

Theoretical Study of Impurity Effect on Anti-Ferromagnetic (AFM) order in Graphene-on-Substrate

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Abstract. We report here a tight binding study of the effect of impurity concentration on anti-ferromagnetic (AFM) order in graphene-on-substrate. The onsite Coulomb interactions at two sub-lattices of graphene are treated within mean-field approximation and the electron occupancies at two sub-lattices include spin moments in opposite directions giving rise to antiferromagnetism in graphene. The sub-lattice magnetizations are calculated by Green's function method and are solved self-consistently for different impurity concentrations.

Keywords. Graphene , anti-ferromagnetism , impurity concentration.
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