+}	
2963.5[#] *6*	31/2^{+}	
2986.9 *6*	29/2^{+}	
2996.1 *7*	29/2^{+}	
3103.6 *9*		
3117.1[#] *6*	33/2^{+}	
3118.4 *7*	(23/2^{-})	
3159.2[b] *8*	(33/2^{-})	
3200.4[&] *5*	29/2^{-}	
3220.5 *8*		
3282.9 *8*	(33/2^{-})	
3304.2 *6*	33/2^{+}	
3321.0[#] *7*	35/2^{+}	
3349.2 *8*	33/2^{+}	
3448.6[b] *8*	(35/2^{-})	
3496.3[&] *5*	31/2^{-}	
3560.9[#] *7*	37/2^{+}	
3563.1 *8*	(31/2^{+})	
3622.7 *7*		
3638.6 *11*		
3669.3 *9*	(37/2^{-})	
3709.9[b] *8*	(37/2^{-})	
3749.1 *9*		
3796.0[&] *5*	33/2^{-}	
3816.5 *7*	35/2^{-}	
3837.4[#] *7*	39/2^{+}	
3886.2 *7*	35/2^{+}	
3910.7 *8*		
3969.1 *9*	37/2^{+}	
3976.7 *9*		
4008.8[&] *6*	35/2^{-}	See comment for 4059 level about band assignment.
4028.7[b] *9*	(39/2^{-})	
4029.7 *11*		
4059.1 *6*	(35/2^{-})	This level or the 4009 level is 35/2^{-} member of band #3 shown in Figure 2 of 2015He27.
4137.3[#] *8*	41/2^{+}	
4213.2 *6*	(37/2^{-})	This level or the 4241 level is 37/2^{-} member of band #3 shown in Figure 2 of 2015He27.
4240.7[&] *8*	(37/2^{-})	See comment for 4213 level about band assignment.
4272.2 *7*	(37/2^{+})	

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^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

^{193}Bi Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
4284.0 9		4824.4[#] 9	45/2$^+$	504.4+x[d] 6	(23/2$^+$)	3102.3+x[d] 11	(51/2$^+$)
4292.3 8		4898.1 10		755.3+x[d] 7	(27/2$^+$)	3630.1+x[d] 11	(55/2$^+$)
4345.1 8	37/2$^-$	4961.2 12		1047.0+x[d] 8	(31/2$^+$)	4196.1+x?[d] 12	(59/2$^+$)
4467.7[#] 8	43/2$^+$	5679.6 14		1378.7+x[d] 8	(35/2$^+$)	4800.6+x?[d] 12	(63/2$^+$)
4544.1 9		x[d]	(11/2$^+$)	1750.9+x[d] 9	(39/2$^+$)		
4574.5 9		126.6+x[d] 4	(15/2$^+$)	2162.7+x[d] 9	(43/2$^+$)		
4586.7 9		294.9+x[d] 5	(19/2$^+$)	2613.1+x[d] 10	(47/2$^+$)		

[†] From least-squares fit to γ-ray energies with 305 keV level holding fixed.
[‡] From 2015He27, based on γ-ray angular distribution distribution, linear polarization asymmetry factor, and band assignments.
[#] Band(A): π13/2[606],$i_{13/2}$ orbital. A sharp band crossing is observed at ħω≈0.2 MeV, Jπ=25/2$^+$, interpreted as due to two $i_{13/2}$ neutrons.
[@] Band(B): π7/2[514],($h_{9/2}/f_{7/2}$).
[&] Band(C): 3-qp band based on 19/2$^-$. Possible configuration=$\pi i_{13/2}\otimes\nu(i^{-1}_{13/2}p^{-1}_{3/2})$ mixed with $\pi i_{13/2}\otimes\nu(i^{-1}_{13/2}f^{-1}_{5/2})$.
[a] Band(D): π9/2[505].
[b] Band(E): 3-qp band based on (29/2$^-$). Proposed configuration=$\pi h_{9/2}\otimes\nu i^{-2}_{13/2}$$_{12+}$.
[c] Band(F): Band based on 1/2$^+$. This band is built on 1/2$^+$ proton-intruder state of 2p-1h configuration.
[d] Band(G): SD band built on π1/2[651],$i_{11/2}$. Band was found by tagging on α decays of the 1/2$^+$ intruder state at 308 keV. Population intensity is ≈3.9%. The connection of the SD band to the 1/2$^+$ isomer at 308 keV was searched for by 2015He27. An 1836-keV transition, observed in coincidence with SD band transitions is a possible candidate, but confirmatory evidence is lacking due to poor statistics. The two lowest transitions in the SD band, expected to be at 87 and 46 keV were not observed, possibly due to interference from x rays for the former and high conversion coefficient for the latter transition.

γ(^{193}Bi)

Eγ[†]	Iγ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[&]	Comments
(19.1)	0.044 3	2128.8	21/2$^+$	2109.65	19/2$^+$		Eγ: 19.1 keV 5 from level-energy difference in 2015He27.
48.8 6		2405.1	(29/2$^-$)	2356.3	25/2$^-$	[E2]	Mult.: α_{tot}=185 20 from intensity-balance I2015He27). Theory: α(E2)=196 13.
84.0 6		2349.6	29/2$^+$	2265.8	25/2$^+$	E2	
90.0 6	2.2 2	2963.5	31/2$^+$	2873.2	29/2$^+$		
^{x}97.5	0.9 1						Uncertain γ seen in prompt coincidence with 143.0-, 146.8-, 185.5-, 252.5-, and 278.6-keV transitions.
103.4 3	0.97 5	2193.75	19/2$^-$	2090.41	17/2$^-$	D	DCO=0.41 3
117.1 3	1.59 6	2873.2	29/2$^+$	2756.0	27/2$^+$	D	DCO=0.69 4
124.6 3	0.79 4	2587.2	25/2$^-$	2462.9	23/2$^-$		
126.6 4	0.7[§] 2	126.6+x	(15/2$^+$)	x	(11/2$^+$)		Iγ: from α-tagged γ spectrum. Intensity from recoil-gated γγγ spectrum could not be obtained.
134.7 3	1.29 5	2721.7	27/2$^-$	2587.2	25/2$^-$	D	DCO=0.62 9
137.1 3	0.86 5	2265.8	25/2$^+$	2128.8	21/2$^+$	E2	DCO=1.38 12 expα(L+M+...)=1.35 20 for 137.1+137.6 doublet from isomer-gated ce spectrum.
137.6 3	1.00 5	1673.49	17/2$^+$	1535.73	15/2$^+$	M1	DCO=0.77 8 expα(L+M+...)=1.35 20 for 137.1+137.6 doublet from isomer-gated ce spectrum.
143.0 3	3.4 2	2336.9	21/2$^-$	2193.75	19/2$^-$	M1	DCO=0.95 5
^{x}146.0[‡] 6	0.41 4						
146.8 3	3.1 1	2483.9	23/2$^-$	2336.9	21/2$^-$	D	DCO=0.83 4

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^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

γ(^{193}Bi) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. &	Comments
149.8 *3*	1.11 *6*	2278.6	25/2+	2128.8	21/2+	E2	DCO=1.32 *17*
153.6 *3*	2.9 *1*	3117.1	33/2+	2963.5	31/2+	D	DCO=0.78 *4*
155.2 *3*	0.70 *5*	619.60	11/2−	464.66	9/2−		
158.5 *4*	0.25 *4*	3117.1	33/2+	2958.7	31/2+		
159.3 *3*	0.56 *4*	1673.49	17/2+	1514.34	17/2+	D	DCO=1.08 *15*
164.5 *3*	0.53 *3*	2756.0	27/2+	2591.5	25/2+		
168.3 *3*	0.8§ *6*	294.9+x	(19/2+)	126.6+x	(15/2+)		I_γ: 1.5 *3* in α-tagged spectrum.
185.5 *3*	3.6 *2*	2669.4	25/2−	2483.9	23/2−	D	DCO=0.71 *6*
186.3 *3*	2.4 *1*	464.66	9/2−	278.44	7/2−	D	DCO=0.52 *14*
188.3 *3*	1.01 *8*	1117.06	13/2+	928.93	15/2+		
190.1 *3*	0.43 *3*	1203.5	(9/2+)	1013.3	(7/2+)		
198.2 *3*	2.9 *2*	817.73	13/2−	619.60	11/2−	D	DCO=0.73 *7*
200.2 *3*	5.0 *2*	505.1	3/2+	305	1/2+	D	DCO=0.78 *7*
203.9 *3*	4.0 *2*	3321.0	35/2+	3117.1	33/2+	M1	DCO=0.63 *3* POL=−0.13 *1*.
204.4 *3*	1.05 *5*	4213.2	(37/2−)	4008.8	35/2−	D	DCO=0.67 *4*
206.3 *3*	1.26 *6*	2928.0	(29/2−)	2721.7	27/2−		
209.5 *3*	1.2§ *3*	504.4+x	(23/2+)	294.9+x	(19/2+)		I_γ: 2.0 *2* in α-tagged spectrum.
212.3 *4*	0.38 *4*	2432.9	23/2+	2220.6	23/2+		
212.7 *3*	0.51 *4*	4008.8	35/2−	3796.0	33/2−	D	DCO=0.76 *5*
220.4 *3*	4.7 *2*	2756.0	27/2+	2535.8	25/2+	M1	DCO=0.73 *2* POL=−0.073 *4*.
229.3 *3*	1.62 *8*	734.2	5/2+	505.1	3/2+	M1	DCO=0.94 *11* POL=−0.05 *3*.
229.4 *4*	0.14 *3*	4574.5		4345.1	37/2−		
231.9 *5*	0.12 *3*	4240.7	(37/2−)	4008.8	35/2−		
232.1 *4*	0.14 *3*	2090.41	17/2−	1859.1	15/2−		
239.8 *3*	3.0 *1*	3560.9	37/2+	3321.0	35/2+	M1	DCO=0.60 *3* POL=−0.016 *13*.
242.9 *4*	0.55 *4*	2193.75	19/2−	1950.09	19/2+		
245.2 *3*	4.2 *2*	1414.64	17/2−	1169.67	15/2−	M1	DCO=0.67 *5* POL=−0.12 *2*.
250.9 *3*	2.0§ *4*	755.3+x	(27/2+)	504.4+x	(23/2+)		I_γ: 1.9 *4* in α-tagged spectrum.
252.5 *3*	4.3 *2*	2921.9	27/2−	2669.4	25/2−	M1	DCO=0.61 *6* POL=−0.008 *1*.
253.1 *3*	0.88 *6*	915.30	11/2−	662.08	9/2−	M1	POL=−0.14 *2*.
255.1 *3*	1.83 *8*	2048.7	21/2−	1794.03	19/2−	D	DCO=0.66 *10*
261.3 *3*	0.76 *5*	3709.9	(37/2−)	3448.6	(35/2−)	D	DCO=0.81 *14*
263.1 *3*	0.62 *4*	4059.1	(35/2−)	3796.0	33/2−	D	DCO=0.67 *5*
268.9 *3*	0.53 *3*	2986.9	29/2+	2718.0	27/2+	M1	DCO=0.38 *6* POL=−0.048 *6*.
271.9 *6*	0.09 *3*	4544.1		4272.2	(37/2+)		
276.0 *3*	0.87 *6*	2708.9	(25/2+)	2432.9	23/2+		
276.5 *3*	2.29 *9*	3837.4	39/2+	3560.9	37/2+	M1	DCO=0.76 *3* POL=−0.06 *1*.
278.1 *4*	0.50 *5*	2996.1	29/2+	2718.0	27/2+	M1	DCO=0.51 *6* POL=−0.23 *3*.
278.5 *3*	10.3 *4*	278.44	7/2−	0.0	9/2−	D	DCO=0.9 *1*
278.6 *4*	4.1 *2*	3200.4	29/2−	2921.9	27/2−	M1	DCO=0.92 *8* POL=−0.053 *4*.
278.9 *8*	0.18 *7*	1013.3	(7/2+)	734.2	5/2+		
284.0 *3*	0.59 *5*	2193.75	19/2−	1910.06	17/2−		
^{x}289.0 *6*	0.9 *3*						Seen in prompt coincidence with transitions in band #1 in Figure 2 of 2015He27.

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^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

γ(^{193}Bi) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.&	Comments
289.5 *3*	1.65 *8*	3448.6	(35/2⁻)	3159.2	(33/2⁻)	M1	DCO=0.93 *9* POL=−0.033 *5*.
291.7 *3*	1.8§ *3*	1047.0+x	(31/2⁺)	755.3+x	(27/2⁺)		I_γ: 1.8 *4* in α-tagged spectrum.
294.4 *3*	0.59 *4*	4586.7		4292.3			
295.1 *6*	0.19 *5*	2723.4	25/2⁻	2428.3	23/2⁻		
295.7 *3*	2.4 *1*	3496.3	31/2⁻	3200.4	29/2⁻	M1	DCO=0.57 *5* POL=−0.096 *6*.
298.8 *4*	3.2 *2*	3796.0	33/2⁻	3496.3	31/2⁻	M1	DCO=0.60 *5* POL=−0.093 *6*.
299.2 *3*	25.8 *8*	1228.13	17/2⁺	928.93	15/2⁺	M1	DCO=0.68 *2* POL=−0.032 *1*.
299.4 *5*	0.4 *1*	1117.06	13/2⁺	817.73	13/2⁻		
299.8 *3*	1.70 *9*	4137.3	41/2⁺	3837.4	39/2⁺	D	DCO=0.6 *1*
307.4 *3*	2.7 *1*	2356.3	25/2⁻	2048.7	21/2⁻	E2	DCO=1.28 *13* Mult.: From EKC/(ELC+EMC+..)=1.37 *12* from γ(ce) coin data. Theory: For E2 $\alpha_K/(\alpha_L+\alpha_M+..)$=1.26. POL=−0.002 *1*. Note: negative POL is inconsistent with E2.
313.3 *3*	1.15 *7*	1562.41	15/2⁻	1249.06	13/2⁻	M1	DCO=0.61 *8* POL=−0.049 *9*.
315.2 *3*	6.3 *2*	2535.8	25/2⁺	2220.6	23/2⁺	D	DCO=0.79 *4*
318.8 *3*	0.63 *5*	4028.7	(39/2⁻)	3709.9	(37/2⁻)		
319.8 *3*	12.5 *4*	1875.1	21/2⁺	1555.30	19/2⁺	M1	DCO=0.60 *2* POL=−0.039 *2*.
323.4 *3*	100.0 *57*	928.93	15/2⁺	605.53	13/2⁺	M1	DCO=0.74 *4* POL=−0.012 *1*.
323.6 *4*	0.55 *6*	4898.1		4574.5			
327.4 *3*	19.6 *6*	1555.30	19/2⁺	1228.13	17/2⁺	M1	DCO=0.68 *2* POL=−0.004 *1*.
328.2 *4*	0.45 *7*	2090.41	17/2⁻	1762.3	(15/2⁻)		
330.3 *4*	0.41 *4*	4467.7	43/2⁺	4137.3	41/2⁺	D	DCO=0.82 *16*
331.7 *3*	2.3§ *3*	1378.7+x	(35/2⁺)	1047.0+x	(31/2⁺)		I_γ: 1.6 *4* in α-tagged spectrum.
333.7 *3*	2.2 *1*	1249.06	13/2⁻	915.30	11/2⁻	D	DCO=0.66 *10*
334.7# *4*	0.28 *4*	2921.9	27/2⁻	2587.2	25/2⁻		
341.1 *4*	0.54 *7*	619.60	11/2⁻	278.44	7/2⁻		
345.4 *3*	1.1 *1*	3304.2	33/2⁺	2958.7	31/2⁺	D	DCO=0.66 *9*
345.7 *3*	8.6 *3*	2220.6	23/2⁺	1875.1	21/2⁺	M1	DCO=0.68 *2* POL=−0.059 *6*.
347.6 *4*	0.45 *6*	1910.06	17/2⁻	1562.41	15/2⁻		
351.1 *3*	0.22 *6*	1520.95	13/2⁻	1169.67	15/2⁻	D	DCO=0.99 *9*
352.1 *3*	15.4 *5*	1169.67	15/2⁻	817.73	13/2⁻	M1	DCO=0.72 *6* POL=−0.036 *4*.
352.3 *3*	1.33 *10*	1609.9	(15/2⁻)	1257.88	(11/2⁻)		DCO=0.73 *16* POL=−0.023 *7*. Mult.: M1 listed in Table I of 2015He27 is consistent with DCO and POL, but inconsistent with (15/2⁻) to (11/2⁻) placement in Figure 2, which implies (E2). First author later opined no multipolarity assignment for this transition (private communication by e-mail between first author and X̂UNDL compiler).
352.4 *4*	0.53 *6*	2090.41	17/2⁻	1736.96	17/2⁻		
353.1 *4*	0.77 *6*	817.73	13/2⁻	464.66	9/2⁻		

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^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

γ(^{193}Bi) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	Comments
355.3 *3*	3.2 *1*	3159.2	(33/2⁻)	2804.1	(31/2⁻)	M1	DCO=0.80 *7* POL=−0.06 *2*.
356.4 *6*	0.11 *3*	1321.0		964.6			
356.7 *4*	0.25 *3*	4824.4	45/2⁺	4467.7	43/2⁺	D	DCO=0.7 *2*
357.0 *4*	0.56 *5*	2893.0	(25/2⁺)	2535.8	25/2⁺	(M1)	DCO=0.82 *7* POL=−0.178 *14*.
363.4 *4*	0.95 *9*	641.8	7/2⁻	278.44	7/2⁻	D	DCO=1.16 *11*
365.1 *4*	0.42 *4*	2721.7	27/2⁻	2356.3	25/2⁻	D	DCO=0.86 *16*
371.0 *3*	0.81 *5*	2591.5	25/2⁺	2220.6	23/2⁺		
371.7 *4*	0.67 *7*	2321.7	(21/2⁺)	1950.09	19/2⁺	M1	DCO=0.61 *9*
372.2 *3*	1.7[§] *2*	1750.9+x	(39/2⁺)	1378.7+x	(35/2⁺)		I_γ: 1.1 *3* in α-tagged spectrum.
375.4 *3*	1.89 *9*	2432.9	23/2⁺	2057.6	21/2⁺	D	DCO=0.84 *12*
379.4 *3*	8.4 *3*	1794.03	19/2⁻	1414.64	17/2⁻	M1	DCO=0.64 *4* POL=−0.050 *1*.
381.0 *4*	1.3 *1*	2509.8	23/2⁺	2128.8	21/2⁺	M1	DCO=0.98 *12* POL=−0.27 *4*.
383.8 *3*	4.3 *2*	662.08	9/2⁻	278.44	7/2⁻	D	DCO=0.91 *5*
386.4 *4*	0.20 *3*	3669.3	(37/2⁻)	3282.9	(33/2⁻)	Q	DCO=1.32 *24*
386.5 *5*	0.18 *4*	4272.2	(37/2⁺)	3886.2	35/2⁺		
388.2[#] *6*	0.12 *3*	3220.5		2832.3	29/2⁻		
390.5 *4*	1.04 *9*	3349.2	33/2⁺	2958.7	31/2⁺	D	DCO=0.92 *14*
393.4 *3*	2.7 *1*	1651.5	(15/2⁻)	1257.88	(11/2⁻)	Q	DCO=1.26 *16* POL=−0.076 *11*. Mult.: DCO and POL for 394.0+393.4 doublet. γ ray placement from (15/2⁻) to (11/2⁻) implies (E2), however, negative POL value not consistent with (E2). E_γ: Ordering of the 394.0 − 393.4 γ cascade is not established.
394.0 *3*	0.83 *5*	2045.8	(19/2⁻)	1651.5	(15/2⁻)	Q	DCO=1.26 *16* POL=−0.076 *11*. Mult.: DCO and POL for 394.0+393.4 doublet. γ ray placement from (19/2⁻) to (15/2⁻) implies (E2), however, negative POL value is inconsistent with (E2). E_γ: ordering of the 394.0 − 393.4 γ cascade is not established.
398.8 *3*	5.5 *2*	2804.1	(31/2⁻)	2405.1	(29/2⁻)	M1	DCO=0.61 *6* POL=−0.016 *5*.
411.8 *3*	1.3[§] *2*	2162.7+x	(43/2⁺)	1750.9+x	(39/2⁺)		I_γ: 0.8 *2* in α-tagged spectrum.
414.3 *3*	2.03 *9*	2462.9	23/2⁻	2048.7	21/2⁻	M1	DCO=0.43 *6* POL=(−0.12 *2*).
429.0 *4*	1.3 *2*	734.2	5/2⁺	305	1/2⁺		
433.0 *3*	1.90 *9*	1636.5	(13/2⁺)	1203.5	(9/2⁺)		
435.6 *3*	1.01 *7*	2483.9	23/2⁻	2048.7	21/2⁻	D	DCO=0.89 *16*
435.7 *3*	4.1 *2*	1950.09	19/2⁺	1514.34	17/2⁺	M1	DCO=0.58 *6* POL=−0.005 *1*.
436.2 *3*	7.7 *3*	2109.65	19/2⁺	1673.49	17/2⁺	M1	DCO=0.7 *1* α(K)exp=0.133 *19* POL=−0.11 *2*. α(K)exp: from ce spectrum.
436.3 *4*	0.27 *4*	2045.8	(19/2⁻)	1609.9	(15/2⁻)	Q	DCO=1.5 *5*
438.1 *5*	0.29 *6*	2921.9	27/2⁻	2483.9	23/2⁻		
443.8 *5*	0.56 *6*	3560.9	37/2⁺	3117.1	33/2⁺		

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^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

γ(^{193}Bi) (continued)

Eγ†	Iγ†	Ei(level)	Jiπ	Ef	Jfπ	Mult.&	Comments
x444.0‡ 6	0.45 3						
445.4 4	1.06 8	1673.49	17/2+	1228.13	17/2+		
446.8 3	2.6 2	1066.35	13/2−	619.60	11/2−	M1	DCO=0.85 11 POL=−0.09 1.
450.4 4	1.3§ 2	2613.1+x	(47/2+)	2162.7+x	(43/2+)		Iγ: 0.4 1 in α-tagged spectrum.
450.6 3	1.25 8	915.30	11/2−	464.66	9/2−	M1	POL=−0.035 4.
452.2 3	1.49 7	2718.0	27/2+	2265.8	25/2+	D	DCO=0.8 1
454.9 4	0.19 4	4292.3		3837.4	39/2+		
455.1# 6	0.14 6	1520.95	13/2−	1066.35	13/2−		
455.4 3	6.1 3	2128.8	21/2+	1673.49	17/2+	E2	DCO=0.98 20 α(K)exp=0.032 6 POL=+0.119 14. α(K)exp: from ce spectrum.
459.2 4	0.77 7	2253.6		1794.03	19/2−		
459.5 4	0.52 5	964.6		505.1	3/2+		
465.2 7	0.4 1	464.66	9/2−	0.0	9/2−	D	
466.2 4	0.19 3	3749.1		3282.9	(33/2−)		
469.3 3	1.46 8	1203.5	(9/2+)	734.2	5/2+		
469.5 3	1.6 1	1535.73	15/2+	1066.35	13/2−	D	DCO=0.80 16
476.0 3	1.05 5	2832.3	29/2−	2356.3	25/2−	Q	DCO=1.2 2
478.5 3	2.0 1	3282.9	(33/2−)	2804.1	(31/2−)	D	DCO=0.63 9
488.3 4	0.74 6	2708.9	(25/2+)	2220.6	23/2+	D+Q	DCO=0.44 5
489.2 4	0.9§ 2	3102.3+x	(51/2+)	2613.1+x	(47/2+)		Iγ: 0.4 1 in α-tagged spectrum.
497.5 4	1.3 1	1117.06	13/2+	619.60	11/2−	(E1)	DCO=0.85 12 POL=−0.053 9. Note: negative POL is inconsistent with E1. Presence of a strong contaminant is a possible reason for the discrepancy (private communication by e-mail between first author and X̂UNDL compiler – dated November 26, 2015).
501.5 3	0.97 5	2547.3	(21/2−)	2045.8	(19/2−)	M1	DCO=0.9 1 POL=−0.053 8.
502.5 3	4.1 2	2057.6	21/2+	1555.30	19/2+	D	DCO=0.62 5
503.1 4	0.44 6	2139.6	(17/2+)	1636.5	(13/2+)		
504.0 3	3.8 2	1673.49	17/2+	1169.67	15/2−	E1	DCO=0.80 6 POL=+0.15 1.
504.1 4	0.58 8	1517.4	(11/2+)	1013.3	(7/2+)		
508.2 3	3.5 2	1013.3	(7/2+)	505.1	3/2+	Q	DCO=0.95 12
511.3 3	7.6 7	1117.06	13/2+	605.53	13/2+	M1+E2	DCO=0.93 8 POL=−0.16 2.
512.3 3	2.5 2	3816.5	35/2−	3304.2	33/2+	E1	DCO=0.73 12 POL=+0.080 14.
512.7 3	0.84 5	4008.8	35/2−	3496.3	31/2−		
516.4 4	0.63 8	3837.4	39/2+	3321.0	35/2+	Q	DCO=1.6 5
527.8 3	1.4§ 2	3630.1+x	(55/2+)	3102.3+x	(51/2+)		Iγ: 0.3 1 in α-tagged spectrum.
528.2 4	0.48 5	2090.41	17/2−	1562.41	15/2−	D	DCO=0.74 10
528.6 3	0.86 6	4345.1	37/2−	3816.5	35/2−	D	DCO<1
530.9 4	0.75 6	3200.4	29/2−	2669.4	25/2−	Q	DCO=2.1 3
534.3 4	0.55 9	2048.6	(21/2+)	1514.34	17/2+	Q	DCO=1.10 8
535.0 6	0.15 5	3638.6		3103.6			
535.2 3	1.78 8	2756.0	27/2+	2220.6	23/2+	Q	DCO=1.4 2
538.4 3	2.9 2	2587.2	25/2−	2048.7	21/2−	E2	DCO=1.40 17 POL=+0.07 1.
542.2 4	0.32 6	2762.8	25/2+	2220.6	23/2+	D	DCO=0.74 9

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$^{165}Ho(^{32}S,4n\gamma)$ 2015He27 (continued)

$\gamma(^{193}Bi)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [&]	Comments
543.2 3	1.50 9	2057.6	21/2+	1514.34	17/2+	Q	DCO=1.28 13
550.0 3	17.3 6	1169.67	15/2−	619.60	11/2−	E2	DCO=1.27 10 POL=+0.06 2.
550.6 4	0.49 7	3709.9	(37/2−)	3159.2	(33/2−)	Q	DCO=1.5 2
556.4 3	5.0 2	1673.49	17/2+	1117.06	13/2+	Q	DCO=1.37 9
557.5 4	0.71 7	2432.9	23/2+	1875.1	21/2+		
566.0[#] 4	1.1[§] 2	4196.1+x?	(59/2+)	3630.1+x	(55/2+)		I_γ: 0.2 1 in α-tagged spectrum.
567.0 3	2.3 2	1736.96	17/2−	1169.67	15/2−	M1	DCO=0.83 8 POL=−0.155 14.
567.5[#] 3	0.84 5	3563.1	(31/2+)	2996.1	29/2+		
569.4 3	3.1 2	2090.41	17/2−	1520.95	13/2−	Q	DCO=1.32 12
571.1 4	0.44 4	3118.4	(23/2−)	2547.3	(21/2−)	D	DCO=0.6 1
574.3 3	1.09 7	3496.3	31/2−	2921.9	27/2−	E2	DCO=2.2 3 POL=+0.105 14.
576.2 4	0.61 5	3563.1	(31/2+)	2986.9	29/2+	D	DCO=0.85 19
576.6 7	0.6 1	4137.3	41/2+	3560.9	37/2+		DCO=0.85 25 Mult.: DCO ratio indicates dipole transition, placement (41/2+ to 37/2+) indicates quadrupole transition.
580.2 4	0.33 5	4028.7	(39/2−)	3448.6	(35/2−)		
582.1 4	0.96 9	3886.2	35/2+	3304.2	33/2+	D	DCO=0.9 2
585.3 3	8.6 3	1514.34	17/2+	928.93	15/2+	M1	DCO=0.66 3 POL=−0.04 1.
587.0 3	1.9 1	1249.06	13/2−	662.08	9/2−		
595.9 3	2.1 1	3796.0	33/2−	3200.4	29/2−		
597.0 3	26.0 9	1414.64	17/2−	817.73	13/2−	E2	DCO=1.05 10 POL=+0.016 1.
604.5[#] 3	2.0[§] 3	4800.6+x?	(63/2+)	4196.1+x?	(59/2+)		I_γ: 0.2 1 in α-tagged spectrum.
604.7 3		605.53	13/2+	0.0	9/2−		
605.2 4	1.2 1	1520.95	13/2−	915.30	11/2−	D	DCO=0.95 13
606.5 4	0.8 1	3910.7		3304.2	33/2+		
609.1 3	3.9 2	2958.7	31/2+	2349.6	29/2+	M1	DCO=0.88 13 POL=−0.017 4.
614.0 3	4.6 3	2963.5	31/2+	2349.6	29/2+	M1	DCO=0.7 1 POL=−0.07 2.
619.7 3	35.8 29	619.60	11/2−	0.0	9/2−	M1	DCO=0.85 9 POL=−0.059 6.
619.9[@] 4	1.1[@] 2	2710.3		2090.41	17/2−		
619.9[@] 4	0.58[@] 9	3969.1	37/2+	3349.2	33/2+	E2	DCO=1.18 12 POL=+0.13 2.
622.4 3	12.1 5	1228.13	17/2+	605.53	13/2+	E2	DCO=1.30 16 POL=+0.086 10.
624.3 3	13.6 5	1794.03	19/2−	1169.67	15/2−	E2	DCO=1.20 5 POL=+0.024 2.
626.2 3	10.2 4	1555.30	19/2+	928.93	15/2+	E2	DCO=1.48 6 POL=+0.094 9.
627.5 5	0.07 6	3976.7		3349.2	33/2+		
630.4 5	0.19 3	4467.7	43/2+	3837.4	39/2+		
631.4 3	1.33 8	2193.75	19/2−	1562.41	15/2−		
634.1 3	14.8 5	2048.7	21/2−	1414.64	17/2−	E2	DCO=1.57 9 POL=+0.07 1.
634.3 3	3.4 2	2428.3	23/2−	1794.03	19/2−	Q	DCO=1.35 7
636.7 3	2.2 2	915.30	11/2−	278.44	7/2−	Q	DCO=1.15 7

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^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

γ(^{193}Bi) (continued)

$E_γ$†	$I_γ$†	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.&	Comments
638.1 *4*	0.31 *5*	1257.88	(11/2⁻)	619.60	11/2⁻		
644.1 *5*	0.30 *7*	3448.6	(35/2⁻)	2804.1	(31/2⁻)		
646.9 *3*	10.8 *4*	1875.1	21/2⁺	1228.13	17/2⁺	E2	DCO=1.47 *6* POL=+0.091 *4*.
647.3 *3*	4.3 *2*	1562.41	15/2⁻	915.30	11/2⁻	Q	DCO=1.53 *16*
651.5 *5*	0.33 *7*	2708.9	(25/2⁺)	2057.6	21/2⁺		
654.1 *4*	0.45 *7*	2448.1		1794.03	19/2⁻		
660.7 *3*	7.4 *3*	2535.8	25/2⁺	1875.1	21/2⁺	E2	DCO=1.15 *14* POL=+0.060 *3*.
661.1 *4*	1.02 *9*	1910.06	17/2⁻	1249.06	13/2⁻		
661.3 *5*	0.22 *5*	4284.0		3622.7			
661.6 *4*	1.9 *3*	662.08	9/2⁻	0.0	9/2⁻	D+Q	DCO=0.60 *11*
664.0 *3*	1.6 *1*	3622.7		2958.7	31/2⁺		
665.2 *3*	8.0 *3*	2220.6	23/2⁺	1555.30	19/2⁺	E2	DCO=1.2 *1* POL=+0.072 *7*.
668.9 *3*	5.0 *2*	2462.9	23/2⁻	1794.03	19/2⁻	E2	DCO=1.48 *12* POL=+0.103 *11*.
670.3 *3*	2.5 *2*	1736.96	17/2⁻	1066.35	13/2⁻	Q	DCO=1.85 *22*
672.5 *3*	1.39 *8*	2893.0	(25/2⁺)	2220.6	23/2⁺	D	DCO=0.86 *6* POL=+0.010 *1*. Mult.: Placement (25/2⁺) to 23/2⁺ implies (M1), positive POL value is inconsistent with (M1).
674.6 *3*	2.3 *1*	2723.4	25/2⁻	2048.7	21/2⁻	Q	DCO=1.6 *3*
677.2 *8*	0.07 *3*	4961.2		4284.0			
677.9 *5*	1.00 *8*	2240.3	19/2⁻	1562.41	15/2⁻	E2	DCO=1.41 *23*
679.2 *3*	2.4 *1*	2193.75	19/2⁻	1514.34	17/2⁺	E1	DCO=0.8 *2* POL=+0.15 *2*.
689.6 *3*	1.42 *7*	2483.9	23/2⁻	1794.03	19/2⁻	Q	DCO=1.45 *30*
695.1 *3*	1.31 *9*	2109.65	19/2⁺	1414.64	17/2⁻	D	DCO=1.47 *21*
716.3 *3*	2.7 *1*	2591.5	25/2⁺	1875.1	21/2⁺	E2	DCO=1.33 *8* POL=+0.12 *1*.
717.9 *3*	4.0 *2*	1535.73	15/2⁺	817.73	13/2⁻	E1	DCO=1.02 *20* POL=+0.10 *1*.
718.4# *7*	0.09 *3*	5679.6		4961.2			
721.1# *4*	0.79 *6*	2986.9	29/2⁺	2265.8	25/2⁺	(E2)	27/2⁻ to 23/2⁻ transition shown in Table I of 2015He27 should be 29/2⁺ to 25/2⁺ as given in level-scheme Figure 2. Confirmed by first author through private communication (e-mail).
721.6 *3*	2.1 *1*	1950.09	19/2⁺	1228.13	17/2⁺	D	DCO=0.63 *6*
725.5# *9*	0.10 *6*	4029.7		3304.2	33/2⁺		
726.0 *4*	0.79 *6*	2774.8		2048.7	21/2⁻		
731.4 *3*	1.54 *9*	2525.4	23/2⁻	1794.03	19/2⁻	E2	DCO=1.33 *23* POL=+0.08 *1*.
736.1 *3*	1.28 *7*	2956.7	25/2⁽⁺⁾	2220.6	23/2⁺	(D)	DCO=0.74 *9*
744.7 *4*	1.15 *9*	1673.49	17/2⁺	928.93	15/2⁺	D	DCO=0.79 *14*
753.9 *4*	1.27 *14*	3159.2	(33/2⁻)	2405.1	(29/2⁻)		
754.0 *6*	1.62 *8*	3103.6		2349.6	29/2⁺		
784.0 *3*	1.42 *8*	2578.0	23/2⁻	1794.03	19/2⁻	Q	DCO=1.25 *14*
784.5 *4*	0.88 *7*	1249.06	13/2⁻	464.66	9/2⁻	Q	DCO=1.81 *22*
793.1 *3*	0.62 *7*	1257.88	(11/2⁻)	464.66	9/2⁻	D+Q	DCO=0.44 *5*
793.5 *4*	0.9 *1*	1859.1	15/2⁻	1066.35	13/2⁻	D	DCO=0.64 *10*
807.3 *4*	1.01 *9*	2321.7	(21/2⁺)	1514.34	17/2⁺	(E2)	DCO=0.83 *19*
817.9 *3*	37.7 *18*	817.73	13/2⁻	0.0	9/2⁻	E2	DCO=1.22 *4* POL=+0.039 *3*.

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^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

γ(^{193}Bi) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	Comments
839.2 *3*	2.96 *14*	2253.6		1414.64	17/2⁻		Mult.: Assigned as E2 in 2015He27; First author later stated that there is insufficient information to determine multipolarity (private communication between first author and XUNDL compiler, dated November 26, 2015).
844.0 *3*	1.7 *2*	1910.06	17/2⁻	1066.35	13/2⁻		
862.4 *3*	1.63 *8*	2090.41	17/2⁻	1228.13	17/2⁺	E1	DCO=0.92 *8* POL=+0.040 *5*.
879.0 *6*	0.58 *8*	3282.9	(33/2⁻)	2405.1	(29/2⁻)		
881.3 *4*	1.3 *1*	2109.65	19/2⁺	1228.13	17/2⁺	D	DCO=0.79 *13*
887.7 *3*	1.08 *7*	2762.8	25/2⁺	1875.1	21/2⁺	Q	DCO=1.9 *4*
901.7 *3*	3.3 *2*	1520.95	13/2⁻	619.60	11/2⁻	M1+E2	DCO=0.7 *1* POL=+0.127 *14*.
908.7 *3*	7.4 *4*	1514.34	17/2⁺	605.53	13/2⁺	E2	DCO=1.30 *12* POL=+0.056 *12*.
913.4 *4*	0.57 *9*	1979.8		1066.35	13/2⁻		
915.5 *3*	6.1 *4*	915.30	11/2⁻	0.0	9/2⁻	M1+E2	DCO=0.45 *8* POL=+0.012 *2*.
920.9 *3*	3.3 *2*	2090.41	17/2⁻	1169.67	15/2⁻	M1	DCO=0.77 *8* POL=−0.12 *3*.
927.9 *5*	0.19 *4*	3886.2	35/2⁺	2958.7	31/2⁺		
929.6 *3*	2.2 *2*	1858.5	(17/2⁺)	928.93	15/2⁺	(M1+E2)	DCO=0.48 *7* POL=+0.13 *2*.
930.0 *3*	5.8 *4*	1535.73	15/2⁺	605.53	13/2⁺	M1	DCO=0.89 *9* POL=−0.18 *2*.
954.7 *3*	4.4 *6*	3304.2	33/2⁺	2349.6	29/2⁺	E2	DCO=1.31 *18* POL=+0.060 *3*.
967.7 *4*	0.28 *4*	4272.2	(37/2⁺)	3304.2	33/2⁺		
1021.2 *3*	1.9 *1*	1950.09	19/2⁺	928.93	15/2⁺		
1023.6 *4*	0.95 *6*	2090.41	17/2⁻	1066.35	13/2⁻		
1066.6 *3*	10.4 *10*	1066.35	13/2⁻	0.0	9/2⁻	Q	DCO=1.37 *20*
1067.8 *3*	4.3 *3*	1673.49	17/2⁺	605.53	13/2⁺	E2	DCO=1.08 *15* POL=+0.07 *3*.
1156.8 *4*	0.5 *2*	1762.3	(15/2⁻)	605.53	13/2⁺		
1258.1 *3*	1.9 *2*	1257.88	(11/2⁻)	0.0	9/2⁻	D	DCO=0.82 *11*
1272.8 *3*	1.53 *8*	2090.41	17/2⁻	817.73	13/2⁻	Q	DCO=1.28 *24*
[x]1836 *5*	0.9[§] *2*						E_γ: γ seen in coincidence with 168.3- and 331.7-keV transitions in the SD band. I_γ: from α-tagged γ spectrum.

[†] From 2015He27. γ-ray energies of 2015He27 are more precise compared with the data in 2004Ni06 and within statistical agreement. Unplaced γ rays in 2004Ni06, 355.3 *7*, 432 *1*, 458.5 *7*, 468.8 *7*, seem to have been placed in the level scheme by 2015He27. Statistical uncertainty of 0.3 keV added in quadrature by evaluator. Fitting uncertainty is listed by 2015He27 as 0.1 keV for most $E\gamma$ values, and 0.2-0.7 keV for others.

[‡] The γ seen in delayed coincidence with transitions in Band #2 in Figure 2 of 2015He27, and the 307-keV transition.

[§] Relative intensity within the SD band. Values are from recoil-gated $\gamma\gamma\gamma$ spectrum, unless otherwise stated. Corresponding values from α-tagged γ spectrum are given in comments.

[&] Assigned by the evaluator based on angular distribution and linear polarization data of 2015He27. DCO ratios are angular distribution ratios R_{exp} deduced from two γ-γ matrices obtained from recoil-gated prompt coincidence events, one with events at 157.6° versus all angles and the other with events at 75.5° versus all angles. In this arrangement, expected values are 1.3 for stretched quadrupoles and 0.8 for stretched dipoles Linear polarization values listed as POL are integrated polarization-directional correlations from oriented nuclei (IPDCO). Expected values of POL are ≈+0.1 for electric and ≈−0.1 for magnetic transitions.

[@] Multiply placed with intensity suitably divided.

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^{165}Ho(^{32}S,4nγ) 2015He27 (continued)

γ(^{193}Bi) (continued)

Placement of transition in the level scheme is uncertain.
^{x} γ ray not placed in level scheme.

Adopted Levels, Gammas

Q(β^-)=−8258 *26*; S(n)=8326 *18*; S(p)=2080 *30*; Q(α)=7094 *4* 2017Wa10

2013Se03, 2014Se07: beam of ^{193}Po produced at the CERN ISOLDE facility by impinging 1.4 GeV protons on a 50 g/cm^2 thick, UC$_x$ target. Reaction products diffused out and transferred to the RILIS. Deduced nuclear charge radius from the measured isotope shifts; magnetic dipole and electric quadrupole moments from measured hyperfine structure. Systematic uncertainties in $\delta\langle r^2\rangle$ arising from electronic factor and mass-shift calculations are not included. Their magnitude is similar to the quoted experimental uncertainty.

2015AnZZ: Measured ^{193}Po production cross section, 5 μ *1*, from ^{56}Fe+^{141}Pr fusion-evaporation reaction at E=50 MeV.

^{193}Po Levels

Identification: ^{185}Re(^{19}F,xn) excitation functions (1967Si09); ^{182}W(^{20}Ne,xn) excitation functions (1977De32); ^{nat}Ce(^{56}Fe,xn) and ^{141}Pr(^{56}Fe,p3n) excitation function (1981Le23).

The level scheme is from 1999He32.

Cross Reference (XREF) Flags

A	^{197}Rn α decay (55 ms)
B	^{197}Rn α decay (24 ms)
C	^{160}Dy(^{36}Ar,3nγ)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	XREF	Comments
0.0	(3/2$^-$)[#]	399 ms *34*	A	%$\alpha\leq$100 μ=−0.389 *37* (2014Se07) Q=−1.31 *30* (2014Se07) $\delta\nu$(^{193}Po,^{196}Po)=−0.59 GHz *15*; $\delta\langle r^2\rangle$(^{193}Po,^{210}Po)=−0.576 fm^2 *13* (2013Se03). The uncertainties are statistical only. $\langle\beta_2^2\rangle^{1/2}$=0.21 (2013Se03,2014Se07). μ,Q: hyperfine structure studies using in-source resonance ionization spectroscopy at CERN-ISOLDE facility (2014Se07). Total (statistical and systematic) uncertainties are given. %α: Only α decay observed. T$_{1/2}$: weighted average of 450 ms *150* (1977De32), 360 ms *50* (1981Le23), 450 ms *40* (1993Wa04), 180 ms *+150−60* (1995Mo14), 290 ms *+110−60* (1996En02).
100[@] *6*	(13/2$^+$)[#]	245 ms *11*	BC	%$\alpha\leq$100 μ=−0.742 *65* (2014Se07) Q=+1.08 *50* (2014Se07) $\delta\nu$(^{193}Po,^{196}Po)=−1.11 GHz *15*; $\delta\langle r^2\rangle$(^{193}Po,^{210}Po)=−0.532 fm^2 *13* (2013Se03) The uncertainties are statistical only. $\langle\beta_2^2\rangle^{1/2}$=0.22 (2013Se03,2014Se07). E(level): From NUBASE2016 − (2017Au03). Other: 95 keV *7* in 2013Sa43. J$^\pi$: spin consistent with optical hyperfine spectrum shown in Fig. 6 of 2014Se07. μ,Q: hyperfine structure studies using in-source resonance ionization spectroscopy at CERN-ISOLDE facility (2014Se07). Total (statistical and systematic) uncertainties are given. %α: Only α decay observed. T$_{1/2}$: weighted average of 420 ms *100* (1977De32), 260 ms *20* (1981Le23), 240 ms *10* (1993Wa04), 150 ms *+110−40* (1995Mo14), 370 ms *+160−90* (1996En02). Other: 70 ms *+330−30* (2005Uu02).
351.4[@] *5*	(17/2$^+$)		C	
375.0[&] *5*	(15/2$^+$)		C	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{193}Po Levels (continued)

E(level)†	Jπ‡	XREF
712.3@ *7*	(21/2+)	C
744.3& *8*	(19/2+)	C
1176.0@ *9*	(25/2+)	C
1229.7& *10*	(23/2+)	C

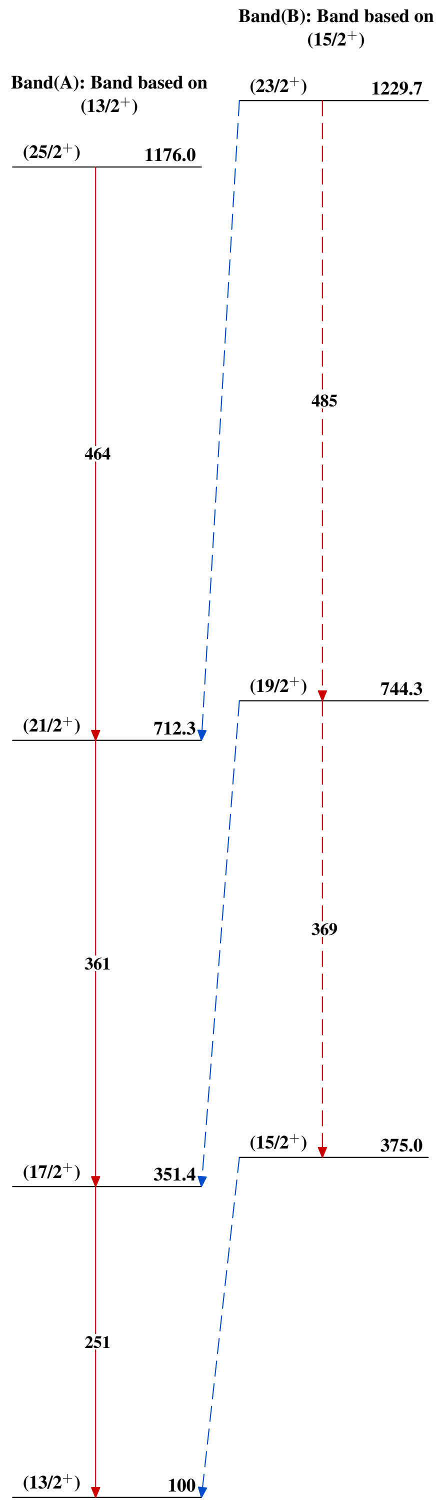
† Level energies from a least-squares fit to adopted γ-ray energies, keeping energy of (13/2+) level fixed at 100 keV.
‡ From ^{160}Dy(^{36}Ar,2nγ) unless otherwise noted. The assignments are based on band structures.
# From systematics and from shell model two isomers are expected in a N=109 nucleus: high spin $1i_{13/2}$, and low spin $3p_{3/2}$ (^{189}Hg).
@ Band(A): Band based on (13/2+).
& Band(B): Band based on (15/2+).

γ(^{193}Po)

E_i(level)	$J^π_i$	Eγ†	Iγ†	E_f	$J^π_f$
351.4	(17/2+)	251.4 *5*	100	100	(13/2+)
375.0	(15/2+)	274.9‡ *5*	100	100	(13/2+)
712.3	(21/2+)	360.9 *5*	100	351.4	(17/2+)
744.3	(19/2+)	369‡ *1*	100 *28*	375.0	(15/2+)
		393‡ *1*	83 *22*	351.4	(17/2+)
1176.0	(25/2+)	463.7 *5*	100	712.3	(21/2+)
1229.7	(23/2+)	485‡ *1*		744.3	(19/2+)
		518‡ *1*		712.3	(21/2+)

† From 1999He32.
‡ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas



$^{193}_{84}Po_{109}$

^{197}Rn α decay (55 ms) 2008An05,1995Mo14,1996En02

Parent: ^{197}Rn: E=0.0; J^{π}=(3/2^{-}); $T_{1/2}$=55 ms +*7*−*5*; Q(α)=7411 *7*; %α decay≤100
^{197}Rn-J^{π}: From ^{197}Rn Adopted Levels (2005Hu03).
^{197}Rn-$T_{1/2}$: Weighted average of 53 ms +*7*−*5* (maximum-likelihood method from α decay curve,2008An05); 65 ms +*25*−*14* (1996En02), 51 ms +*35*−*15* (1995Mo14). Uncertainty is the lowest input value.
Measured Eα (1995Mo14,1996En02), half-life (2008An05,1995Mo14,1996En02) of ^{197}Rn isotope.

^{193}Po Levels

E(level)	J^{π}	$T_{1/2}$	Comments
0.0	(3/2^{-})	388 ms *40*	E(level),J^{π},$T_{1/2}$: From Adopted Levels.

α radiations

Eα	E(level)	Iα‡	HF†	Comments
7260 *7*	0.0	100	1.8	Eα: From 1996En02. Other value: 7261 keV *30* (1995Mo14). HF: assumed 100% α decay.

† Deduced using r_0=1.568 *13*, from interpolation of radius=1.585 fm *16* for ^{192}Po and 1.551 fm *10* for ^{194}Po.
‡ Absolute intensity per 100 decays.

^{197}Rn α decay (24 ms) 1996En02,2005Uu02,1995Mo14

Parent: ^{197}Rn: E=199 *11*; J$^{\pi}$=(13/2^{+}); $T_{1/2}$=24 ms *+3−2*; Q(α)=7411 *7*; %α decay≤100

^{197}Rn-E: From NUBASE2016 (2017Au03). Others: 194 keV *12* in 2013Sa43, deduced from Eα values in ^{197}Rn -> ^{193}Po -> ^{189}Pb -> ^{185}Hg -> ^{181}Pt α-decay chain; 0+X in ^{197}Rn Adopted Levels (2005Hu03).

^{197}Rn-J$^{\pi}$: From ^{197}Rn Adopted Levels (2005Hu03).

^{197}Rn-$T_{1/2}$: Weighted average of 25 ms *+3−2* (maximum-likelihood method from α decay curve, 2008An05); 19 ms *+8−4* (1996En02), 18 ms *+9−5* (1995Mo14). Others: 30 ms *+150−15* (2005Uu02); 20 ms *+68−14* (1997Pu01).

Other: 2013Sa43, 2008An05, 1997Pu01.

Measured Eα (1996En02,2005Uu02,1995Mo14), half-life (1996En02,2005Uu02,1995Mo14,2008An05,1997Pu01) of ^{197}Rn isotope.

^{193}Po Levels

E(level)	J$^{\pi}$	$T_{1/2}$	Comments
100 *6*	(13/2^{+})	245 ms *11*	%α≤100 E(level),J$^{\pi}$,$T_{1/2}$: from Adopted Levels.

α radiations

Eα	E(level)	Iα‡	HF†	Comments
7356 *7*	100	100	1.6	Eα: From 1996En02. Other values: 7370 keV *30* (1995Mo14), 7358 keV *14* (2005Uu02). HF: assumed 100% α decay.

† Deduced using r_0=1.568 *13*, from interpolation of radius=1.585 fm *16* for ^{192}Po and 1.551 fm *10* for ^{194}Po.

‡ Absolute intensity per 100 decays.

^{160}Dy(^{36}Ar,3nγ) 1999He32,1997Fo06

Includes Er(^{32}S,xnγ) E=164 MeV from 1997Fo06.

1999He32: ^{160}Dy(^{36}Ar,3nγ) E=178 MeV; gas-filled recoil fragment separator (RITU); DORIS multi-detector array for γ-ray detection; position sensitive Si detector for recoil identification, α-ray detection, and α-γ correlation studies. Recoil-decay tagging and recoil gating methods. Measured Eγ, Iγ, α-tagged γ coincidence matrix, and $\gamma\gamma$ coincidences. Deduced levels and suggest Jπ values.

1997Fo06: Er(^{32}S,xnγ) E=164 MeV; recoil fragment mass separator; (recoil)γ and (recoil)$\gamma\gamma$. Measured Eγ. The 234 keV γ-ray reported in this work is not confirmed by 1999He32.

^{193}Po Levels

Level scheme built on the basis of γ-ray energies and intensities, and $\gamma\gamma$ coincidences from 1999He32. Energy of the (13/2$^+$) level was kept fixed. Band structure and tentative Jπ assignments proposed by 1999He32.

E(level)[†]	J^π	$T_{1/2}$	Comments
100[‡] *6*	(13/2$^+$)	245 ms *11*	%$\alpha\leq$100 E(level),J^π,$T_{1/2}$: From Adopted Levels.
351.3[‡] *5*	(17/2$^+$)		
375.0?[#] *5*	(15/2$^+$)		
712.1[‡] *7*	(21/2$^+$)		
744.3?[#] *8*	(19/2$^+$)		
1175.8[‡] *9*	(25/2$^+$)		
1229.7?[#] *10*	(23/2$^+$)		

† From a least-squares fit to γ-ray energies, (13/2$^+$) state at 100 keV *6* kept fixed.
‡ Band(A): Band based on (13/2$^+$). Intraband transitions identified from (13/2$^+$) α-decay tagged coincidences.
# Band(B): Band based on (15/2$^+$). Tentative arrangement based on energy sums.

γ(^{193}Po)

Two distinct γ-ray groups identified on the basis of prompt singles γ-ray spectra obtained by gating with α decays of the (3/2$^-$) and (13/2$^+$) ^{193}Po states, respectively.

E_γ[†]	I_γ[†&]	E_i(level)	J^π_i	E_f	J^π_f	Comments
^{x}206.7[‡] *5*	100[@] *20*					
251.4[§] *5*	100 *7*	351.3	(17/2$^+$)	100	(13/2$^+$)	Eγ=251 keV *1* (1997Fo06).
274.9[§#] *5*	21 *4*	375.0?	(15/2$^+$)	100	(13/2$^+$)	
^{x}349.1[‡] *5*	100[@] *40*					
360.9[§] *5*	59 *7*	712.1	(21/2$^+$)	351.3	(17/2$^+$)	
^{x}367[‡] *1*	50[@] *20*					
369[§#] *1*	18 *5*	744.3?	(19/2$^+$)	375.0?	(15/2$^+$)	Eγ=368 keV *1* (1997Fo06).
393[§#] *1*	15 *4*	744.3?	(19/2$^+$)	351.3	(17/2$^+$)	
463.7[§] *5*	22 *6*	1175.8	(25/2$^+$)	712.1	(21/2$^+$)	
485[§#] *1*	15 *5*	1229.7?	(23/2$^+$)	744.3?	(19/2$^+$)	1997Fo06 report a 486 keV γ ray placed from tentative levels 1105 to 619 in their level scheme, not confirmed by 1999He32.
518[§#] *1*		1229.7?	(23/2$^+$)	712.1	(21/2$^+$)	
^{x}549[§] *1*	12 *4*					
^{x}574[§] *1*	7 *3*					

Continued on next page (footnotes at end of table)

^{160}Dy(^{36}Ar,3nγ) 1999He32,1997Fo06 (continued)

γ(^{193}Po) (continued)

† From 1999He32.
‡ Placement above the (3/2$^-$) level on the basis of 3/2$^-$ α-decay tagged coincidences.
§ Placement above the (13/2$^+$) level on the basis of 13/2$^+$ α-decay tagged coincidences.
& Intensities normalized to 100 for the 251.4 keV γ ray, except where noted.
@ Intensities normalized to 100 for the 206.7 keV γ ray.
# Placement of transition in the level scheme is uncertain.
^{x} γ ray not placed in level scheme.

Adopted Levels

Q(β^-)=−9110 *30*; S(n)=11060 *40*; S(p)=−714 *24*; Q(α)=7572 *7* 2017Wa10
Identification: parent of ^{189}Bi; produced by heavy ion induced fusion (^{56}Fe+^{141}Pr, E=265 MeV) (1995Le15).

^{193}At Levels

Level properties from ^{193}At α decay (2003Ke08). Levels populated by the ^{141}Pr(^{56}Fe,^{4}nγ) reaction, at E(target)=264-272 MeV; recoil fragment mass separation; measurement using recoil-tagged α-α and α-γ coincidences, and considering α-decay links to levels in the daughter nuclides ^{189}Bi and ^{185}Tl.

E(level)†	J$^\pi$	T$_{1/2}$‡	Comments
0.0	(1/2$^+$)	28 ms +*5*−*4*	%α≈100 This level decays by an 7235-keV α particle to the 187 keV *9* 1/2$^+$ level in ^{189}Bi (2003Ke08). Based on the properties of this transition, 2003Ke08 propose this level as the ^{193}At g.s. In the ^{189}Bi Adopted Levels, 1/2$^+$ state located at 184 keV *8* (2017Jo05). J$^\pi$: Spin-parity assigned from 2003Ke08 on the basis of observed favored α decay to the (1/2$^+$) level in ^{189}Bi, and subsequent favored α transition to the 1/2$^+$ g.s. of ^{185}Tl. For the underlying configuration 2003Ke08 suggest a π(4p-1h) 1/2$^+$ intruder state, originated by the promotion of an $s_{1/2}$ proton across the Z=82 shell gap. This is similar to the case of the ^{191}At ground state, which is also assigned Jπ=(1/2$^+$).
5 *10*	(7/2$^-$)	21 ms *5*	%α≈100 (2003Ke08) This level is proposed as the first excited state in ^{193}At by 2003Ke08, based on the α-decay properties to both the 7/2$^-$ 100-keV level in ^{189}Bi and the 9/2$^-$ ^{189}Bi g.s., as well as on the α-γ coincidences. Two α branches deexcite this state to levels in ^{189}Bi: a) E(α)=7325 *5* keV, I(α)=98 *2* %, HF=1.1 *3*, to the (7/2$^-$) 100-keV level in ^{189}Bi; b) E(α)=7423 *5* keV, I(α)=2 *2* %, HF = 64 *64*, to the ^{189}Bi g.s. The hindrance factors imply an ΔL=0 unhindered α transition in the first case. Note that the quoted HF values are as given in 2003Ke08, based on their reinterpretation of the observed values, by assuming the existence of an unobserved ≈34-keV γ ray connecting the ^{193}At 13/2$^+$ isomeric state at 39 *7* keV, with the 5-keV isomeric level. E(level): The uncertainty in the excitation energy, obtained from α-particle energy differences, is too great to establish the actual sequence of the 1/2$^+$ and 7/2$^-$ levels. The adopted ordering is that suggested in 2003Ke08, with support from the α-decay properties to levels in ^{189}Bi, and the observed α particle coincidences with the 100-keV γ ray in ^{189}Bi (2003Ke08).
39 *7*	(13/2$^+$)	27 ms +*4*−*3*	%α=24 *10*; %IT=76 *10* (2003Ke08) This level depopulates via a 7106 *5* keV α decay to the 13/2$^+$ 358-keV state in ^{189}Bi. The hindrance factor calculated in 2003Ke08 for this transition, assuming an 100% α branch, is 0.24 *4*. To explain this anomalously low value of HF, 2003Ke08 propose that there exists an IT decay branch deexciting this state to the 7/2$^-$ level, taking about 76 *10* % of the decay strength, and thus leaving 24 *10* % for the α intensity. The unobserved ≈34-keV IT branch would probably have an E3 character, consistent with the observed half-life for the level. J$^\pi$: Proposed in 2003Ke08, based on observed 7106 *5* keV α-decay to the 13/2$^+$ level in ^{189}Bi.

† From 2003Ke08, based on α-particle energy difference.
‡ Values from 2003Ke08.

Adopted Levels

S(p)=1170 *40*; Q(α)=8040 *12* 2017Wa10
S(n)=9060 (1997Mo25 – calculated value).
First identification of ^{193}Rn nuclide by 2006An36.
^{193}Rn produced and identified in $^{144}Sm(^{52}Cr,3n)$ reaction at E=252 MeV; $^{144}SmF_3$ rotating target onto a carbon backing. UNILAC heavy-ion facility at GSI, with SHIP velocity filter for separating evaporation residues.
Detector system: Several different types of detectors were used: The decays of the evaporation residues were measured by implanting residues in a thick 16-strip position-sensitive silicon detector (PSSD) with a typical FWHM ≈ 20 keV for α particles in 6-8 MeV range. An array of six silicon detectors of similar shape (BOX detectors), mounted upstream of PSSD detector, was used to measure the energies of α, β and conversion electrons. Three thin time-of-flight detectors in front of the PSSD and BOX detectors permitted identification of reaction products from the scattered beam particles; and distinction between the decay events and implantation events through anti-coincidence technique. An additional thick Si detector was installed as a veto detector behind the PSSD detector in an anti-coincidence mode. This allowed distinction between the decays and the punch-through events (from high-energy protons and α particles produced in the reactions on the carbon backing). For γ rays, a four-fold segmented 'Clover' Ge detector was used behind the PSSD detectors for prompt and delayed γ(residues) coin and/or αγ coin measurements.
Measured α, γ, αγ coin, α(residues) coin, γ(residues) coin. Results are also discussed in 2007An19.

^{193}Rn Levels

E(level)	$T_{1/2}$	Comments
0.0	1.15 ms *27*	%α≈100 (2006An36) Calculated β decay half-life=0.527 s (1997Mo25) suggests negligible ε+$β^+$ decay mode. E(level): assumed as the ground state of ^{193}Rn. $J^π$: (3/2⁻) from systematics (2006An36). $T_{1/2}$: from analysis of 19 full-energy (recoil)(7670-7890 keV α) decays (2006An36). Energy of α particles: 7685 *15*, $I_α$=74% *20* and 7875 *20* $I_α$=26% *12*. A 194γ is seen in coin with 7685α (2006An36). From systematics of decays of odd-A Rn isotopes, the decay pattern of ^{193}Rn is found to be different from higher mass Rn isotopes, which, according to 2006An36, suggests a possible prolate deformed shape for this nucleus. Production cross section (at $E(^{52}Cr)$=248 MeV)=50 pb *20* (2006An36).

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