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Magnetic properties of the mixed spin-1 and spin-3/2 Ising system on a bilayer square lattice: A Monte Carlo study

A. Jabar¹, R. Masrour^{1,*}, A. Benyoussef^{2,3} and M. Hamedoun²

¹) Laboratory of Materials, Processes, Environment and Quality, Cady Ayyed University, National School of Applied Sciences, 63 46000, Safi, Morocco.

²) Institute of Nanomaterials and Nanotechnologies, MAScIR, Rabat, Morocco.

³) Hassan II Academy of Science and Technology, Rabat, Morocco.

Corresponding authors: rachidmasrour@hotmail.com

Fax:(+212) 05 37 21 75 47.

Tel:+00212664317525

Abstract:

The magnetic behavior of the mixed spin-1 and spin-3/2 Ising system on a bilayer square lattice is studied using the Monte Carlo simulations for both ferromagnetic/ ferromagnetic and antiferromagnetic/ferromagnetic interactions in the presence and absence of external magnetic, crystal field and for different values of exchange interactions. The thermal variations of the magnetizations are given. The magnetic hysteresis cycles are established. The magnetic coercive field and the remanent magnetization are deduced. The coercive magnetic field, remanent magnetization and the transition temperature were not affect by the size effect.

Keywords: Monte Carlo simulation; Magnetic materials; Hysteresis magnetic cycle.

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