

Department of Chemistry

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Charge Transfer Dynamics between Iodine and Graphene in Solution

Chemistry has great potential as a means to control the electronic properties of the two-dimensional carbon material graphene. Electron-transfer between graphene and adsorbed molecules can increase its conductance by shifting the Fermi level to a region of the band structure with a greater density of states. We use micro-Raman spectroscopy to study the dynamics of electron transfer for iodine-graphene chemical interactions in solution. Weakly interacting iodine hole dopes graphene by adsorbing onto its surface and accepting an electron. We explore the role of the solvent in this charge transfer process and in doing so use charge transfer to control the electronic and optical properties of graphene.