

ON THE PHASE DIAGRAM
OF THE 2d ISING MODEL WITH FRUSTRATING
DIPOLE INTERACTION

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S u m m a r y

Due to intrinsic frustrations of interaction, the 2d Ising model with competing ferromagnetic short-range nearest-neighbour and antiferromagnetic long-range dipole interactions possesses a rich phase diagram. The order of the phase transition from the striped $h = 1$ phase to the tetragonal phase that is observed in this model has been a subject of recent controversy. We address this question by using the partition function density analysis in the complex temperature plane. Our results support the second-order phase transition scenario. To measure the strength of the phase transition, we calculate the values of specific heat critical exponent α . Along with the space dimension, it appears to depend on the ratio of strengths of the short-range and long-range interactions.