

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Kelvin Probe Microscopy and Electrostatic Force Microscopy of reduced graphene oxide platelets** JOSEPH RAHAMIM, CHRISTOPHER KEHAYIAS, Physics and Astronomy, Tufts University, SAMUEL MACNAUGHTON, SAMEER SONKUSALE, Electrical and Computer Engineering, Tufts University, CRISTIAN STAIL, Physics and Astronomy, Tufts University — We present combined Scanning Kelvin Probe Microscopy (SKPM) and Electrostatic Force Microscopy (EFM) measurements on reduced graphene oxide (rGO). Although the as-synthesized graphene oxide is insulating, controlled reduction chemistry can render this material semiconducting or even semi-metallic. The availability of several types of oxygen functional groups allows rGO to interact with a wide range of organic and inorganic compounds. We perform sensitive SKPM and EFM measurements on patterned rGO electronic circuits and show that the electrical potential and charge distribution are significantly changed when the device is exposed to various organic dopants. We also demonstrate that these experiments allow a systematic study of the conducting channels through rGO as a function of the chemical dopant.

Joseph Rahamim  
Physics and Astronomy, Tufts University

Date submitted: 26 Nov 2011

Electronic form version 1.4