

Abstract Submitted
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Cluster scaling in the dilute Ising model¹ KANG LIU, JAMES SILVA, WILLIAM KLEIN, Boston University, HARVEY GOULD, Clark University — We consider the cluster mapping method to map the critical point in a site-diluted Ising model onto a correlated site-bond percolation. First, we prove the Coniglio-Klein bond probability has the same form in the dilute Ising model with a proper chosen temperature. Then we study the cluster size distribution near the critical point in 2D dilute Ising model with long range interactions. The power law distribution of the clusters size at the critical point has the same exponent as the mean field Ising critical point, which is consistent with the Harris criterion for the long range Ising model. In addition, we apply this percolation mapping method to identify the nucleating droplet near the spinodal and it shows that the largest cluster size could be used to find the time when nucleating droplet occurs.

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