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Transport in a Dissipative Luttinger Liquid ZORAN RISTIVOJEVIC, Institute of Theoretical Physics, University of Cologne, Cologne, Germany, THOMAS NATTERMANN, Institute of Theoretical Physics, University of Cologne, Cologne,Germany — We study theoretically the transport through a single impurity in a one-channel Luttinger liquid coupled to a dissipative Ohmic bath. For nonzero dissipation, the single impurity is always a relevant perturbation which suppresses transport strongly. At zero temperature, the current voltage relation of the link is $I \sim \exp(-E_0/eV)$, where $E_0 \sim \eta/\kappa$ and κ denotes the compressibility and η the dissipation strength. At nonzero temperature T, the linear conductance is proportional to $\exp(-\sqrt{\mathcal{C}E_0/k_BT})$. The decay of Friedel oscillation saturates for at distances larger than $L_\eta \sim 1/\eta$ from the impurity.
[1] Z. Ristivojevic and T. Nattermann, Phys. Rev. Lett. **101**, 016405 (2008).

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