

Abstract Submitted
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Symmetry-induced confinement in reconstructed Au(100) S. BENGIO, Universidad Autónoma de Madrid, Madrid, Spain, V. NAVARRO, M.A. GONZALEZ-BARRIO, R. CORTES, Universidad Complutense, Madrid, Spain, I. VOBORNIK, TASC National Laboratory, Trieste, Italy, E.G. MICHEL, Universidad Autónoma de Madrid, Madrid, Spain, A. MASCARAQUE, Universidad Complutense, Madrid, Spain — The clean reconstructed Au(100) surface was investigated by angle-resolved photoemission spectroscopy, Low Energy Electron Diffraction and Scanning Tunneling Microscopy. The reconstruction can be described as a floating, corrugated hexagonal layer on top of the bulk-terminated substrate, as in the case of Ir(100) and Pt(100) surfaces. We determine a superperiodicity of (5×26) . The substrate Shockley surface state survives the reconstruction and becomes an interfacial surface state. Compelling evidence supports that the overlayer behaves as a quasi-1D system. The presence of quasi-1D states and Shockley surface states are both a consequence of a certain degree of vertical electronic confinement induced by the different symmetry of the hexagonal overlayer and the square bulk-terminated Au(100). The existence of quasi-1D states reveals a significant lateral confinement perpendicular to the atomic chains of the reconstructed Au layer.

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