

Abstract Submitted
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Universal monopole scaling near transitions from the Coulomb phase STEPHEN POWELL, Nordita — Certain frustrated systems, such as spin ice and dimer models, exhibit a Coulomb phase at low temperatures, with power-law correlations and fractionalized monopole excitations. Applied perturbations (external field, pressure, etc.) can drive a transition to a phase where the monopoles become confined. I will present a general analysis of behavior in the vicinity of such critical points, incorporating the effects of a nonzero density of thermal monopoles. Scaling theory allows one to arrive at universal results for the crossover phenomena, which can be tested in numerics or experiment. I will also present Monte Carlo results that confirm these predictions for two particular transitions in spin ice.

Stephen Powell
Nordita

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