

Abstract Submitted
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Tunneling anisotropic magnetoresistance in complex oxide tunnel junctions¹

BENJAMÍN MARTÍNEZ, LAURA LÓPEZ-MIR, REGINA GALCERAN, LLUIS BALCELLS, ALBERTO POMAR, ZORICA KONSTANTINOVIC, FELIP SANDIUMENGE, CARLOS FRONTERA, Insititut de Ciència de Materials de Barcelona (ICMAB/CSIC), Campus UAB, Bellaterra, E-08193, ADVANCED CHARACTERIZATION OF NANOSTRUCTURED MATERIALS TEAM — The magnetotransport properties of $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3(\text{LSMO})/\text{LaAlO}_3(\text{LAO})/\text{Pt}$ tunneling junctions have been analyzed as a function of temperature and magnetic field. The junctions exhibit magnetoresistance (MR) values of about 37%, at $H=90$ kOe at low temperature. However, the temperature dependence of MR indicates a clear distinct origin than that of conventional colossal MR. In addition, tunneling anisotropic MR (TAMR) values around 4% are found at low temperature and its angular dependence reflects the expected uniaxial anisotropy. The use of TAMR response could be an alternative of much easier technological implementation than conventional MTJs since only one magnetic electrode is required, thus opening the door to the implementation of more versatile devices. However, further studies are required in order to improve the strong temperature dependence at the present stage.

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