Monte Carlo Study of a Mixed Spin-1 and Spin-3/2 Ising Ferrimagnet with Random Anisotropies[1] JOAO PEREIRA, ALBERTO ARRUDA, MAURICIO GODOY, Instituto de Fisica, Universidade Federal de Mato Grosso, 78060-900, Cuiaba, Mato Grosso, Brazil — The interest in studying magnetic properties of systems of mixed spin Ising has been grown in last years. This is due to such systems have less translational symmetry than their single-spin counterparts. This property is very important to study some type of ferrimagnetism, which are of current interest. One of the most interesting features of the ferrimagnetism is that they can exhibit compensation temperature. Spin systems mixed with spins in the two sublattices and with random anisotropies are not commonly studied. Monte Carlo method have been proven to be reliable and relatively simple technique to analyze mixed Ising model. In this work, we performed Monte Carlo simulations to study a mixed system ferrimagnetism on a square lattice. The model system consists of two interpenetrating sublattices with spins spin-1 and spin-3/2 in the presence of random anisotropies. The magnetic properties such as magnetization, susceptibility and Binder cumulant, were determined to obtain the critical temperature of the system in various situations. We also determined the phase diagram in the plane temperature versus anisotropy strength for several values of the randomness anisotropy probability.

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