Abstract Submitted
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Atomic dimer shuttling and two-level conductance fluctuations in Nb nanowires[1] ROBERT N. BARNETT, CHUN ZHANG, ALEXEI MARCHENKOV, ZHENTING DAI, UZI LANDMAN, School of Physics, Georgia Institute of Technology — We describe density-functional structural optimization and conductance calculations which were carried out to explain high-resolution conductance measurements of niobium nanowires. In particular, the observed bistability manifesting itself as telegraph noise in the measured conductance is associated with the formation of a niobium dimer between the opposing electrodes, with the dimer shuttling between symmetric, high-conductance, and asymmetric, low-conductance, configurations.

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