Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

ARPES study of the electronic dynamics from graphene to graphite SHUYUN ZHOU, Physics Department, UC Berkeley & MSD, Lawrence Berkeley National Lab, Berkeley, CA, GEY-HONG GWEON, Department of Physics, UC Santa Cruz, CA, JEFF GRAF, MSD, Lawrence Berkeley National Lab, Berkeley, CA, DAVID SIEGEL, ELIZABETH ROLLINGS, ALESSANDRA LANZARA, Physics Department, UC Berkeley & MSD, Lawrence Berkeley National Lab, Berkeley, CA — We report unique electronic information about the low energy electronic dynamics of atomically-thin graphene and bulk graphite by using high-resolution angle-resolved photoemission spectroscopy (ARPES). I will discuss the evolution of the electronic structure from single layer graphene to graphite and the dynamic of the Dirac quasiparticles as a function of energy, momentum, temperature and sample thickness. I will also discuss some very interesting features near the Fermi energy E_F and address the effects of disorder on the low energy excitations. These findings from the electronic side can provide insight on the intriguing physics in graphene and graphite, as well as other carbon-based materials. References: [1] S. Y. Zhou *et al.* Nature Phys. **2**, 595 (2006) [2] S. Y. Zhou *et al.* Annals of Physics **321**, 1730 (2006) [3] E. Rollings, G.-H. Gweon, S.Y. Zhou *et al.* J. Phys. Chem. Solids **67**, 2172 (2006) [4] S. Y. Zhou *et al.* Phys. Rev. B **71**, 161403(R) (2005)

Shuyun Zhou
Department of Physics, UC Berkeley & MSD, LBNL, Berkeley, CA

Date submitted: 26 Nov 2006 Electronic form version 1.4