METAMAGNETIC BEHAVIOR IN THE $Ln(Mn_{1-x}Co_x)O_3$ (Ln = Nd, Eu, Y) SYSTEMS WITH PEROVSKITE STRUCTURE

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9.7 cm

We report measurements of magnetization in the $Ln(Mn_{1-x}Co_x)O_3$ Ln = Nd, Eu ($0 \leq x \leq 1$) and $Y(Mn_{1-x}Co_x)O_3$ ($0.35 \leq x \leq 0.5$) perovskites as a function of temperature and magnetic field. It is shown that compositions in the range $0.35 \leq x \leq 0.8$ (Ln = Eu); $0.4 \leq x \leq 0.6$ (Ln = Nd) and $0.35 \leq x \leq 0.45$ (Ln = Y) exhibit a metamagnetic behavior associated with a transformation of a magnetic structure from ferrimagnetic (where magnetic moments of Co^{2+} and Mn^{4+} ions are opposite) to ferromagnetic with a parallel orientation of the Co^{2+} and Mn^{4+} magnetic moments. The magnetization behavior depends strongly on oxygen content. Concentrational and H-T phase diagrams are depicted. Neutron diffraction study indicates an ordering of the Co^{2+} and Mn^{4+} ions in the $Y(Mn_{0.5}Co_{0.5})O_3$ sample.

13.4 cm

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