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Growth of ferromagnetic $La_{2/3}Ca_{1/3}MnO_3$ / ferroelectric $BaTiO_3$ heterostructures[1] MARIA ELENA GOMEZ, JOHN EDWARD ORDOÑEZ, WILSON LOPERA, Department of Physics, Universidad del Valle, Cali, Colombia, PEDRO PRIETO, CENM Excellence Center for Novel Materials, Colombia, LORENA MARIN, J.A. PARDO, L. MORELLON, P. ALGARABEL, Instituto de Nanociencia de Aragón, Universidad de Zaragoza, Spain — Multiferroic materials exhibiting simultaneous ferroelectricity and ferromagnetism have potential applications in information storage and in the emerging field of spintronics. Ferromagnetic / ferroelectric multilayers could be a way to obtain a multiferroic heterostructure. We addressed to deposit the ferromagnetic phase of the $La_{1-x}Ca_xMnO_3$ and the ferroelectric BaTiO3 seeking a multiferroic properties in these hetero structures. We have optimized the growth parameters for depositing $BaTiO_3$(BTO) / $La_{2/3}Ca_{1/3}MnO_3$(LCMO) / (001)$SrTiO_3$ by pulsed laser deposition (PLD) at pure oxygen atmosphere and a substrate temperature of 820 $^\circ$C. The bilayer structure and microstructure were studied by x-ray diffraction (XRD) and atomic force microscopy (AFM). For individual layers, lattice parameter is a_{BTO}=4.068 Å, and a_{LCMO}=3.804 Å, whereas in the bilayer, Bragg peaks for LCMO maintain its position but BTO peak shift to lower Bragg angle indicating a strained BTO film. Magnetization and polarization measurements indicate a possible multiferroic heterostructures

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