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Raman Scattering Study of the Graphene-Substrate Interaction.
PETER EKLUND, AWNISH GUPTA, GUGANG CHEN, Department of Physics, The Pennsylvania State University — We report on Raman scattering studies of graphene and few graphene layer films (i.e., nGLs, where $n$is the number of graphene layers in the film). nGL films (n=1-3, 25) were prepared by mechanical transfer from HOPG to various substrates (SiO2:Si, Au, Ag, cleaved Mica, and free-standing films). For metallic substrates we observed a clear G-band frequency downshift relative to that observed when the nGL is on SiO2:Si. This downshift is interpreted in terms of a chemical charge transfer of electrons from the metallic substrate to the nGL. Interestingly, the position and shape of the 2D' (or G') band at ~ 2700 cm^{-1} is found insensitive to the substrate interaction.

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