Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Landau levels of graphene on h-BN probed by magneto-optics
ZHIGUO CHEN, National High Magnetic Field Laboratory, Tallahassee, Florida 32310, USA, ZHIWEN SHI, Department of Physics, University of California at Berkeley, Berkeley California 94720, USA, WEI YANG, GUANGYU ZHANG, Institute of physics, Chinese Academy of Sciences, Beijing 100190, China, FENG WANG, Department of Physics, University of California at Berkeley, Berkeley California 94720, USA, ZHIQIANG LI, National High Magnetic Field Laboratory, Tallahassee, Florida 32310, USA — Hexagonal boron nitride (h-BN) is an ideal substrate for achieving high-mobility graphene devices due to its atomically flat and clean surface. Moreover, the coupling between h-BN and graphene at small twist angles gives rise to a long-range moire supperlattice potential, which can significantly modify the electronic properties of graphene. Here, we will present infrared transmission measurements on graphene on h-BN in high magnetic fields applied perpendicular to the samples. Several inter-Landau-level transitions of graphene on h-BN were observed in fields, which exhibit pronounced deviations from the SQRT(B) field dependence for Landau levels of bare graphene. We will discuss possible mechanisms for the modifications of Landau levels of graphene by h-BN.

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Date submitted: 15 Nov 2013 Electronic form version 1.4