[04/11/2015 - P055]

Ghatak-Sherrington model with a random field in a random network, AMANDA DE AZEVEDO LOPES, RUBEM ERICHSEN JR, *UFRGS* The statistical mechanics of a three-state Ising spin-glass model with a Ghatak-Sherrington crystal-field term and a random field term is studied in the present work. A finite connectivity technique is used, in which each spin is connected to a finite number of other spins. The spins were connected according a Poisson distribution, the random field term followed a bimodal distribution and the bonds between the spins were considered uniform. Thus, there is only a connection disorder. We focused on determining how the nature of the transition changes with the connectivity and if there is a reentrant behavior of the phase boundaries. The replica technique is used to obtain saddle-point equations for the effective local-field distribution. The replica symmetric ansatz for the order function is written in terms of a two-dimensional effective-field distribution, where one of the components is associated with a linear form in the spins and the other with the crystal-field term. This allows us to derive equations for the order function and for the free-energy. A population dynamics procedure is used to solve numerically a self-consistency equation for the distribution of the local field and with it some physical parameters, like magnetization and free-energy. Our results indicate that for the bimodal distribution there is a tricritical point, whose location is strongly dependent on c. The tricritical point is suppressed below a certain minimum value of connectivity.