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Title:	Magnetic, local ferroelectricity and magnetodielectric properties of NiFe ₂ O ₄ -poly (vinylidene-fluoride)-BaTiO ₃ composite film
Authors:	Kumar, Amit (/jspui/browse?type=author&value=Kumar%2C+Amit)
Keywords:	Magnetodielectric property Magnetoelectric couplings Poly(vinylidene fluoride) Barium titanate
Issue Date:	2016
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Abstract:	We report the magnetic, dielectric, and magnetoelectric properties of NiFe ₂ O ₄ -poly (vinylidene-fluoride)-BaTiO ₃ composite film. The coercive field ($\pm 2H_c \sim 344$ Oe) and remnant magnetization ($M_r \sim 0.1$ emu g ⁻¹) were observed at room temperature. The dielectric permittivity at room temperature ($\epsilon_{RT} \sim 281$) was found to decrease with increase in frequency. The magnetocapacitance was found to be $\sim 5.9\%$ at an applied dc magnetic field of 8 kOe (frequency ~ 1 kHz). Magnetoelectric coupling coefficient ($\delta \sim 4 \times 10^{-4}$ mVcm ⁻¹ Oe ⁻¹) measured by dynamic method (at ac magnetic field = 30 Oe) is observed higher (two times) than those reported for some materials. In addition, we have observed the image of ferroelectric domain using piezoelectric force microscopy at room temperature. Large magnetodielectric/magnetoelectric response in this composite is possibly a result of the effective mechanical interaction between NiFe ₂ O ₄ and BaTiO ₃ through the polymer matrix.
Description:	Only IISERM authors are available in the record.
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