Accepted Manuscript

Research paper

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

A. Jabar, R. Masrour, A. Benyoussef, M. Hamedoun

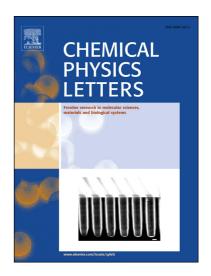
PII: S0009-2614(16)31035-1

DOI: http://dx.doi.org/10.1016/j.cplett.2016.12.070

Reference: CPLETT 34437

To appear in: Chemical Physics Letters

Received Date: 3 December 2016 Revised Date: 23 December 2016 Accepted Date: 29 December 2016



Please cite this article as: A. Jabar, R. Masrour, A. Benyoussef, M. Hamedoun, Magnetic properties of the mixed spin-1 and spin-3/2 Ising system on a bilayer square lattice: A Monte Carlo study, *Chemical Physics Letters* (2016), doi: http://dx.doi.org/10.1016/j.cplett.2016.12.070

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

CCEPTED MANUSCRIPT

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.

PACS: 87.10.Rt; 75.50.-y; 75.60.Ej.

1

Download English Version:

https://daneshyari.com/en/article/5378221

Download Persian Version:

https://daneshyari.com/article/5378221

<u>Daneshyari.com</u>