Abstract Submitted
for the NEF08 Meeting of
The American Physical Society

Electronic Structure of Graphene layers on SiO2 J.H. SHAHBAZIAN, H.S. CHOI, S.J. WOO, UML, Y.-K. KWON, KHU, Seoul 130-701 Korea, UML TEAM — Using *ab initio* density functional theory we investigate the electronic structures of single, double and triple layers of graphene on SiO_2 surfaces terminated either with Si or with O. After performing full geometry relaxation, we find that the first graphene layer is chemically bonded to the substrate and does not show any grapheme-like electronic structure. The graphitic electronic character is somewhat recovered by putting second and third layers of graphene, although subtle differences are observed among different stacking configurations, such as AA, AB, and ABC, and so on. These effects can be seen both on Si- terminated and O- terminated substrates. These studies would provide fundamental understanding to gives control over the band structure of graphene layers on SiO_2, and raises the potential application of graphene.

J.H. Shahbazian
UML

Date submitted: 22 Sep 2008 Electronic form version 1.4