

Abstract Submitted
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Investigation of the magnetic properties in double perovskite R_2CoMnO_6 single crystals (R=rare earth: La to Lu)¹ M. K. KIM, J. Y. MOON, H. Y. CHOI, S. H. OH, N. LEE, Y. J. CHOI, Yonsei Univ, LABORATORY FOR INNOVATIVE FUNCTIONAL MATERIALS TEAM — We have successfully synthesized the series of the double-perovskite R_2CoMnO_6 (R=rare earth: La to Lu) single crystals and have investigated their magnetic properties. The ferromagnetic order of Co^{2+}/Mn^{4+} spins emerges mainly along the c axis. Upon decreasing the size of rare earth ion, the magnetic transition temperature decreases linearly from 204 K for La_2CoMnO_6 to 48 K for Lu_2CoMnO_6 , along with the enhancement of monoclinic distortion. The temperature and magnetic-field dependences of magnetization reveal the various magnetic characteristics such as the metamagnetic transition in R=Eu, the isotropic nature of rare earth moment in R=Gd, and the reversal of magnetic anisotropy in R=Tb and Dy. Our results offer comprehensive information for understanding the roles of mixed-valent magnetic ions and rare earth magnetic moments on the magnetic properties.

¹ R_2CoMnO_6 single crystals, double-perovskite, magnetic anisotropy, rare earth

Mi Kyung Kim
Yonsei Univ

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