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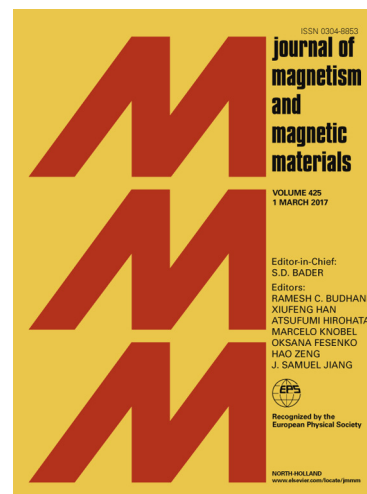
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Magnetic and ferroelectric properties of Indium-doped gallium ferrite

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Abstract

Indium-doped $\text{Ga}_{1-x}\text{In}_x\text{FeO}_3$ (GIFO) with $x=0-0.15$ were successfully prepared by solid state reaction. Structural, magnetic and electric properties of the samples were studied. All specimen could be well indexed by the polar $\text{Pc}2_1\text{n}$ space group and no phase transition was observed. Saturated magnetization exhibits a maximum at light doping sample of $\text{Ga}_{0.95}\text{In}_{0.05}\text{FeO}_3$ due to the enhancement of the distortion, showing a correspondence with the variation of Fe^{3+} distribution difference between two forms of sites. Pyroelectric measurements show an increase of polarization after doping. The results indicate that both magnetism and ferroelectricity of GaFeO_3 can be optimized by In doping.

Keywords: GaFeO_3 , Ceramics, Solid state reactions, Multiferroic, Spin-phonon coupling

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