



Poster session C

Nature of the spin-glass phase in dense packings of Ising dipoles with random anisotropy axes

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By Monte Carlo simulations, we study the character of the spinglass (SG) phase in dense disordered packings of magnetic nanoparticles (NPs). We focus on NPs which have large uniaxial anisotropies and can be well represented as Ising dipoles. Dipoles are placed on SC lattices and point along randomly oriented axes. From the behaviour of a SG correlation length we determine the transition temperature T_c between the paramagnetic and a SG phase. For temperatures well below T_c we find distributions of the SG overlap parameter q that are strongly sample-dependent and exhibit several spikes. We find that the average width of spikes, and the fraction of samples with spikes higher than a certain threshold does not vary appreciably with the system sizes studied. We compare these results with the ones found previously for 3D site-diluted systems of parallel Ising dipoles and with the behaviour of the Sherrington-Kirkpatrick model.^a

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