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Corrigendum: Absolute single photoionization cross-section measurements of Rb^{2+} ions: experiment and theory (2016 *J. Phys. B: At. Mol. Opt. Phys.* **49** 235002)

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1. Introduction

In our paper ‘Absolute single photoionization cross-section measurements of Rb^{2+} ions: experiment and theory’ [1] a

formatting error occurred in which the data for table 8 was overwritten with values from table 5. The corrected table 8 is shown below. In the process of correcting this error, three typos were discovered in other data tables. In table 6,

Table 6. Rydberg series of resonances due to $4p \rightarrow nd$ transitions from the $^2P_{3/2}^o$ ground state of Rb^{2+} converging to the $4s^24p^4 (^1D_2)$ series limit in Rb^{3+} . The coupling splitting of this series is resolved only for the two lowest-energy resonances ($n = 8$ and 9).

Initial Rb^{2+} state: $4s^24p^5 (^2P_{3/2}^o)$							
$^2P_{3/2}$ Rydberg series				$^2P_{3/2}$ Rydberg series			
$4s^24p^4 (^1D_2)nd$				$4s^24p^4 (^1D_2)nd$			
n	Energy (eV)	δ	Peak #	n	Energy (eV)	δ	Peak #
8	39.303	0.357	17	8	39.347	0.275	18
9	39.760	0.357	27	9	39.790	0.275	28
10	40.082	0.357	33	10	40.104	0.275	33
11	40.318	0.357	38	11	40.334	0.275	38
12	40.496	0.357	40	12	40.508	0.275	40

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Table 6. (Continued.)

Initial Rb ²⁺ state: 4s ² 4p ⁵ (² P _{3/2} ^o)							
13	40.633	0.357	41	13	40.643	0.275	41
14	40.741	0.357	42	14	40.749	0.275	42
15	40.828	0.357	43	15	40.834	0.275	43
16	40.899	0.357	44	16	40.904	0.275	44
17	40.957	0.357	45	17	40.961	0.275	45
18	41.006	0.357	46	18	41.009	0.275	46
19	41.047	0.357	47b	19	41.050	0.275	47b
20	41.082	0.357	48	20	41.084	0.275	48
21	41.112	0.357	49	21	41.114	0.275	49
22	41.138	0.357	50	22	41.140	0.275	50
23	41.160	0.357	51	23	41.162	0.275	51
24	41.180	0.357	52	24	41.182	0.275	52
25	41.197	0.357	53	25	41.199	0.275	53
∞	41.399	—	—	∞	41.399	—	—

Table 7. Rydberg series of resonances due to 4p → nd transitions from the ²P_{1/2}^o metastable state of Rb²⁺ converging to the 4s²4p⁴(¹D₂) series limit in Rb³⁺. The coupling splitting of this series is resolved only for the three lowest-energy resonances (n = 8 through 10). The feature associated with the n = 11 resonance for the lower energy splitting was not resolvable and is indistinguishable from background thus this resonance lacks a feature number.

Initial Rb ²⁺ state: 4s ² 4p ⁵ (² P _{1/2} ^o)							
² P _{1/2} Rydberg series				² P _{1/2} Rydberg series			
4s ² 4p ⁴ (¹ D ₂)nd				4s ² 4p ⁴ (¹ D ₂)nd			
n	Energy (eV)	δ	Peak #	n	Energy (eV)	δ	Peak #
8	38.388	0.358	2	8	38.446	0.251	3
9	38.845	0.358	12	9	38.885	0.251	13
10	39.168	0.358	14	10	39.196	0.251	15
11	39.403	0.358	—	11	39.425	0.251	20
12	39.581	0.358	23	12	39.598	0.251	23
13	39.719	0.358	26	13	39.731	0.251	26
14	39.827	0.358	29	14	39.837	0.251	29
15	39.914	0.358	30	15	39.922	0.251	30
16	39.984	0.358	31	16	39.991	0.251	31
17	40.043	0.358	32	17	40.048	0.251	32
18	40.091	0.358	33	18	40.096	0.251	33
19	40.132	0.358	34	19	40.136	0.251	34
20	40.167	0.358	35	20	40.171	0.251	35
21	40.197	0.358	36	21	40.200	0.251	36
∞	40.485	—	—	∞	40.485	—	—

Table 8. Rydberg series of resonances due to 4p → nd transitions from the ²P_{3/2}^o ground and ²P_{1/2}^o metastable states of Rb²⁺ converging to the 4s²4p⁴(¹S₀) series limit in Rb³⁺.

Initial Rb ²⁺ state: 4s ² 4p ⁵ (² P _{3/2,1/2} ^o)							
² P _{3/2} Rydberg Series				² P _{1/2} Rydberg Series			
4s ² 4p ⁴ (¹ S ₀)nd				4s ² 4p ⁴ (¹ S ₀)nd			
n	Energy (eV)	δ	Peak #	n	Energy (eV)	δ	Peak #
6	40.242	0.305	37	6	39.332	0.303	18
7	41.286	0.305	55	7	40.374	0.303	39
8	41.950	0.305	59	8	41.037	0.303	47a
9	42.398	0.305	63	9	41.485	0.303	56
10	42.715	0.305	68	10	41.802	0.303	57

Table 8. (Continued.)

Initial Rb ²⁺ state: $4s^24p^5$ ($^2P_{3/2,1/2}^o$)							
11	42.947	0.305	73	11	42.034	0.303	60
12	43.127	0.305	74	12	42.209	0.303	61
13	43.258	0.305	75	13	42.345	0.303	62
14	43.365	0.305	76	14	42.451	0.303	64
15	43.451	0.305	77	15	42.537	0.303	65
16	43.521	0.305	78	16	42.607	0.303	66
17	43.579	0.305	79	17	42.665	0.303	67
18	43.627	0.305	80	18	42.713	0.303	68
19	43.668	0.305	81	19	42.754	0.303	69
20	43.702	0.305	82	20	42.788	0.303	70
21	43.732	0.305	83	21	42.818	0.303	71

resonance number 24 was mistakenly listed twice. The repeated resonance number was removed and the corrected table 6 is shown. In table 7 the series limits have been replaced with the correct value of 40.485 eV as shown in the corrected table.

Reference

- [1] Macaluso D A, Bogolub K, Johnson A, Aguilar A, Kilcoyne A L D, Bilodeau R C, Bautista M, Kerlin A B and Sterling N C 2016 Absolute single photoionization cross-section measurements of Rb²⁺ ions: experiment and theory *J. Phys. B: At. Mol. Opt. Phys.* **49** 235002