

Recent progress in the random field ising model

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Thanks to intensive numerical simulations a lot of progress has been made recently in our understanding of the Random Field Ising model. I will review these recent developments.

Contrary to previous claims, random fields generated by different probability distributions and diluted antiferromagnets in a field, belong to the same universality class as predicted by the perturbative renormalization group (PRG). It is well known that dimensional reduction predicted by the PRG is not valid in three dimensions.

It was shown recently that, as it was anticipated some time ago, this breaking of the PRG is a low dimensional phenomenon and that dimensional reduction is restored in five dimensions. I will argue that the validity of PRG at higher dimensions explains universality in three dimensions.