Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Electronic Structure and Optical Response of Electrically Gated Bilayer Graphene LI YANG, Washington University in St. Louis — We investigate electronic structure and optical response of electrically gated bilayer graphene using the density functional theory with pseudopotentials and plane waves. The atomic configurations of electrically gated bilayer graphene are fully relaxed according to the calculated forces and stress. The electric-field induced band gap and the corresponding infrared optical absorbance of bilayer graphene are obtained. Through these first-principles calculations, we suggest novel ways to efficiently tune the optical properties of bilayer graphene. Finally, our calculated results are in good agreement with recent experimental measurements.

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Date submitted: 01 Dec 2009 Electronic form version 1.4