Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Quantized Landau level spectrum and its density dependence in graphene supported by SiO_2[1] ADINA LUICAN, GUOHONG LI, EVA ANDREI, Department of Physics and Astronomy, Rutgers University, DEPARTMENT OF PHYSICS AND ASTRONOMY, RUTGERS UNIVERSITY TEAM — Scanning tunneling microscopy and spectroscopy in magnetic field was used to study Landau quantization in graphene and its dependence on charge carrier density. Measurements were carried out on exfoliated graphene samples deposited on a chlorinated thermal SiO_2 which allowed observing the Landau level sequence characteristic of single layer graphene while tuning the carrier density through the Si back-gate. Upon changing the carrier density we find abrupt jumps in the Fermi level after each Landau level is filled. Moreover, at low doping levels a marked increase in the Fermi velocity is observed which is consistent with the logarithmic divergence expected due to the onset of many body effects close to the Dirac point.

[1]Work supported by DOE under DE-FG02-99ER45742, partial NSF under NSF-DMR-0906711 and Lucent

Adina Luican
Department of Physics and Astronomy, Rutgers University

Date submitted: 26 Nov 2010 Electronic form version 1.4