KONDO LATTICE STATES WITH COMPENSATED MOMENTS AND SPIN DEPENDENT HEAVY MASSES

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9.7 cm

I review a recent work [1,2] on the magnetic Kondo-lattice metallic and insulating states, for which the almost compensated moments have been obtained self-consistently for the first time. This heavy-electron phase can border with a ferromagnetic phase with an equally weak resultant moment. Both of these phases have (an almost) integer valency of f electrons, but only the first of them has a very large density of states at the Fermi level. The Kondo insulating gap is strongly reduced by the thermal fluctuations and disappears in a noncritical manner. We also show that a consistent mean-field theory of correlated electrons is flawed unless the heavy masses of quasiparticles are spin-dependent in the polarized state.

[1]. R. Doradziński and J. Spałek, Phys. Rev. B**65**, R14239 (1997); B**58**, 3293 (1998); and unpublished.
[2]. J. Spałek, unpublished.

13.4 cm

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