

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Sorting Category: 12.1.2 (E)

Localized states at grain boundaries in graphite¹ ADINA LUICAN-MAYER, GUOHONG LI, Department of Physics and Astronomy, Rutgers University, GABRIEL AUTES, OLEG YAZYEV, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland, EVA Y. ANDREI, Department of Physics and Astronomy, Rutgers University — Scanning Tunneling Microscopy and Spectroscopy at low temperature and in magnetic field was used to characterize the electronic states near grain boundaries on the surface of graphite. Topographic surface maps show the grain boundaries as narrow stripes within which the lattice is reconstructed into a periodic pattern whose period is determined by the relative orientation between adjacent grains. In spectroscopy the grain boundaries produce sharp peaks in the density-of-states at energies that are characteristic of the misorientation between adjacent grains. Spatial maps of the density-of-states at these peak energies show that the peaks correspond to electronic states that are localized on the grain boundaries. We will present measurements of these localized electronic states, their evolution with magnetic field and misorientation angle between grains. The experimental results will be compared with theoretical calculations.

¹Work supported by DOE under DE-FG02-99ER45742, by the Lucent-Alcatel foundation and by NSF under NSF-DMR-0906711, Swiss NSF (grant No. PBELP2-123086)

Prefer Oral Session
 Prefer Poster Session

Adina Luican-Mayer
aluican@physics.rutgers.edu
Department of Physics and Astronomy, Rutgers University

Date submitted: 22 Dec 2011

Electronic form version 1.4