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Magnetoelectric effect in nanostructured multiferroic ferrite-ferroelectric composite films S.C. CHAE, H.J. RYU, D.H. KIM, T.W. NOH, ReCOE & School of Physics, Seoul Natl. Univ., Korea, C.J. BAE, J. G. PARK, Department of Physics, SungKyunKwan Univ., Korea, Y.S. OH, K.H. KIM, CSCMR & School of Physics, Seoul Natl. Univ., Korea — Recently the multiferroic coupling of self assembled pillars of nanostructured $CoFe_2O_4$(CFO) embedded in $BaTiO_3$(BTO) matrix on $SrRuO_3$(SRO)/$SrTiO_3$(STO) substrate are reported. Thus, if the BTO-CFO nanocomposites can have a strong coupling between the order parameters, such composite structures will work as a new paradigm for the multiferroic research. The magnetoelectic effects are the coupling behaviors of two ferroic properties. The composite films of BTO-CFO and $Pb(Zr_{0.52}Ti_{0.48})O_3$-$NiFe_2O_4$on SRO/STO and Nb-STO substrates were fabricated using pulsed laser deposition technique. The simultaneous growths of ferroelectric and ferrite phases were confirmed by the x-ray diffraction measurements. The ferroelectric and ferromagnetic properties are measured by TF analyzer and SQUID magnetometer, respectively. We will study the temperature dependence of dielectric properties varying external magnetic fields. We will also measure the transverse, α_{31}, and longitudinal, α_{33}, magnetoelectric voltage coefficient.

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