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Nonequilibrium transport in the Anderson-Holstein model with interfacial screening[1] ENRICO PERFETTO, GIANLUCA STEFANUCCI, University of Rome Tor Vergata — Image charge effects in nanoscale junctions with strong electron-phonon coupling open the way to unexplored physical scenarios. Here we present a comprehensive study of the transport properties of the Anderson-Holstein model in the presence of dot-lead repulsion. We propose an accurate many-body approach to deal with the simultaneous occurrence of the Franck-Condon blockade and the screening-induced enhancement of the polaron mobility. Remarkably, we find that a novel mechanism of negative differential conductance origins from the competition between the charge blocking due to the electron-phonon interaction and the charge deblocking due to the image charges. An experimental setup to observe this phenomenon is discussed. References [1] E. Perfetto, G. Stefanucci and M. Cini, Phys. Rev. B 85, 165437 (2012). [2] E. Perfetto and G. Stefanucci, Phys. Rev. B 88, 245437 (2013). [3] E. Perfetto and G. Stefanucci, Journal of Computational Electronics 14, 352 (2015).

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