

Abstract Submitted
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Electroresistance and Joule heating effects in manganite thin films BENJAMIN MARTINEZ, LUIS PENA, REGINA GALCERAN, ZORICA KONSTANTINOVIC, ALBERTO POMAR, BERNAT BOZZO, LLUIS BALCELLS, FELIP SANDIUMENGE, ICMAB-CSIC. Campus de Bellaterra, Bellaterra-08193. SPAIN, NANOSTRUCTURED MAGNETIC MATERIALS TEAM — Electroresistance (ER), i.e. electric field- and/or current-induced resistance switching, has attracted much attention recently because of the possibility of using it for the implementation of resistance random access memories (ReRAM). Although ER is a quite common phenomenon in transition metal oxides, that has been extensively studied both theoretically and experimentally, the precise mechanism involved is not clear yet. In this work we report on the ER measurements in patterned $\text{La}_{2/3}\text{Sr}_{2/3}\text{MnO}_3$ (LSMO) thin films prepared by sputtering. In order to analyze Joule heating effects we have evaporated a Pt layer on top of the LSMO path to have access to the actual temperature of the sample while measuring resistance of LSMO path or $I(V)$ characteristic curves. $I(V)$ curves have been measured at different temperatures and the corresponding resistance values are compared with that of the $R(T)$ curve taking into account the actual temperature of the sample in order to clarify the role of Joule heating in the observed change of the resistance.

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