

Abstract Submitted
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Ferroelectricity in perovskite HoMnO_3 and YMnO_3 induced by magnetic order.¹ B. LORENZ, Y. Q. WANG, C. W. CHU², TCSUH and Dept. of Physics, University of Houston — Ferroelectricity is observed in orthorhombic HoMnO_3 and YMnO_3 at the magnetic lock-in transitions into an E-type structure or an incommensurate phase with a temperature independent wave vector, respectively. In HoMnO_3 the ferroelectric polarization strongly depends on the external magnetic field indicating the involvement of the rare earth moment order in this compound. The results are discussed within the framework of recent theoretical models, in particular the double exchange driven polar displacements predicted for E-type magnetic structures. The ferroelectricity observed in YMnO_3 cannot be explained within the current picture of the magnetic order and a refinement of the magnetic structure seems to be necessary.

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