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Kondo lattice model with finite temperature Lanczos method

Ivica Zerec¹, Burkhard Schmidt², Peter Thalmeier²

¹ *Max Planck Institute for the Physics of Complex Systems, Dresden, Germany*

² *Max Planck Institute for Chemical Physics of Solids, Dresden, Germany*

We investigate numerically the Kondo lattice model on the finite size 2D cluster using the finite temperature Lanczos method. Various thermodynamic and correlation functions are calculated. The competition between the on-site singlet formation and the intersite correlations are studied as function of the ratio between the Kondo coupling strength and the conduction electron hopping term. For comparison the single impurity case is also studied. The results provide an insight into the Kondo singlet formation and the RKKY interaction on the 'infinite' lattice.

Keywords : Kondo lattice, Lanczos algorithm, Quantum criticality