Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

**Tunneling Spectroscopy of Graphene using Planar Pb Probes**[1]
YANJING LI, NADYA MASON, University of Illinois at Urbana-Champaign —
We show that evaporating lead directly on graphene can create high-quality tunnel probes. By monitoring and comparing the resistances of probes made from Pb, Al and Ti/Au, we have found unique and robust behavior of the Pb probes: the contact resistance between the Pb and graphene first increases and then saturates over a time period of approximately one week. Characterization via transport measurements at low temperature shows that after oxidation a well-formed tunnel barrier is created between the Pb and the graphene. Tunneling spectroscopy using the Pb probes manifests energy-dependent features such as scattering resonances and localization behavior, and can thus be used to probe the microscopic electronics of graphene.

[1]This work was supported by the NSF DMR-0906521.

Yanjing Li
University of Illinois at Urbana-Champaign

Date submitted: 01 Nov 2012 Electronic form version 1.4