Structural, magnetic and dielectric properties of $Bi_{1-x}Re_xFeO_3$ (x = 0 & 0.1; Re = La, Pr, Nd & Sm) multiferroic system.

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Abstract

A series of single phase Bismuth ferrite and rare earth elements doped Bismuth ferrites were prepared by the solid state reaction technique, mainly to investigate the influence of doping on the structural, magnetic and dielectric behavior. After characterizing the samples with XRD and SEM studies, magnetic and dielectric measurements were carried out. From the magnetization measurements of all the samples, it has been found that they exhibit an anti ferromagnetic transition ranging from 650 - 750K. Moreover, the remnant magnetization (*M*r*)* values are found to increase with doping. Interestingly, dielectric relaxation behavior is observed in dielectric constant Vs temperature measurements and efforts were made to explain the observed behavior.

Key words: Multiferroic materials; Leaching, X-ray diffraction; Magnetization; Dielectric properties.

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