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Supplementary Materials for

Tuning bad metal and non-Fermi liquid behavior in a Mott material: Rare-earth nickelate thin films

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The PDF file includes:

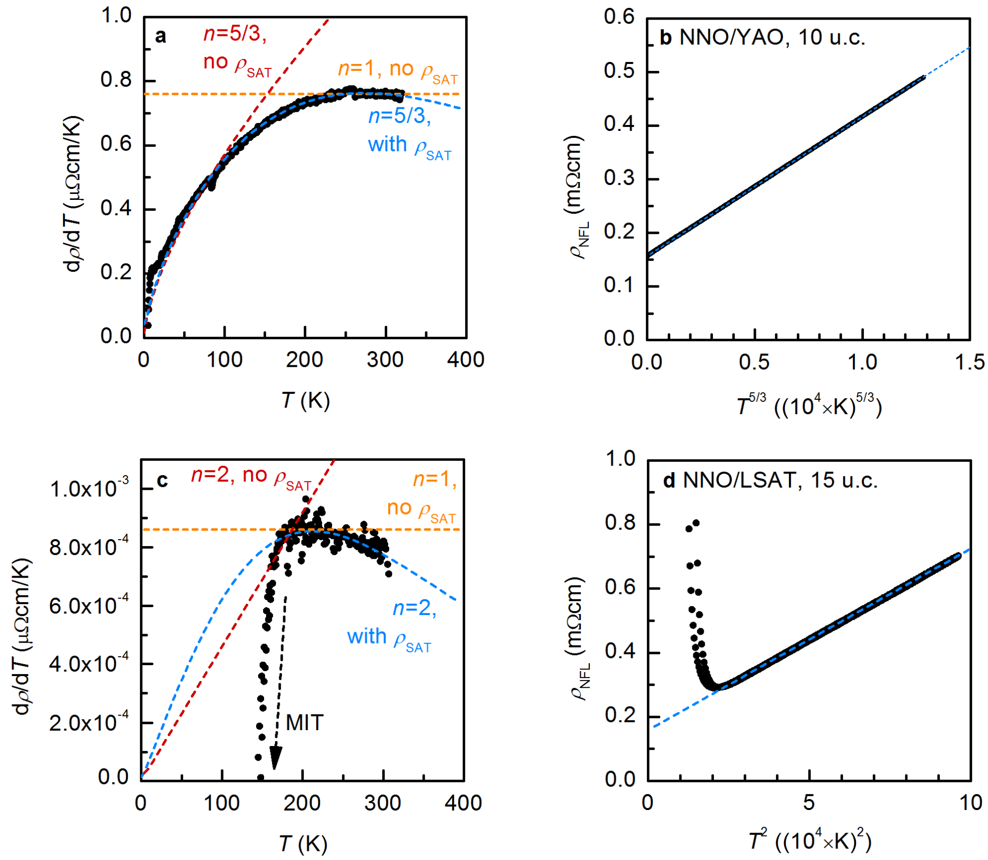

Figure S1 | Resistivity as a function of temperature. (a, c) Temperature derivative of the resistivity as a function of temperature for a 10 u.c. film on $YAlO_3$, a fully metallic non-Fermi liquid and a 15 u.c. thick film on LSAT, a LFL with a sharp metal-insulator transition near 150 K. The corresponding ρ_{NFL} as a function of T^n are shown in (b) and (d).

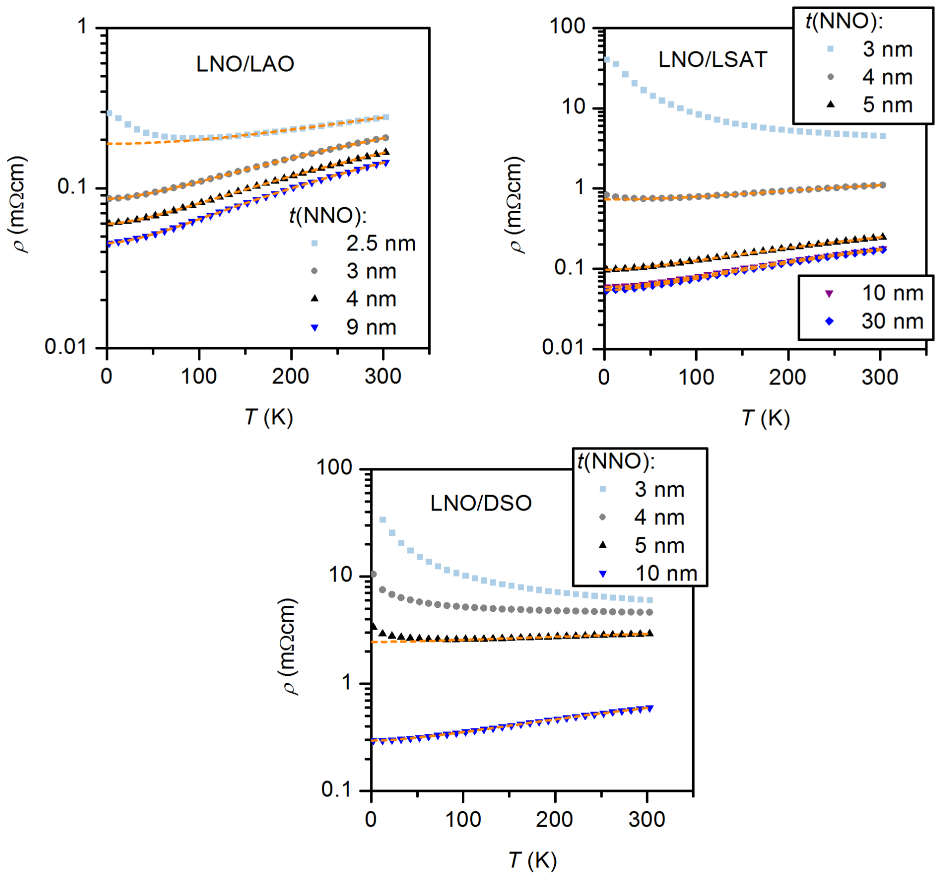

Figure S2 | ρ-*T* data for $LaNiO_3$. Data re-plotted from ref. (*33*). The dashed orange lines are fits to Eqs. (1) and (2).

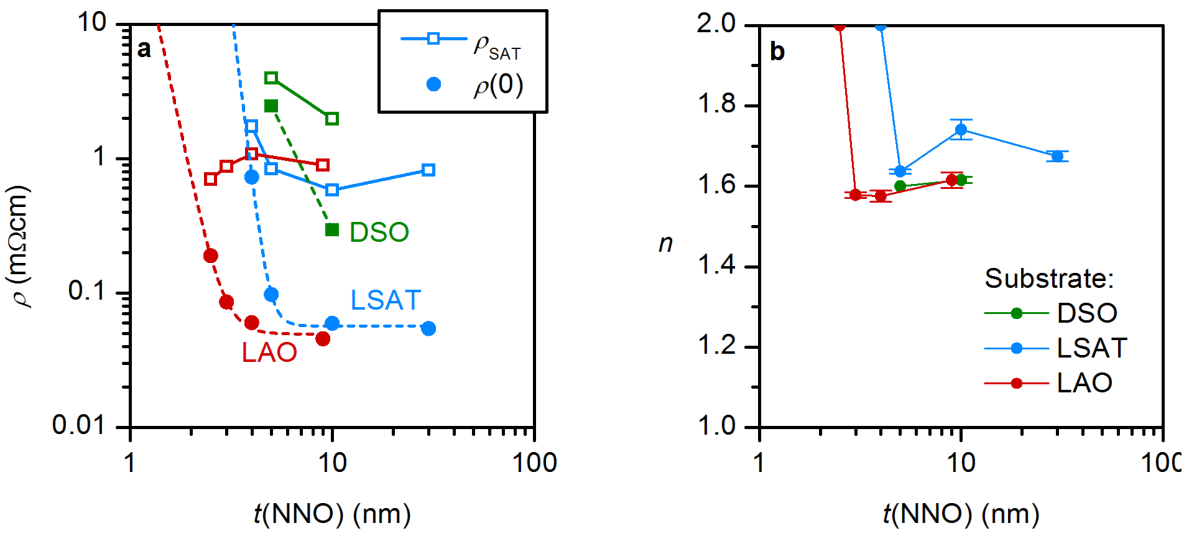

Figure S3 | Saturation resistivity and NFL behavior in $LaNiO_3$. (a) ρ_{SAT} and $\rho(0)$ extracted from data in Fig. S3. The condition $\rho(0) = \rho_{SAT}$ accurately predicts the transition to an insulator at all temperatures. (b) Extracted exponent n, showing that thick $LaNiO_3$ films are non-Fermi liquids. All data are from ref. (*33*).

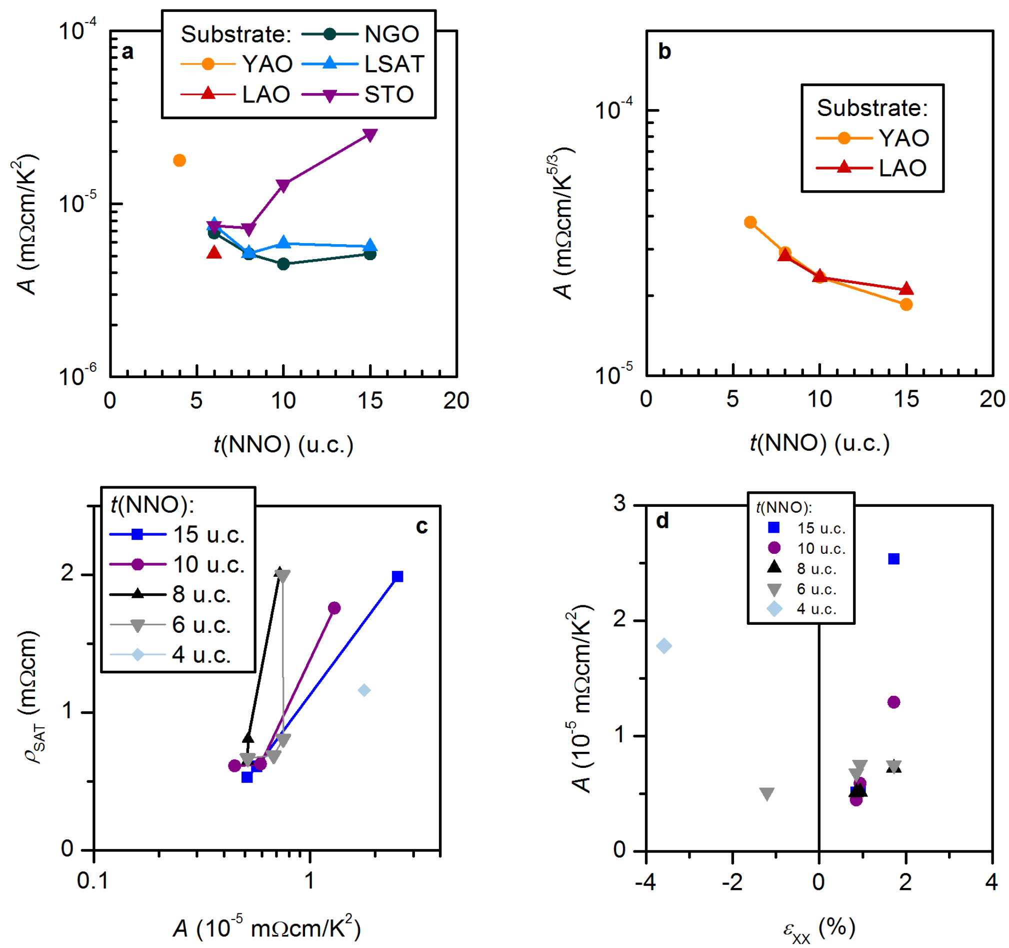

Figure S4 | Electron-electron scattering coefficient *A*. (a) *A* as a function of thickness for the LFLs (n = 2). (b) *A* as a function of thickness for all NFL films (n = 5/3). (c) Scaling between *A* and ρ_{SAT}, each curve corresponds to a specific $NdNiO_3$ thickness, t_{NNO}. (d) *A* as a function of strain for different film thicknesses.