

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Angle-resolved photoemission of Au clusters on graphite: quantized surface states on cluster facets¹ H. HÖVEL, I. BARKE, Universität Dortmund, Experimentelle Physik I, 44221 Dortmund, Germany — We present an experimental study for the electronic properties of metal clusters on surfaces. For the specific case of the confined Shockley surface state on the top (111) facets of gold clusters on graphite [1] we were able to detect the quantized electronic structure with two independent experimental techniques, scanning tunneling spectroscopy (STS) and ultraviolet photoelectron spectroscopy (UPS). Here we present new UPS data and their analysis which shows a quantitative agreement if we compare the density of states, extracted from the STS spectra by averaging over the cluster size distribution, with the UPS spectra using a deconvolution to compensate the dynamic final state effect [2] which leads to a systematic asymmetric broadening of all valance band UPS features [3].

[1] I. Barke, H. Hövel, Phys. Rev. Lett. 90, 166801 (2003).

[2] H. Hövel, B. Grimm, M. Pollmann, B. Reihl, Phys. Rev. Lett. 81, 4608 (1998).

[3] H. Hövel, I. Barke, Prog. Surf. Sci., submitted for publication.

¹Work supported by the Deutsche Forschungsgemeinschaft

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Date submitted: 02 Dec 2005

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