Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Plasmon Dispersion and Damping in Electrically-isolated Two-dimensional Charge Sheets[1] YU LIU, ROY WILLIS, Pennsylvania State University — Using high resolution reflection electron-energy-loss- spectroscopy (HREELS), we compare experimental results for the wavevector-dependent behavior of plasmons in a graphene sheet on SiC(0001) with that due to a filled band of surface states on semiconducting silicon. There are significant differences in behavior between the two systems, and the behavior predicted for a classical two-dimensional sheet of electrons. In particular, the damping increases with wavevector independent of any obvious inelastic scattering channel. The results illustrate the importance of finite-momentum, non-local potential effects for the dynamical behavior of electrically- isolated charge sheets.[2]

[1]Petroleum Research Fund of the American Chemical Society
[2]Y. Liu, et al. Phys. Rev. B 78, 201403(R)(2008)

Yu Liu
Pennsylvania State University

Date submitted: 18 Nov 2008 Electronic form version 1.4