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Quenched-Vacancy Induced Spin-Glass Order GÜL GÜLPINAR, Dokuz Eylul University, A. NIHAT BERKER, Koç University — The ferromagnetic phase of an Ising model in d=3, with any amount of quenched antiferromagnetic bond randomness, is shown to undergo a transition to a spin-glass phase under sufficient quenched bond dilution.[1] This general result, demonstrated here with the numerically exact renormalization-group solution of a d=3 hierarchical lattice, is expected to hold true generally, for the cubic lattice and for quenched site dilution. Conversely, in the ferromagnetic-spinglass-antiferromagnetic phase diagram, the spin-glass phase expands under quenched dilution at the expense of the ferromagnetic and antiferromagnetic phases. In the ferro-spinglass phase transition induced by quenched dilution reentrance is seen, as previously found for the ferro-spinglass transition induced by increasing the antiferromagnetic bond concentration. [1] G. Gülpinar and A.N. Berker, arXiv:0811.0025v1 [cond- mat.dis-nn] (2008).

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