Infrared spectroscopy of hole doped ABA-stacked trilayer graphene

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Using infrared spectroscopy, we investigate bottom gated ABA-stacked trilayer graphene subject to an additional environment-induced p-type doping. We interpret our experimental gate voltage-modulated reflectivity data using the Slonczewski-Weiss-McClure tight-binding model and the Kubo formula. This allows us to determine the charge densities and the potentials of the π-band electrons on all graphene layers separately. Further we can extract the interlayer permittivity due to higher energy bands and discuss connections to graphite[1].

[1] Ubrig et al., EPL 100, 58003 (2012).