

Abstract Submitted
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Impurity effects in multiferroic compounds TRINANJAN DATTA,
Augusta State University — We investigate the effect of impurities in multiferroic systems. Using an equation of motion approach for the spin dynamics of the host multiferroic compound we find that the amplitude of the spin components of the material are affected by the impurities. We model the impurities as a two-level system and focus on the regime where the impurity spins relax slowly. When the impurity strength is weak the host spins oscillate with no decay and the electric polarization survives. However as the impurity strength is increased the host spin components get damped. This in turn causes the ferroelectricity to be destroyed. Since polarization in multiferroic materials is driven by magnetic ordering we conclude that the presence of impurities is detrimental to multiferroicity.

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