

Abstract Submitted
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Studies of Competing Order in Multiferroic RMnO_3 ¹ PRASENJIT GUPTASARMA, YING ZOU, SHISHIR RAY, SOMADITYA SEN, MARK WILLIAMSEN, Dept of Physics, University of Wisconsin-Milwaukee, USA — Unconventional magnetic order, a ferroelectric background and the possibility of coupled ground states, together with competing spin, charge, lattice and orbital degrees of freedom, give systems such as RMnO_3 (R =Rare Earth), an ABO_3 -type compound, a rich and fascinating phenomenology. The possibility of using these materials in switching, in spin based electronics, and as materials with negative refractive index, make them important candidates for device applications. Here we present a review of our studies of the detailed phenomenology of a series of single crystals of RMnO_3 grown from a floating zone, for different Rare Earths R , and by inducing structural distortions and charge disproportionation through substitutions at both the A and the B sites.

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