

## The frequency dependent neutron scattering spectra of FM-ordered graphene: A tight-binding study

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**Abstract.** We report here a microscopic tight-binding study of frequency dependent neutron scattering spectra for ferromagnetic ordering in the graphene systems. The tight-binding Hamiltonian consists of electron hopping up to third -nearest- neighbors, substrate and impurity effects in presence of Coulomb interaction of electrons separately at two inequivalent A and B sublattices of graphene. We calculate the two particle electron Green's functions by using Zubarev's Green's function technique. The frequency dependent scattering intensity of the system is computed numerically. The spectra displays a sharp peak at the neutron momentum transfer energy at low energies and another higher energy peak appearing at substrate induced gap.

**Keywords.** Graphene, Ferromagnetic spin-susceptibility, neutron scattering

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