

Abstract Submitted
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Magnetic Ordering in Multiferroics $\text{Eu}_{0.3}\text{Y}_{0.7}\text{MnO}_3$. FABIANO YOKAICHIYA, MANFRED REEHUIS, ANDREY MALJUK, DIMITRI ARGYRIOU, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, MARIA TERESA FERNANDES DIAZ, Institut Laue Langevin — The recent interest in the study of perovskite-manganite RMNO_3 (with R=rare earth) is due to the observation of the ferroelectric transitions that are concomitant with complex ordering of Mn 3d spins. In order to clarify the correlation between the magnetic transitions of the Mn 3d spins with the ferroelectric transition, we investigated the magnetic structure of the perovskite $\text{Eu}_{0.7}\text{Y}_{0.3}\text{MnO}_3$ without the influence of the 4f magnetic moment of the rare earth ion. It was observed, below 30 K, a cycloid magnetic structure in the ab plane which drives the emergent ferroelectricity via the antisymmetric Dzyaloshinski-Moriya interaction. This magnetic ordering provides the magnetic origin for the ferroelectricity polarization parallel to the a-axis. Moreover, between 30 and 50 K, an additional magnetic phase with a collinear sinusoidal magnetic structure was observed.

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