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Approach to Exchange Bias Effect in $La_{2/3}Ca_{1/3}MnO_3/BiFeO_3$ and $BiFeO_3/ La_{2/3}Ca_{1/3}MnO_3$ Bilayers[1] CLARIBEL DOMINGUEZ, JOHN E. ORDONEZ, SANDRA DIEZ, MARIA E. GOMEZ, Thin Film Group, Department of Physics, Universidad del Valle, Cali, Colombia, STEFAN GUÉNON, IVAN K. SCHULLER, Department of Physics and Center for Advanced Nanoscience, University of California-San Diego, USA — We have grown bilayers of ferromagnetic $La_{2/3}Ca_{1/3}MnO_3$ (LCMO) and multiferroic $BiFeO_3$ (BFO) on (100) $SrTiO_3$ (STO) substrates, by DC- and magnetron RF -sputtering technique, respectively, at high-oxygen pressures. We maintain constant the thickness of the layers (t_{BFO}=72nm; t_{LCMO}=80nm). Temperature dependence of the resistivity indicates that the MI-transition temperature of the manganite in the BFO/LCMO/STO is affected by the presence of the BFO layer in comparison with T_{MI} for the single LCMO layer. Furthermore, temperature dependence of magnetization shows that the BFO/LCMO/STO bilayer has higher Curie temperature than that for LCMO/BFO/STO, indicating a strong structural dependence of the LCMO layer with magnetic response. The dependence of the magnetic moment with magnetic field after field cooling gives indication of the existence of Exchange Bias effect in the LCMO/BFO/STO bilayer. Isothermal loops also display dependence of the Exchange Bias magnitude with field cooling.

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