

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

The influence of electric field on optical properties of the few-layer graphene with AB-stacking¹ CHILANG LU, Y.C. HUANG, M.F. LIN, Department of Physics, National Cheng Kung University, C.P. CHANG, Center for General Education, Tainan Woman's College of Arts & Technology, R.B. CHEN, Center for General Education, National Kaohsiung Marine University — The effect of perpendicular electric field \mathbf{E} on optical properties of the AB-stacked few-layer graphene, made up of two, three, or four graphite sheets, is explored through the gradient approximation. In contrast to the featureless optical spectra of graphene, the low-energy absorption spectra of few-layer graphene with AB-stacking exhibit many jumping structures, which result from the band edge states caused by the stacking effect, in the absence of electric field. Remarkably, \mathbf{E} causes the subband (anti)crossing, changes the subband spacing, produces the scillating bands, and increases the edge states. It, therefore, follows that the field-modulating-spectra with sharp peaks are generated. Moreover, the frequency of peak, which is strongly dependent on the layer number and the field strength, is predicated. Above all, the predicted absorption spectra and the associated electronic properties could be verified by the optical measurements.

¹Supported by NSC 94-2112-M-165-001; NSC 94-2112-M-006-0002.

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Date submitted: 03 Dec 2005

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