Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

High Resolution TEM Imaging of Graphene by use of aberration-free microscope, R005 TAKAYUKI TANAKA, Tokyo Institute of Technology, CREST-JST, YUUSUKE ABE, Tokyo Institute of Technology, HIDETAKA SAWADA, EIJI OKUNISHI, YUKIHITO KONDO, JEOL, CREST-JST, KUNIO TAKAYANAGI, Tokyo Institute of Technology, CREST-JST — Free-standing Graphene is imaged by use of a novel transmission electron microscope (TEM), R005, equipped with newly-designed Cs Correctors for TEM and STEM. The R005 microscope is fitted with 300kV cold-field emission gun (CFEG) to minimize the chromatic aberration, resulting in achievement of 50pm resolution. Its high phase contrast allows direct imaging of graphene without image reconstruction. The TEM Image of graphene can be distinguished from that of graphite and confirmed by simulation. The adatoms and defects of single carbon atom, which cause the modulation of electronic properties, are also observed.

Takayuki Tanaka
Tokyo Institute of Technology

Date submitted: 16 Dec 2008 Electronic form version 1.4