

Oxides that refuse to become multiferroic!

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Starting with several very promising candidates, our search for multiferroic systems has invariably yielded negative results. Our investigations establish interesting microscopic origins of this avoidance of any long range order in such systems, particularly of the electric polarization in spite of having a large dielectric constant. In this talk, I shall discuss three very different series of compounds, namely Ln_2CuTiO_6 [1,2], Mn-doped $SrTiO_3$ [3,4] and La_2NiMnO_6 [5] and show that the suppression of the long range order in each case leads to some very important and interesting (magneto)dielectric properties of these materials. Additionally, we shall show that La_2NiMnO_6 is a true example of a multi-glassy system, while Mn-doped $SrTiO_3$, contrary to a recent claim, is not. If time permits, I may also discuss briefly the case of Nd_2NiMnO_6 , primarily with reference to its interesting magnetic properties [6].

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[5] Debraj Choudhury *et al.*, Phys. Rev. Lett. **108**, 127201 (2012).

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