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Effect of surface and interface couplings in thin film system: Monte Carlo simulation

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Abstract

In the present work, we have studied the magnetic properties of Ising thin film with mixed spins-2 and 3 on decorated square lattice by using the Monte Carlo simulations. The transition temperature has been obtained for different size and intra and inter exchange interactions. The thermal total magnetization versus the crystal field for different size, inter and intra exchange interactions and for different temperatures. The magnetic coercive field and saturation of magnetization have been obtained. The superparamagnetism behaviour has been established.

Keywords: Surface and interface couplings; Monte Carlo simulations; Magnetic properties; Ising model; Superparamagnetism behaviour.

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