

Abstract Submitted
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MnCu₄In: a new high temperature ferromagnet ALESSIA PROVINO, Department of Chemistry, University of Genova (Italy), DURGA PAUDYAL, Ames Laboratory, Ames (Iowa), SUDESH K. DHAR, CMP & MS Dept, TIFR, Mumbai (India), MARIA LUISA FORNASINI, PIETRO MANFRINETTI, Department of Chemistry, University of Genova (Italy), VITALIJ K. PECHARSKY, KARL A. GSCHNEIDNER JR., Ames Laboratory, Ames (Iowa), THE AMES LABORATORY, US DEPT OF ENERGY, IOWA STATE UNIVERSITY, AMES, IA 50011, USA COLLABORATION, DEPT OF CHEMISTRY, UNIVERSITY OF GENOVA, VIA DODECANESO 31, 16146 GENOVA, ITALY COLLABORATION, CMP & MS DEPT, TIFR, HOMI BHABHA ROAD, MUMBAI 400 005, INDIA COLLABORATION, CNR-SPIN, CORSO PERRONE 24, 16152 GENOVA, ITALY COLLABORATION — The new intermetallic compound MnCu₄In has been synthesized and investigated. The crystal structure, studied by single crystal and powder X-ray diffractions, shows that the compound crystallizes into its own hexagonal prototype (*hP12-P6₃mc*) derived from the MgZn₂-type. The measured magnetic and physical properties indicate that, in contrast to the antiferromagnetic MnCu₄Sn (MgCu₄Sn-type), MnCu₄In is a high temperature ferromagnet with $T_C = 540^\circ\text{C}$. In order to understand the physics involved, the first principles calculations have been performed and compared with the MnCu₂Al-type MnCu₂In(Sn) phases and the rare earth representatives GdCu₄In and GdCu₂In. Work partially supported by the US DOE, Division of Materials Science and Engineering (Office of Basic Energy Sciences).

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