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Nanostructure Investigations of Nonlinear Differential Conductance in $NdNiO_3$ Thin Films WILL HARDY, HENG JI, Department of Physics and Astronomy, Rice University, EVGENY MIKHEEV, SUSANNE STEMMER, Materials Department, University of California, Santa Barbara, DOUGLAS NATELSON, Department of Physics and Astronomy, Rice University — Transport measurements on thin films of $NdNiO_3$ reveal a crossover to a regime of pronounced nonlinear conduction below the well-known metal-insulator transition temperature. The evolution of the transport properties at temperatures well below this transition appears consistent with a gradual formation of a gap in the hole-like Fermi surface of this strongly correlated system. As T is decreased below the nominal transition temperature, transport becomes increasily non-Ohmic, with a model of Landau-Zener breakdown becoming most suited for describing $I(V)$ characteristics as the temperature approaches 2 K.

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