Spin-glass transition of magnetic dipoles with random anisotropy axes JULIO F. FERNANDEZ, ICMA, CSIC-Universidad de Zaragoza, JUAN J. ALONSO, Universidad de Malaga — We study partially occupied lattice systems of classical magnetic dipoles which point along randomly oriented axes. Only dipolar interactions are taken into account. From Tempered Monte Carlo simulations, we obtain equilibrium results for xL^3 dipoles, randomly located on L^3 simple cubic lattice sites, for $L = 4, 6, 8$ and 12, with an $x(= 0.35, 0.5$ and $1)$ fraction of occupied sites. The numerical evidence we obtain supports the existence of an equilibrium spin glass phase below a transition temperature T_o, given by $k_B T_o = (0.9 \pm 0.1)x\varepsilon_d$, where ε_d is a nearest neighbor dipole-dipole interaction energy. The spin glass overlap parameter q is statistically distributed, and its mean square deviation follows the rule, $\langle \delta q^2 \rangle \simeq 0.25 \langle | q | \rangle^2 T/x$ in the spin-glass phase.

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