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Origin of universal optical conductivity and optical stacking sequence identification in multilayer graphene[1] HONGKI MIN, Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD 20899-6202, ALLAN H. MACDONALD, Department of Physics, University of Texas at Austin, Austin TX 78712 — Recently, experiments have demonstrated that the conductivity per layer in multilayer graphene has the universal value $\sigma_{uni} = (\pi/2)\, e^2/h$ in the optical frequency range. We show that the origin of the universal optical conductivity in normal N-layer graphene multilayers is an emergent chiral symmetry which guarantees that $\sigma(\omega) = N\sigma_{uni}$ in both low and high frequency limits. In the intermediate frequency regime, the optical conductivity shows qualitatively different trends depending on the stacking sequence; thus, the optical conductivity measurement can provide a convenient qualitative characterization of multilayer graphene stacks.

Ref) Hongki Min and A. H. MacDonald, Phys. Rev. Lett. **103**, 067402 (2009).

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Hongki Min
Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD 20899-6202

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