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Pairing by Kondo interaction and magnetic phases in Anderson-Kondo lattice model: statistically consistent renormalized mean field theory

O. Howczak[1], J. Kaczmarczyk[1], and J. Spałek[1,2]

[1] *Marian Smoluchowski Institute of Physics, Jagiellonian University, 30-059, Krakow, Poland*
[2] *Academic Centre for Materials and Nanotechnology, Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Reymonta 19, 30-059 Kraków, Poland*

We start from the derived by us earlier Anderson-Kondo lattice model, in which both the Kondo interaction and the residual hybridization processes have been included in a systematic manner. In the present work we have constructed a fairly complete phase diagram including magnetic, pure superconducting and coexistent antiferromagnetic-superconducting phases. Both intra- and interatomic hybridization cases have been considered. The Kondo insulating state with *completely compensated* magnetic moments have been obtained as a reference state, from which either antiferromagnetic (AF) or superconducting (SC) or mixed AF+SC phases evolve when the metallic state is stable. The pairing is induced mainly by the Kondo interaction. The method of approach we use is the so-called statistically consistent renormalized mean-field theory (SC RMFT), with corrections to the standard Gutzwiller-ansatz approach.