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Magnetic behavior of $La_{2/3}Ca_{1/3}MnO_3$ / $BaTiO_3$ bilayers[1] JOHN E. ORDONEZ, MARIA E. GOMEZ, WILSON LOPERA, Universidad del Valle, Cali, Colombia, LORENA MARIN, JOSE A. PARDO, LUIS MORELLON, PEDRO ALGARABEL, Universidad de Zaragoza, Spain, PEDRO PRIETO, CENM, Colombia
— We have grown ferroelectric $BaTiO_3$(BTO) and ferromagnetic $La_{2/3}Ca_{1/3}MnO_3$ (LCMO) onto (001) $SrTiO_3$ and Nb:$SrTiO_3$ by pulsed laser deposition (PLD) at pure oxygen atmosphere, and a substrate temperature of 820° C, seeking for a multiferroic behavior in this structure. From x-ray diffraction (XRD) we found lattice parameter a_{BTO}=4.068 Å, and a_{LCMO}=3.804 Å, for each individual layer. In the BTO/LCMO bilayer, (002)-Bragg peak for BTO maintain its position whereas (002) LCMO peak shift to lower Bragg angle indicating a strained LCMO film. Magnetization measurements reveal an increase in the Curie temperature from 170 K to 220 K for the bilayer when LCMO (t = 47 nm) is deposited on BTO (t=52 nm) film, while depositing the BTO (50 nm) above LCMO (48 nm) the Curie temperature remains at values close to that obtained for a LCMO single layer (∼175 K), deposited under identical growth parameters

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