

Abstract Submitted
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Kondo Screening and Fermi Surface in the Antiferromagnetic Metal Phase SEIJI YAMAMOTO, Rice University, QIMIAO SI, Rice University — We address the Kondo effect deep inside the antiferromagnetic metal phase of a Kondo lattice Hamiltonian with $SU(2)$ invariance. The local-moment component is described in terms of a non-linear sigma model. The Fermi surface of the conduction electron component is taken to be sufficiently small, so that it is not spanned by the antiferromagnetic wavevector. The effective low energy form of the Kondo coupling simplifies drastically, corresponding to the uniform component of the magnetization that forward-scatters the conduction electrons on their own Fermi surface. We use a combined bosonic and fermionic (Shankar) renormalization group procedure to analyze this effective theory and study the Kondo screening and Fermi surface in the antiferromagnetic phase. The implications for the global magnetic phase diagram, as well as quantum critical points, of heavy fermion metals are discussed.

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