

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Electronic structures of single- and multi-layer epitaxial graphene on SiC (0001) SEUNGCHUL KIM, JISOON IHM, Department of Physics and Astronomy, Seoul National University, YOUNG-WOO SON, Korea Institute for Advanced Study — The electronic structures of single- and multi-layered epitaxial graphene on silicon carbide (0001) surface are studied theoretically. To calculate energy bands of the systems, we construct the simple Hamiltonian with tight-binding approximations. We confirm that the present simple model do give identical electronic structure to the previous ab-initio study on the single layer case [1]. We extend the model up to four epitaxial graphene layers to explain various interesting experimental findings. The roles of the coupling between graphenes and the buffer layer, and their large scale reconstructions to the electronic structures are also investigated. [1] S. Kim, J. Ihm, H. J. Choi, Y.-W. Son, Phys. Rev. Lett. 100, 176802 (2008).

Seungchul Kim
Department of Physics and Astronomy, Seoul National University

Date submitted: 19 Nov 2008

Electronic form version 1.4