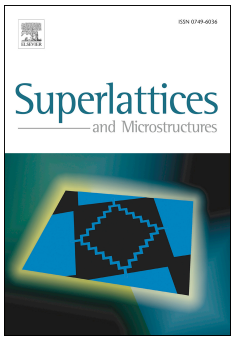

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Magnetic properties of a graphene with alternate layers

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Abstract

The magnetic properties of spins σ=3/2 and S=2 Ising model on superlattice with alternate graphene layers have been investigated using the Monte Carlo Simulation. Firstly, we have study analytically the ground-state phase diagrams. The stable phases have been discussed in the present work. Then, we have also investigated the thermal behavior of the magnetizations and the magnetic susceptibilities of such a system for different physical parameters. To complete this work, we have also discussed the hysteresis cycle loops for different number of layers, temperatures and exchanges interactions. This system has a several application in spintronic device applications.

Keywords: Superlattice; Monte Carlo Study; Critical temperature; Magnetic properties; Hysteresis loops.