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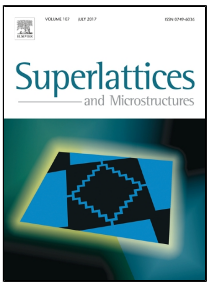

Mixed spin-1 and spin-1/2 Blume-Emery-Griffiths Model on the Bethe lattice: Monte Carlo simulation

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Abstract

Using Monte Carlo simulation (MCs), we study thermal and hysteresis behaviors of a mixed spin-1/2 and spin-1 using Blume-Emery Griffiths model. Starting from the spin Hamiltonian which describes the system, the influence of the crystal-field and biquadratic exchange interaction on the critical behaviors has been investigated. Critical exponents were calculated and compared with those of the 3D Ising model.

Keywords: Monte Carlo simulation; magnetic properties; mixed spin; BEG model; Critical exponents.