RIGOROUS MAPPING OF PERIODIC ANDERSON MODEL TO KONDO LATTICE MODEL

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We show that the Kondo lattice model can be rigorously obtained for any finite coupling constant J from the periodic Anderson model in a special limit (extended Kondo limit). The mapping goes beyond the well-known equivalence between the weak-coupling limit ($J \to 0$) and the conventional Kondo limit of the two models. It implies a direct proof of the "large" Fermi volume for a non-magnetic Fermi-liquid state of the Kondo lattice model, which confirms in a much simpler way the result of a recent topological proof by Oshikawa [Phys. Rev. Lett. **84**, 3370 (2000)]. Based on the mapping, any analytical and computational method of the periodic Anderson model, e.g. dynamical mean-field theory, can be directly applied to the Kondo lattice model.

9.7 cm

13.4 cm

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