Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Photocurrent Measurement of Multiple Top Gated Graphene Devices TROND ANDERSEN, QIONG MA, Department of Physics, Massachusetts Institute of Technology, Cambridge, MA 02139, USA, NATHANIEL GABOR, Department of Physics and Astronomy, University of California Riverside, Riverside, CA 92521, USA, KENJI WATANABE, TAKASHI TANIGUCHI, National Institute for Materials Science, Namiki 1-1, Tsukuba, Ibaraki 305-0044, Japan, PABLO JARILLO-HERRERO, Department of Physics, Massachusetts Institute of Technology, Cambridge, MA 02139, USA — Inefficient electron-phonon relaxation in graphene results in long-lived hot carriers that proliferate over large spatial scales, associated with long-range energy and momentum transport. In order to investigate the propagation length of hot carriers, we report on photocurrent measurements using graphene devices with a global back-gate and multiple local top-gates. The purpose of the latter is to facilitate independent modulation of the Seebeck coefficient at different distances from the position of laser illumination. By varying the voltages of the top gates separately and measuring the change in photovoltage, we investigate the electronic temperature gradient at each gate through the Seebeck effect.

Trond Andersen
Dept of Physics, Massachusetts Institute of Technology,
Cambridge, MA 02139, USA

Date submitted: 15 Nov 2013 Electronic form version 1.4