Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

**Spatially resolved and polarized Raman spectroscopy of graphene**

DUHEE YOON, HYERIM MOON, HYEONSIK CHEONG, Sogang University —

Graphene samples were prepared by micromechanical cleavage of graphite flakes on silicon wafer, which was covered with a 300-nm silicon oxide layer. Raman spectra of a single-layer graphene were clearly differentiated from those of a few layers of graphene sheets. We compared the spatially resolved micro-Raman spectra with atomic force microscopy to determine the number of layers for each sample, and variations of Raman spectra, which intensity and shift of Raman peak, were observed through the Raman image. The Raman G peak, corresponding to Raman active mode $E_{2g}$, was observed at $\sim$1590 cm$^{-1}$, and G' peak due to double resonance Raman scattering was observed at $\sim$2700 cm$^{-1}$. We performed polarized Raman spectroscopy of a single-layer graphene. The intensity of G peak was independent of polarization, in agreement with Raman tensor calculation. The variation of Raman intensity of G' peak was measured as a function of the analyzer angle. The intensity was maximum for parallel polarization and was minimum for perpendicular polarization. The depolarization ratio was 1/3.

Duhee Yoon
Sogang University

Date submitted: 27 Nov 2007 Electronic form version 1.4