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# Antiferromagnetic Ordering and Phase Transitions in the Exchange Interaction Model and the Potts Model on General Lattices

Chen, H. H. ; Gou, Shih-Chuan; Chen, Y. C.

Abstract

It is shown that in the mean-field theory the spin-S exchange interaction model and the (2S+1)-state Potts model have the same thermodynamic properties. Mean-field studies of these two models with antiferromagnetic interactions on general multipartite lattices are performed. These systems can have two or more successive first-order phase transitions.