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Multiferroicity in the Mixture of Orthorhombic and Hexagonal $RMnO_3$ (R=rare earths) CHENGLIN ZHANG, GUHA SABYASACHI, SANG-WONK CHEONG, Rutgers University — Orthorhombic perovskite $RMnO_3$ (R = Tb, Dr) shows an incommensurate magnetic/lattice modulation below ∼40 K and a lock-in transition below ∼25 k. The system becomes ferroelectric at the lock-in transition. On the other hand, hexagonal $RMnO_3$ (R = Ho-Lu, Y) exhibits ferroelectricity with a much higher transition temperature (≈1000 K) and a magnetic ordering transition at ∼100 k. We will report the results of our comprehensive study of what happens when these two types of ferroelectric 113 compounds are mixed.

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