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**Magneto-electric and strain coupling in ferromagnetic manganite thin films grown on ferroelectric substrates** NORBERT NEMES, Universidad Complutense de Madrid, FEDERICO MOMPEAN, ALICIA DE ANDRES, NEVENKO BISKUP, AURORA ALBERCA, MAR GARCIA-HERNANDEZ, Instituto de Ciencia de Materiales de Madrid, CRISTINA VISANI, JAVIER TORNOS, FABIAN CUELLAR, MIRKO ROCCI, FLAVIO BRUNO, JACOBO SANTA-MARIA, Universidad Complutense de Madrid — We study the magneto-electric coupling in  $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3$  (LCMO) and  $\text{La}_{0.67}\text{Sr}_{0.33}\text{MnO}_3$  (LSMO) thin films with thickness between 5 and 20 nm grown on ferroelectric  $\text{BaTiO}_3$  (BTO) or  $\text{Pb}(\text{Mg}_{0.33}\text{Nb}_{0.67})_{0.72}\text{Ti}_{0.28}\text{O}_3$  (PMNT) single crystal substrates. We measure the temperature, magnetic and electric field dependent magnetization and magnetoresistance of the manganite thin films. In bulk, LCMO is more prone to disorder induced phase segregation and a metal- insulator transition than LSMO. Nevertheless, the substrate- strain induced changes in LSMO have been more extensively reported. We report large magnetoresistance changes of LCMO thin films corresponding to the structural phase transitions of the BTO substrate.

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