The critical behavior of
the random Ising ferromagnets

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The critical behavior of the d-dimensional uniaxial ferromagnetic systems with weak quenched disorder is studied. In the critical region this model is known to be described by both the conventional Ginzburg-Landau Hamiltonian and the two-dimensional fermionic Gross-Neveu model in the $n = 0$ limit. Renormalization group calculations are used to obtain the temperature dependences near the critical point of some thermodynamic quantities, the large distance behavior of the two-spin correlation function and the equation of state at criticality. The ϵ expansion of the critical exponents is also discussed as well as the Kramers-Wannier duality of two-dimensional dilute systems. Most important questions of the theory of critical phenomena are the problem of a universality of the critical behavior of random systems and the role of Griffiths singularities.