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Importance of cluster formation in quantum critical systems¹ TOM HEITMANN, JOHN GADDY, JAGAT LAMSAL, WOUTER MONT-FROOIJ, University of Missouri — The presence of magnetic clusters has been verified in both antiferromagnetic and ferromagnetic quantum critical systems. We review some of the strongest evidence for heavily doped quantum critical systems Ce(Ru_{0.24}Fe_{0.76})₂Ge₂ and we discuss the implications for the response of the system when cluster formation is combined with finite size effects. In particular, we discuss the change of universality class that is observed close to the order-disorder transition and the conditions under which clustering effects will play a significant role also in the response of stoichiometric systems and their corresponding experimental signature.

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