

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Electronic Excitations in Bilayer Graphene J.H. HO, Y.H. LAI, M.F. LIN, National Cheng Kung University, Taiwan — The π -electronic excitations are studied for the AA- and AB-stacked bilayer graphene within the linear self-consistent-field approach. They are strongly affected by the stacking sequence, the interlayer atomic interactions, the interlayer Coulomb interactions, and the magnitude of the transferred momentum. However, they hardly depend on the direction of the transferred momentum and the temperature. There are three low-frequency plasmon modes in the AA-stacked system but not the AB-stacked system. The AA- and AB-stacked plasmons exhibit the similar π plasmons. The first low-frequency plasmon behaves as a acoustic plasmon, and the others belong to optical plasmons. The bilayer graphene quite differ from the monolayer graphene and the AB-stacked bulk graphite, such as the low-frequency plasmons and the small-momentum π plasmons.

J. H. Ho

Date submitted: 10 Nov 2006

Electronic form version 1.4