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Magnetic and electrical properties on possible room temperature hybrid multiferroic $BaTiO_3/La_{2/3}Sr_{1/3}MnO_3$[1] JOHN EDWARD ORDOÑEZ, MARÍA ELENA GÓMEZ, WILSON LOPERA MUÑOZ, Universidad del Valle, Cali, Colombia, PEDRO ANTONIO PRIETO, Center of Excellence on Novel Materials - CENM, Cali, Colombia, THIN FILM GROUP TEAM, CENTER OF EXCELLENCE ON NOVEL MATERIALS - CENM, CALI, COLOMBIA TEAM — We addressed to deposit the ferromagnetic phase of the $La_{1-x}Sr_xMnO_3$ and the ferroelectric $BaTiO_3$ for possible hybrid multiferroic heterostructure. We have optimized the growth parameters for depositing $BaTiO_3$(BTO) / $La_{2/3}Ca_{1/3}MnO_3$(LCMO) / (001) $SrTiO_3$ by sputtering RF and DC, respectively, in pure oxygen atmosphere and a substrate temperature of 830°C. Keeping fixed the magnetic layer thickness (t_{LSMO} =40 nm) and varying the thickness of the ferroelectric layer (t_{BTO} =20, 40, 80, 100 nm). We want to point out the influence of the thicknesses ratio (t_{BTO}/t_{LSMO}) on electrical and magnetic properties. From x-ray diffraction (XRD) analysis, we found the bragg peaks for LSMO maintain its position but BTO peak shift to lower Bragg angle indicating a strained BTO film. Magnetization and polarization measurements indicate a possible multiferroic behavior in the bilayers. Hysteresis loop measurements of bilayers show ferromagnetic behavior.

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Maria Elena Gomez
Universidad del Valle, Cali, Colombia

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