

Abstract Submitted
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Telegraph Noise in LSMO Nanowires¹ NICHOLAS BRONN, XIAO-QIAN CHEN, University of Illinois at Urbana-Champaign, Department of Physics, Materials Research Laboratory, JASON HOFFMAN, ANAND BHATTACHARYA, Argonne National Laboratory, Center for Nanoscale Materials, PETER ABBA-MONTE, NADYA MASON, University of Illinois at Urbana-Champaign, Department of Physics, Materials Research Laboratory — Hole-doped manganites with the perovskite structure exhibit a variety of superlative properties because of close competition among ferromagnetic metallic, paramagnetic insulating, as well as various charge, spin, and orbitally ordered phases. We have recently observed random telegraph noise (RTN) in low-temperature conductance measurements of epitaxially-grown $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3$ nanowires patterned by electron-beam lithography and ion milling to widths of $\sim 80\text{nm}$. The RTN is apparent at temperatures less than 30K. It is thought that the RTN is the result of domain fluctuations, which are more clearly observable in such narrow wires.

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