Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Infrared probe of charge dynamics in graphene transistors ZHIQIANG LI, University of California, San Diego, ERIK HENRIKSEN, Columbia University, ZHIGANG JIANG, Columbia University/NHMFL, ZHAO HAO, MICHAEL MARTIN, Lawrence Berkeley National Laboratory, PHILIP KIM, Columbia University, HORST STORMER, Columbia University/Bell Labs, DIMITRI BASOV, University of California, San Diego — We report on infrared (IR) spectroscopy of charge dynamics in monolayer graphene. IR reflectance and transmission measurements were performed on graphene transistors as a function of gate voltage. From these data, we obtained the optical conductivity of graphene at various carrier densities. The dominant feature of the optical conductivity is an interband transition with the onset at twice the Fermi energy, which evolves systematically with gate voltage. Similar behavior was observed with the Fermi level on either side of the Dirac point. We will compare these results with theoretical predictions and discuss several new aspects of the charge dynamics in graphene uncovered by this work.

Zhiqiang Li
University of California, San Diego

Date submitted: 19 Nov 2007 Electronic form version 1.4