

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Optical transitions between Landau levels: AA-stacked bilayer graphene¹ YEN-HUNG HO, Physics, National Sun Yat-Sen University, Taiwan, RONG-BIN CHEN, Center of General Education, National Kaohsiung Marine University, Taiwan, JHAO-YING WU, YU-HUANG CHIU, MING-FA LIN, Physics, National Cheng Kung University, Taiwan — The magneto-absorption spectra are calculated for the AA- stacked bilayer graphene. Two groups of Landau levels with different symmetry in wave function are found to coexist in the low energy region. The optical transitions between the two groups give rise to two kinds of absorption peaks. The wave- function distribution can clearly characterize individual Landau levels, and further determine the optical selection rules and absorption rates. The AA bilayer has quite different spectral features compared to the AB bilayer and monolayer, as a result from the interlayer interactions and stacking symmetry. Only a single absorption survives below certain critical frequency, while other peaks are paired together and sequentially emerged above this critical energy. With a continuous change in field strength, the excitation channels are switched, associated with the abrupt changes in their frequency.

¹NSC 99-2112-M-110-009 and NSC 98-2112-M-006-013-MY4

Yen-Hung Ho
Physics, National Sun Yat-Sen University, Taiwan

Date submitted: 18 Nov 2010

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