

Tight binding model study of the effect of doping on the charge gap in paramagnetic state of graphene-on-substrate

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Abstract. We report here a microscopic study of the hole/electron doping on the charge gap in graphene grown on a substrate. The Hamiltonian consists of electron hoppings between nearest neighbors, impurity and the effect of on-site Coulomb interaction paramagnetic limit. The Hamiltonian is solved by Zubarov's Green's function technique and hence the electron occupancies of the two sub-lattices are calculated and solved numerically and self-consistently. Finally the temperature dependent charge gap is computed by varying the model parameters of the system.

Keywords: Graphene, Paramagnetism, Tight-binding.

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