

Φ – 575 Διάλεξη 02

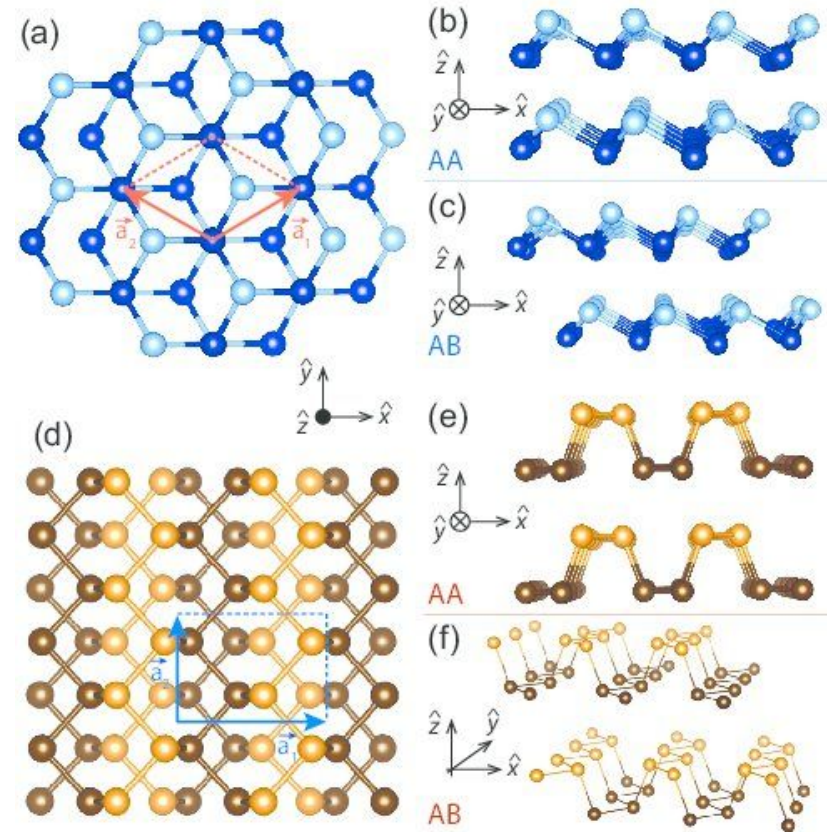
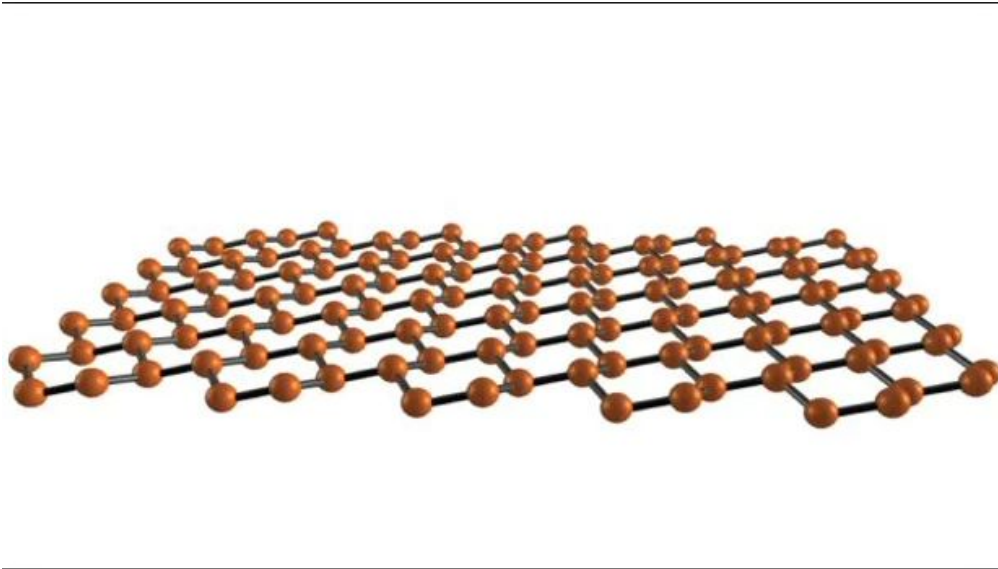
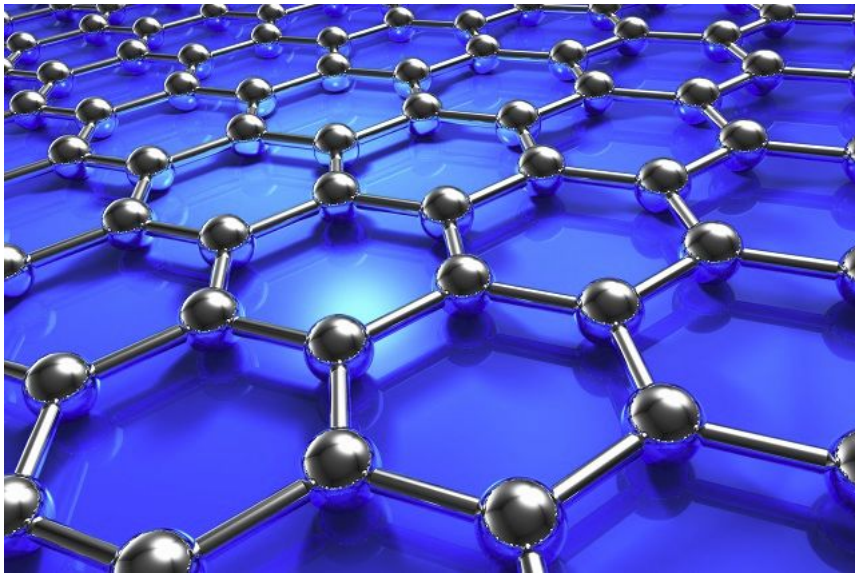
Φυσική διατάξεων δισδιάστατων ημιαγωγών

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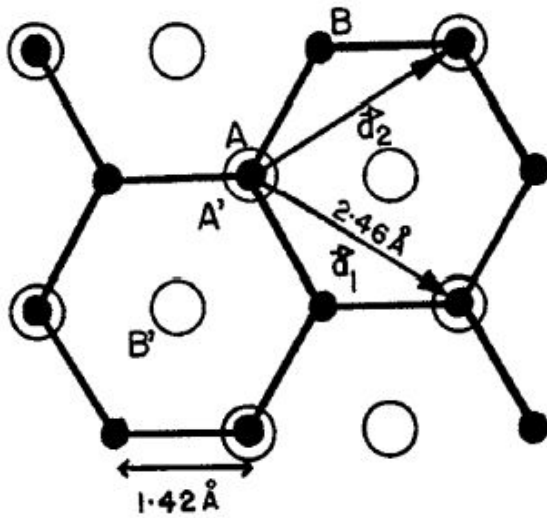




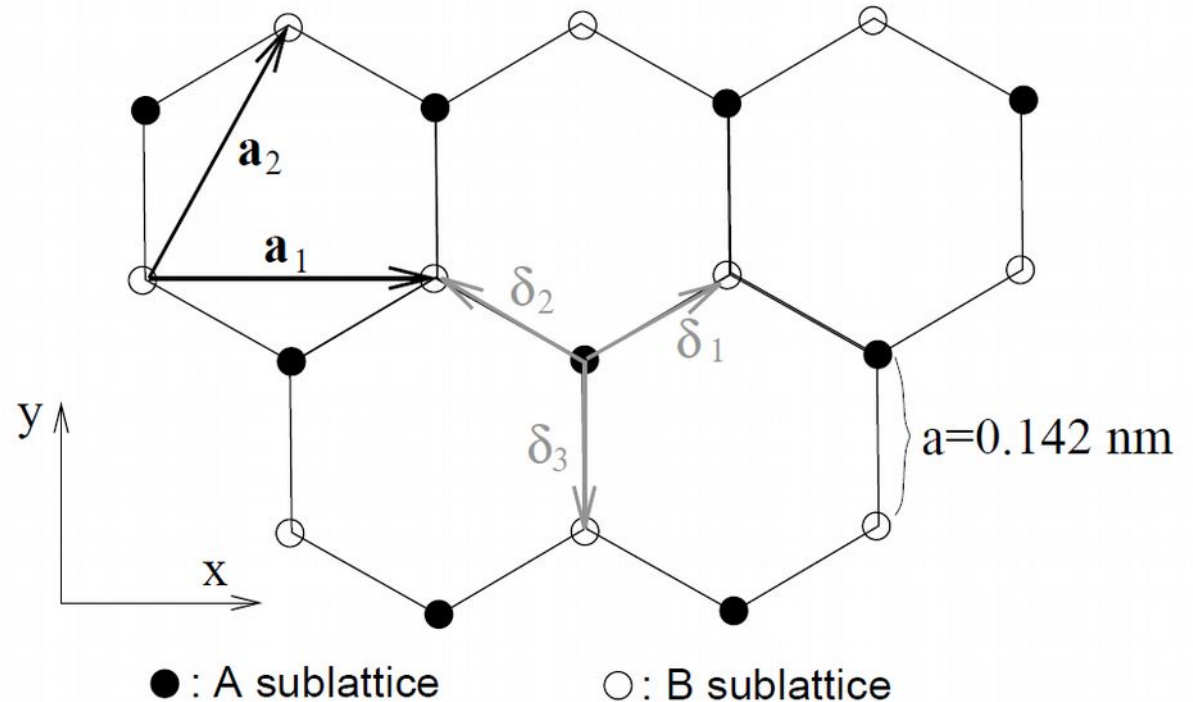
- *Υλικά αποτελούμενα από 1 στοιχείο*
 - *Graphene*
 - *Germanene*
 - *Silicene*
 - *Phosphorene*

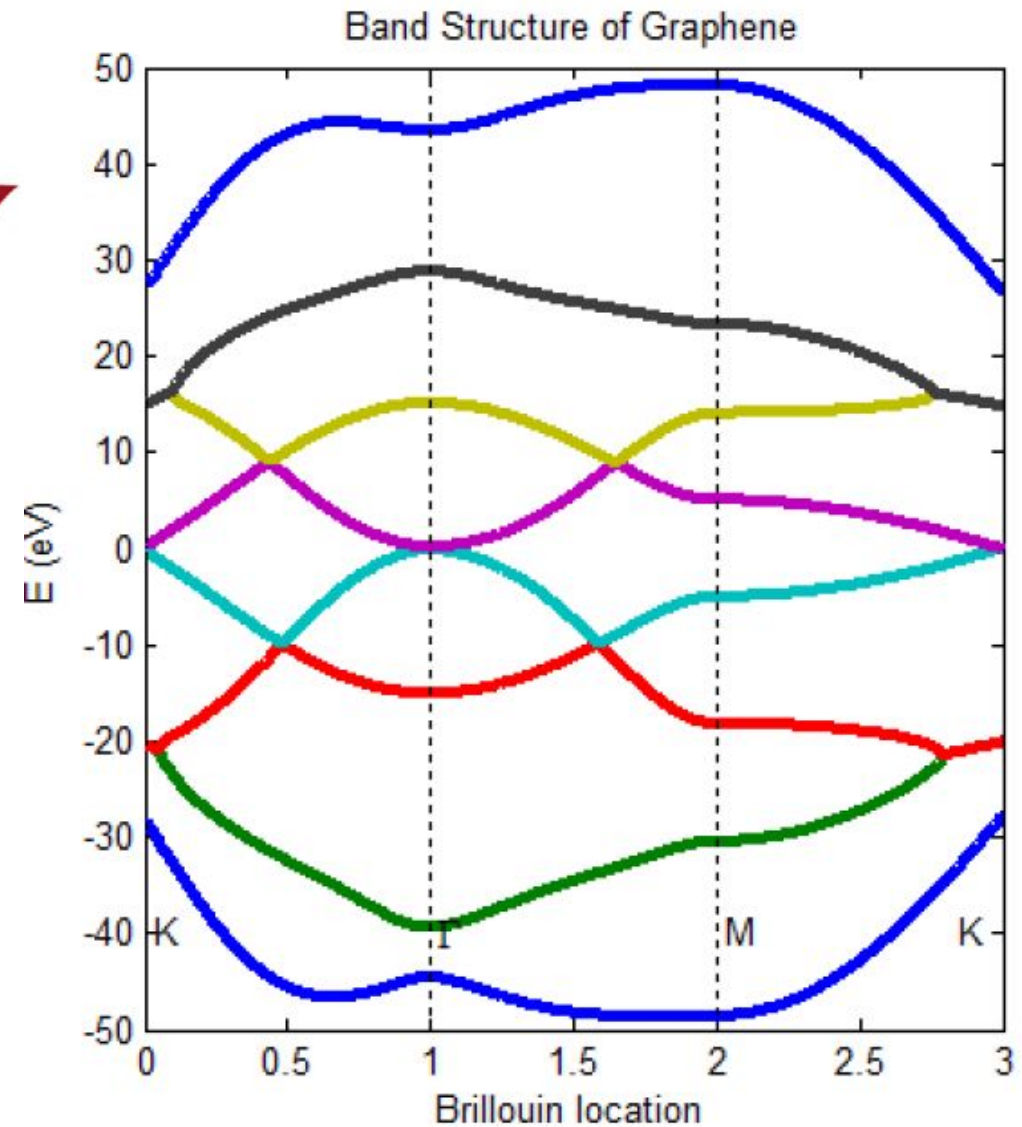
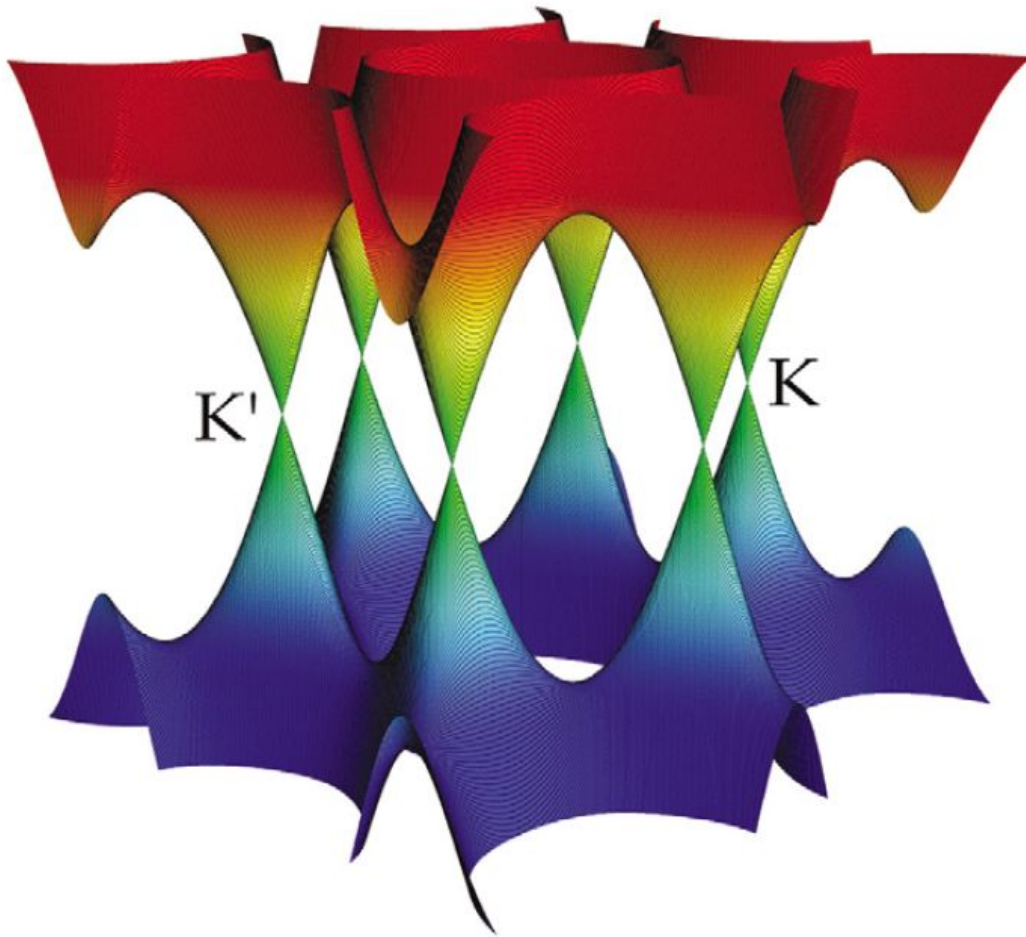


Group theory for structural analysis and lattice vibrations in phosphorene systems May 2015 Physical Review B 91(20)
DOI: 10.1103/PhysRevB.91.205421



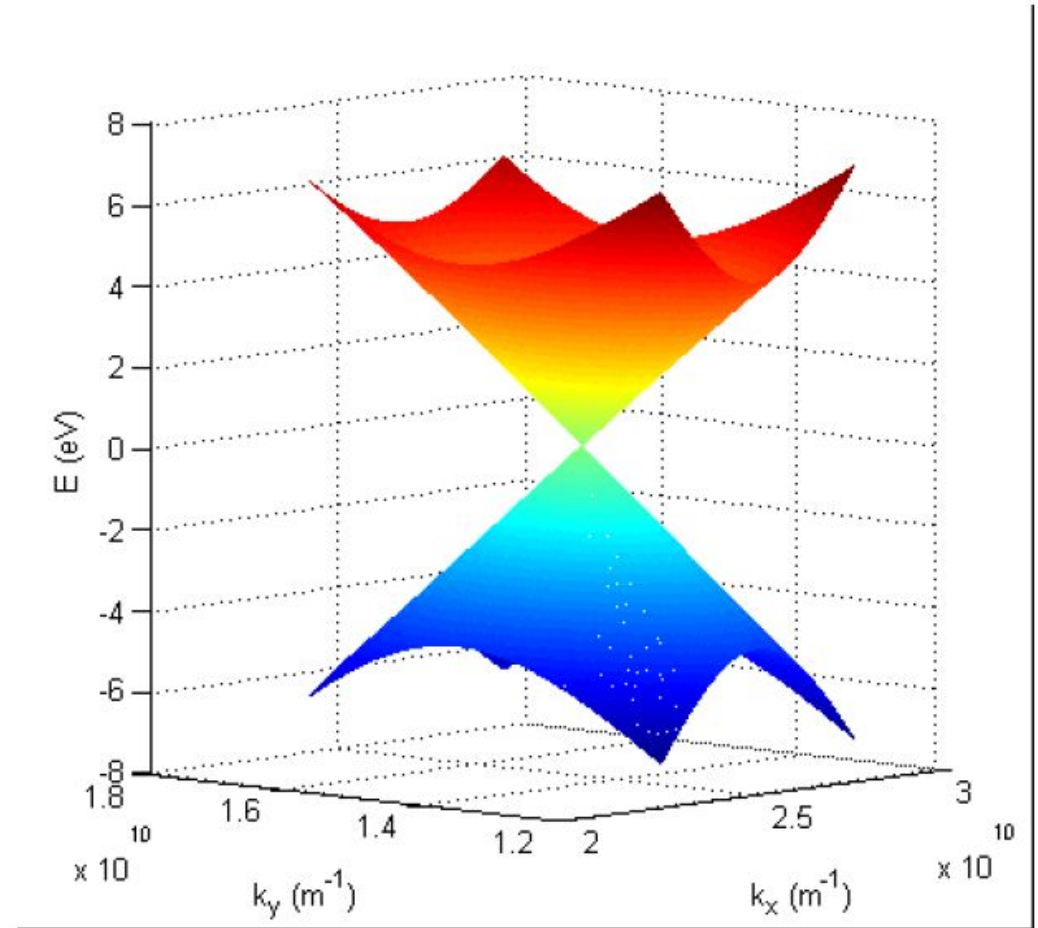
Graphene example

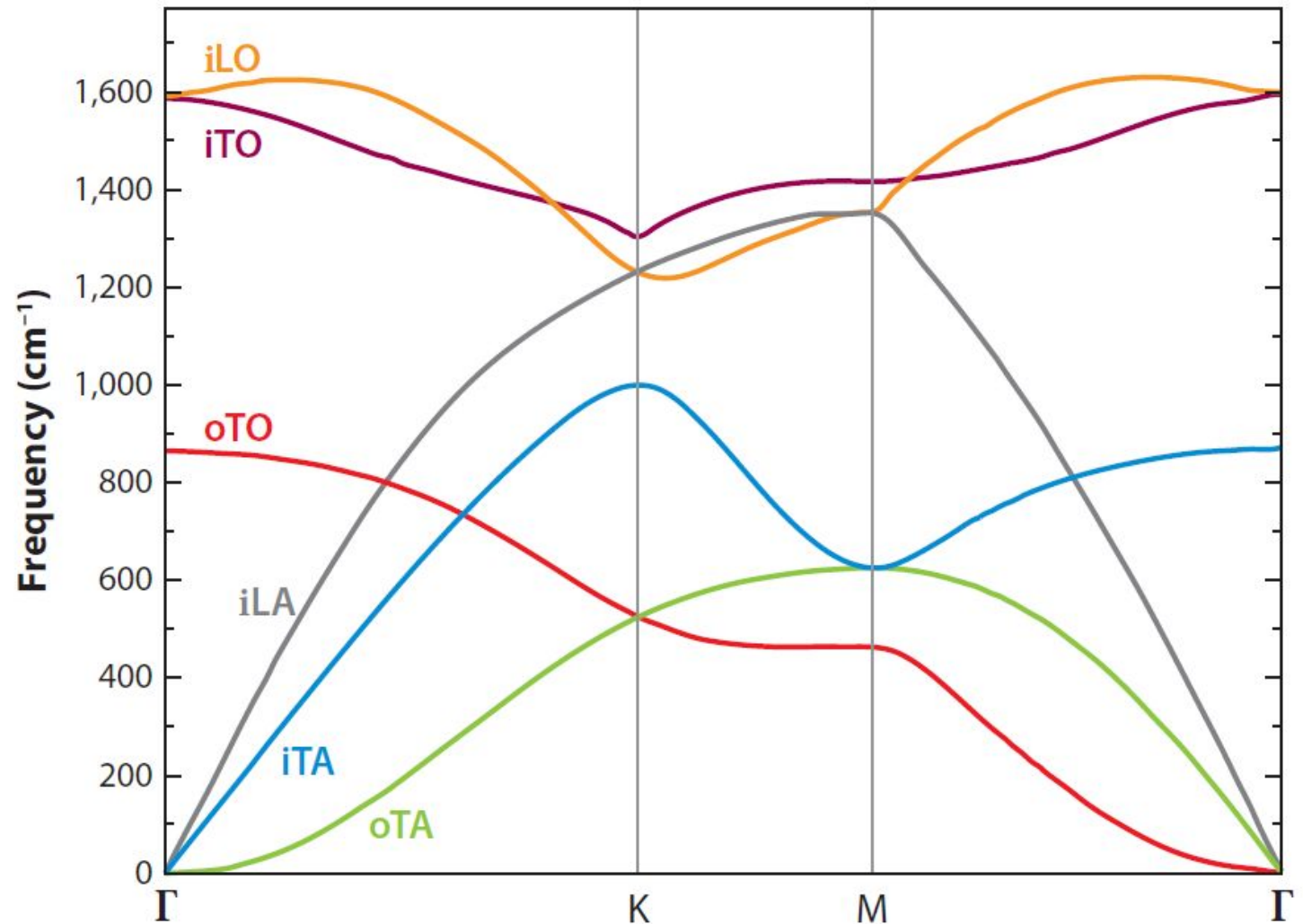




*Graphene near the bandgap:
 Linear bands \rightarrow no mass for e or h*

Far from the band (high energy carriers) the carriers have different properties







- *J. C. Meyer, A. K. Geim, M. I. Katsnelson, K. S. Novoselov, T. J. Booth, and S. Roth, "The structure of suspended graphene sheets," Nature, vol. 446, no. 7131, pp. 60–63, Mar. 2007.*
- *E. H. Hwang, S. Adam, and S. Das Sarma, "Carrier Transport in Two-Dimensional Graphene Layers," Phys. Rev. Lett., vol. 98, no. 18, p. 186806, May 2007.*