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COMPOUNDS WITH RE = EU,HO,ER AND TM

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Journal

BULLETIN OF THE AMERICAN PHYSICAL SOCIETY, 25(3)

ISSN

0003-0503

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Publication Date

1980

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Peer reviewed

DG 6 Superconducting and Magnetic Properties of
RERh_xSn_y Compounds with RE = Eu, Ho, Er and Tm, Z. FISK,*
H.C. HAMAKER,† M.B. MAPLE† and L.D. WOOLF,† UCSD and
J.P. REMEKA, Bell Laboratories—The Curie-Weiss tempera-
ture T dependences of the static magnetic susceptibility
of RERh_xSn_y compounds for RE = Eu, Ho and Er yield Curie-
Weiss temperatures of -21 K, -6.1 K and -1.0 K, respec-
tively. The EuRh_xSn_y compound appears to order antiferro-
magnetically at 11 K, while the HoRh_xSn_y and ErRh_xSn_y
compounds do not exhibit magnetic order above 1.4 K. The
behavior of the low frequency (17 Hz) ac magnetic suscep-
tibility χ_{ac} and electrical resistance as a function of
T reveal re-entrant superconductive behavior for ErRh_xSn_y
in zero magnetic field and for TmRh_xSn_y in magnetic fields
greater than 1.2 kOe. The values of the upper and lower
zero field superconducting transition temperatures for
ErRh_xSn_y determined from the χ_{ac} vs T data are $T_{C1} =$
0.97 K and $T_{C2} = 0.57$ K, respectively. The destruction of
superconductivity at T_{C2} in ErRh_xSn_y can be attributed to
long-range magnetic ordering of the Er³⁺ magnetic moments
as evidence by a lambda-type anomaly in the heat capacity
which peaks at ~ 0.45 K.

*Supported by NSF/DMR76-24178-A01.

†Supported by US DOE/EY-76-S-03-0034-PA227.