Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Scanning Tunneling Spectroscopy of Graphene on Hexagonal Boron Nitride MATTHEW YANKOWITZ, JIAMIN XUE, DANIEL CORMODE, Physics Department, University of Arizona, JAVIER SANCHEZ-YAMAGISHI, PABLO JARILLO-HERRERO, Department of Physics, Massachusetts Institute of Technology, K. WATANABE, T. TANIGUCHI, Advanced Materials Laboratory, National Institute for Materials Science, PHILIPPE JACQUOD, BRIAN LEROY, Physics Department, University of Arizona — Recent work has found hexagonal boron nitride (hBN) to be a good substrate for graphene devices due to its ability to screen charged impurities in the underlying substrate and increase graphene mobility. We investigated graphene on hBN heterostructures using scanning tunneling microscopy and spectroscopy. Because hBN has the same bond structure as graphene with a slightly longer lattice constant, a rotationally dependent Moiré pattern is formed in graphene on hBN heterostructures. The Moiré pattern creates a weak periodic potential for the charge carriers in graphene. We performed an experimental and theoretical investigation of its effect on the local density of states. We observed a Moiré wavelength dependent modification of the local density of states in good agreement with theory predictions.

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Date submitted: 10 Nov 2011 Electronic form version 1.4