

Abstract Submitted
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Current-voltage profile of a strongly correlated materials heterostructure using non-equilibrium dynamical mean field theory KHADIJEH NAJAFI, JAMES FREERICKS, Georgetown university — We investigate the nonlinear electronic transport across a multilayered heterostructure which consists of Mott insulator layers connected to ballistic metal leads on both sides. To create current flow, we turn on an electric field in the leads for a finite period of time and then turn it off and let the system reach the steady state by adding an electric field over the correlated region. We use nonequilibrium dynamical mean-field theory to obtain the current-voltage relation. To do so, we current bias the device, and adjust the voltage profile to ensure current conservation and charge conservation throughout. The calculation ultimately works directly in the steady-state limit.

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