

Limiting Distribution and Critical Behavior for an Oriented Percolation with Long-Range Interactions

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Abstract: We consider a model of oriented percolation with long-range interactions, in which any $\kappa(\geq 1)$ -th moment of the bond occupation probability diverges. We use the lace expansion to get the infrared bound, from which the critical behavior is proved via a triangle condition for dimensions $d > 2$. We prove that the limiting distribution of two-point function is Cauchy for dimensions $d > 2$.