

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Atomic manipulation and tunneling spectroscopy on vacancy of Ag(111) surface studied with LT-STM¹ DANDA P. ACHARYA², KAI F. BRAUN, SAW W. HLA, Ohio University — The evolution of the surface state and the effect of vacancies on the Ag(111) surface are investigated at an atomic scale by combining scanning tunneling microscopy and spectroscopy and atom manipulation at 5 K. Various vacancy sizes, from one atom to hundreds of atoms, on Ag(111) are first created by tip-sample contact in a controlled manner. Using lateral manipulation, a vacancy is filled one at a time and the corresponding differential conductance spectra are recorded. Small energy shifts in the onset of surface state are observed. The shift is more pronounced for small size vacancy and becomes less and less pronounced for larger size vacancies. The observed dI/dV intensities at different size of vacancies clearly reveals that the surface state onset on Ag(111) disappears after reaching towards the 6th layers.

¹This work is financially supported by a US-DOE grant, DE-FG02-02ER46012, and a NSF-NIRT grant, DMR-0304314.

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Date submitted: 26 Nov 2007

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