

Abstract Submitted
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Ferroelectric and structural domains in multiferroic RMnO_3 (R=rare earths) Y. HORIBE, T. CHOI, H.T. YI, WEIDA WU, S.-W. CHEONG, Rutgers Center for Emergent Materials & Department of Physics and Astronomy, Rutgers University — Hexagonal RMnO_3 (R=rare earths) exhibits a unique improper ferroelectricity induced by structural trimerization. Although intimate coupling between ferroelectric and antiferromagnetic domains was reported at low temperatures [1], the structural domains related to ferroelectric have not been well-studied. In this talk, we will report the relationship between ferroelectric and structural domains in RMnO_3 , obtained from the results of our transmission electron microscopy and scanning probe microscopy. Characteristic structural/ferroelectric domain patterns are clearly observed at room temperatures. The successive phase transitions in RMnO_3 are suggested to play a crucial role in the domain formation.
[1] M. Fiebig *et al.*, Nature 419, 818 (2002).

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