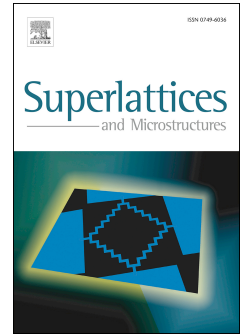


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Bi-layer Graphene Structure with Non-Equivalent Planes: Magnetic Properties Study

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Abstract:

In this paper, we study the magnetic properties of a ferromagnetic bi-layer graphene structure with non-equivalent planes. The geometry of the studied system is formed by two layers (A) and (B) consisting of the spins $\sigma = 1/2$ and $S = 1$.

For this purpose, the influence of the coupling exchange interactions, the external magnetic and the crystal fields are investigated and presented as well as the ground state phase diagrams. The Monte Carlo simulations have been used to examine the behavior of the partial and the total magnetizations as a function of the system parameters. These effects on the compensation and critical temperatures behavior are also presented in different phase diagrams, for the studied system.

Keywords: Magnetic properties; Compensation and critical temperatures; Bi-layer graphene structure; Monte Carlo simulations; Non-equivalent planes; Crystal field.

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