CONTACT RESISTANCE BETWEEN OXIDE AND METAL IN La2/3Ca1/3MnO3 EPITAXIAL THIN FILMS

Ll. Abad, Ll. Balcells and B. Martinez
Institut de Ciència de Materials de Barcelona (CSIC), Campus Universitat Autònoma de
Barcelona (UAB), E-08193 Bellaterra, Barcelona (Spain)
balcells@icmab.es

The interfacial resistance, or contact resistance, between a metal and a magnetic oxide is an issue of major relevance for the development of magnetic and magnetoresistive devices. It is already well known that between these two kind of materials a large interfacial resistance is usually found, nevertheless the origin of this contribution remains elusive. In most of the cases it has been considered to be an effect of the non-metallicity of the oxide interface, as well as the depletion of the magnetoresistive response in oxide-based magnetic tunnel junctions at room temperature.

In this work we present our results of contact resistance between a different thin films of La1/3Ca2/3MnO3, and different metallic materials like Au, Pt, etc. The contacts between the manganite film and the metal have been prepared by ex-situ deposition of a metallic layer on top of the manganite film. Different nanostructured contact geometries have been defined and then transport properties have been tested by using an AFM working in the current-sensing mode.