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Corrections to scaling in the bond-diluted next-nearest-neighbor Ising spin-glass ANDREW J. OCHOA, HELMUT G. KATZGRABER, Texas A&M University — For spin glasses, model systems that have both frustration and disorder, calculating accurate critical exponents is difficult due to significant corrections to scaling and long equilibration times in Monte Carlo simulations that limit numerical studies to small system sizes. The study of critical phenomena of such systems requires a careful control of the scaling corrections, as emphasized in the works of, e.g., Hasenbusch *et al.* [J. Stat. Mech., L02001 (2008)] and Katzgraber *et al.* [Phys. Rev. B 73, 224432 (2006]. In an attempt to reduce corrections to scaling, we introduce an average over both disorder and lattice structures. We study a three-dimensional next-nearest-neighbor Ising spin glass with Gaussian disorder — that shares the same universality class as the standard three-dimensional cubic lattice [Phys. Rev. B 73, 224432 (2006)] — but where we dilute the lattice such that the number of neighbors is on average six. Comparisons with simulations of the cubic-lattice Ising spin glass with Gaussian disorder are performed.

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