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Tailoring magneto-electro-resistance in La0.7Sr0.3MnO3/BaTiO3multiferroic tunnel junctions MARIONA CABERO, A.M. PEREZ-MUOZ , D. HERNANDEZ-MARTIN, Z. SEFRIOUI, M. VARELA, C. LEON, J. SANTAMARIA, GFMC Univ Complutense. 28040 Madrid, S. VALENCIA, Helmholtz-Zentrum Berlin fr Materialen Energie, Albert-Einstein-Strasse 15, 12489 Berlin, Germany, R. ABRUDAN[1], Helmholtz-Zentrum Berlin fr Materialen Energie, Albert-Einstein-Strasse 15, 12489 Berlin, , S. J. PENNYCOOK, Department of Materials Science Engineering, National University of Singapore, Singapore 117575. — Controlling and manipulating the electronic states of oxide interfaces using external stimuli has become a major direction towards oxide-based electronics. Here, we present a study of the transport properties of multiferroic La0.7Sr0.3MnO3/BaTiO3 (LSMO/BTO) ferromagnetic/ferroelectric heterostructures. Multiferroic tunnel junctions (MTJ's) have been obtained introducing an ultrathin La/Sr cuprate (LSCO) layer between the ferroelectric barrier and the top ferromagnetic electrode. The LSCO introduces an asymmetry in the screening of polarization charges at both interfaces, which yields electroresistance values in excess of 105 % and triggers an inversion of the sign of the tunneling magnetoresistance controlled by ferroelectric switching. We will discuss these results in the light of the generation and transport of oxygen vacancies. Work at UCM supported by MINECO MAT2014-52405-C02-01 and ERC Starting Investigator Grant #239739 STEMOX.

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