

Magnetic Properties of Nickel Decorated zigzag Graphene Nanoribbon

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We investigate the magnetic behavior induced by defects in Graphene Nanoribbons (GNRs) with zig-zag edges. The defect considered in our study is the introduction of Nickel adatoms. Our study shows spin accumulation around the adatom which in turn makes this a viable system for spintronics. The concentration of these adatoms was changed and the corresponding variation in magnetic moment was reported. All possible sites for the adatoms were considered in this work. The calculations were carried out using density functional theory (DFT) within local spin density approximation (LSDA). Unlike other carbon allotropes like graphite and graphene, GNRs shows promising properties for spintronics when d block adatoms are introduced. Our study points towards a symmetry in the GNR which can be exploited to control localized magnetic moment for device design.

References

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