

Abstract Submitted
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Effects of strain, electric field and correlations on the resistance noise in epitaxial NdNiO₃ films¹ G. SAMBANDAMURTHY, ALI ALSAQQA, SUJAY SINGH, State Univ of NY - Buffalo, SRIMANTA MIDDEY, MICHAEL KARREEV, JAK CHAKHALIAN, University of Arkansas - Fayetteville — Rare earth nickelates are strongly correlated materials that exhibit metal-insulator and Neel transitions as a function of temperature. The nature of the transport mechanisms in individual phases (paramagnetic metal, paramagnetic insulator and antiferromagnetic insulator) is an active area of research. We use low frequency ($1 \text{ mHz} < f < 10 \text{ Hz}$) resistance noise spectroscopy to probe the phases and the transitions between them in ultrathin epitaxial films of NdNiO₃ grown on substrates that introduce different strains. While the transport behavior and the transition temperatures are greatly affected by the strain, the noise behavior across the transitions is found to be similar. In the low temperature antiferromagnetic phase, an intriguing switching between two distinct ground states is observed pointing to a subtle competition in the energy landscape. The noise magnitude as a function of electric field in submicron devices will also be presented.

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