Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Local Conductance Variation in Graphene Devices: a Scanning Gate Microscope Study JUNGSEOK CHAE, Seoul National Univ., SUYONG JUNG, NIST, SUNGJONG WOO, Korea Institute for Advanced Study, HONG-WOO BAEK, JEONGHOON HA, Seoul National Univ., YOUNGJAE SONG, NIST, YOUNGWOO SON, Korea Institute for Advanced Study, NIKOLAI B. ZHITENEV, JOSEPH A. STROSCIO, NIST, YOUNG KUK, Seoul National Univ.
— Despite much works have been done on the geometric structures of ripples, defects and edge atoms in a graphene device, there has been no report showing the direct correlation between the structures and the transport property. Unlike scanning tunneling microscopy or other electron microscopes, Scanning Gate Microscope (SGM) is a unique microscopic tool with which the local electronic structure and the transport property of a device can be measured simultaneously. We have performed a transport measurement in nanometer scale using a scanning gate microscope. We have found the nanoscopic pictures of electron and hole puddles and the role of graphene- device edges in the transport measurements. These experimental findings were successfully explained with a theoretical model.

Jungseok Chae
Seoul National Univ.

Date submitted: 20 Nov 2009 Electronic form version 1.4