

Abstract Submitted
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Break-down of the density-of-states description of scanning tunneling spectroscopy in supported metal clusters MARTIN GARCIA, Physics Department, Universität Kassel, MARIO DE MENECH, Physics Department, Universität Kassel and Max-Planck-Institute für Physik komplexer Systeme, ULF SAALMANN, Max-Planck-Institute für Physik komplexer Systeme — Low-temperature scanning tunneling spectroscopy allows to probe the electronic properties of clusters at surfaces with unprecedented accuracy. By means of quantum transport theory, using realistic tunneling tips, we obtain differential conductance curves which considerably deviate from the cluster's density of states. Our study explains the remarkably small number of peaks in the conductance spectra observed in recent experiments. We demonstrate that the unambiguous characterization of the states on the supported clusters can be achieved with energy-resolved images, which we are able to construct with a complete simulation of the experimental imaging procedure.

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