

Abstract Submitted
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Magnetic and dielectric phase diagrams of $\text{Tb}_{1-x}\text{Eu}_x\text{MnO}_3$
($0 \leq x \leq 1$)¹ Y.Y. HSU, H.C. HSU, C.D. YANG, W.Y. TSENG, National Taiwan Normal University, Taipei, Taiwan, H.C. KU, National Tsing Hua University, Hsinchu, Taiwan — The dependence of dielectric and magnetic properties with structural parameters have been investigated for the mixed-crystal system $\text{Tb}_{1-x}\text{Eu}_x\text{MnO}_3$ ($0 \leq x \leq 1$). Since the ferroelectricity observed is originated from the incommensurate antiferromagnetism of Mn^{3+} ions, the magnetic interaction strength should pronouncedly affect these properties. The interaction strength is dominated by the Mn-O bond length and Mn-O-Mn bond angle thus makes the structural discussion substantial. The Reitveld refinement showed an *ab*-plane Mn-O-Mn bond angle increases smoothly, as x increased, with a slight jump around $x = 0.4-0.5$, which is close to the disappearance of ferroelectricity, while the magnetic ordering temperature T_N almost not changed. The phase diagrams observed in magnetism and dielectricity with x indicate enriched magnetic and electric structures in this system and will be discussed in details.

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