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Magnetoelectric Coupling in Hetero-Structured Nano-Composite of BST-BLFM Films

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Abstract : Hetero-structured nano-composite thin film of Ba0.5Sr0.5TiO3/Bi0.9La0.1Fe0.9Mn0.1O3 (BST/BLFM) has been prepared by chemical solution deposition method with various BST to BLFM thickness ratios. These films have been deposited over on p-type Si (100) substrate. These samples exhibited low leakage current, large grain size and uniform distribution of particles. The maximum remanent polarization (Pr) was achieved in the heterostructures with thickness ratio of 2.65. The dielectric tenability, electric hysteresis (P-E), ME coupling coefficient, magnetic hysteresis (M-H), ferromagnetic exchange interaction and magnetoelectric measurements were carried out. Field Emission Scanning Electron Microscopy has been employed to investigate the surface morphology of these heterostructured nano-composite films.

Keywords : magnetoelectric, Schottky emission, interface coupling, dielectric tenability, electric hysteresis (P-E), ME coupling coefficient, magnetic hysteresis (M-H)
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