Abstract Submitted
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Cloverleaf domain patterns in multiferroic $RMnO_3$ (R = Ho, Er, and Lu) Y. HORIBE, S.C. CHAE, N. LEE, S-W. CHEONG, Rutgers Center for Emergent Materials and Department of Physics & Astronomy, Rutgers University — Hexagonal $RMnO_3$ (R=rare earths) exhibits a unique improper ferroelectricity induced by structural trimerization. Intriguing domain pattern associated with ferroelectricity and trimerization, so-called "cloverleaf" domain pattern, has been reported in $YMnO_3$ [1] In this talk, we will report the domain structures in a series of $RMnO_3$ with different rare earth elements, obtained from the results of our transmission electron microscopy. Characteristic cloverleaf domain patterns are clearly observed in $RMnO_3$ (R = Ho, Er, and Lu). The results imply that the cloverleaf domain pattern is a common domain feature in the hexagonal manganites.

[1] T. Choi et al., Nature Materials 9, 818 (2010)

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