Abstract Submitted
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Telegraph Noise in LSMO Nanowires JOHN J. DAMASCO, NICHOLAS T. BRONN, XIAOQIAN M. CHEN, ANOOP R. DAMODARAN, KARTHIK JAMBUNATHAN, LANE W. MARTIN, PETER ABBAMONTE, NADYA MASON, University of Illinois at Urbana-Champaign — Lanthanum strontium manganites ($La_{1-x}Sr_xMnO_3$) are oxide materials that exhibit colossal magnetoresistance and have potential in spintronics applications. Their resistivity is affected by the competition between a double exchange mechanism and a Jahn-Teller distortion. We present magnetic-field dependent transport measurements on PLD-grown $La_{2/3}Sr_{1/3}MnO_3$ nanowires. First, we show signatures of bimodal random telegraph noise that occur at temperatures below 100 K. We also discuss the temperature dependence of the resistance, which is consistent with a meta-stability in the nanowire. Both behaviors can be explained by a competition between ferromagnetic metallic and charge-ordered insulating domains, caused by double exchange and the Jahn-Teller distortion, respectively.

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