COQBLIN-SCHRIEFFER IMPURITY WITH LOCAL EXCHANGE COUPLING: A PERTURBATIVE APPROACH

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9.7 cm

The Coqblin-Schrieffer (C-S) one-impurity model with local exchange (LE) interaction is studied within the diagrammatic approach. The RKKY-type LE interaction between f electrons of the impurity and the additional non-hybridizing channel of conduction electron l=0 partial waves is treated in the molecular field approximation. The perturbation expansion resummation for the C-S hybridization interaction vertex part is carried out in the ladder approximation yielding the formula for the Kondo temperature in the presence of the LE interaction. It is found that the Kondo temperature T_K decreases whith increasing LE, and the temperature divergence of the susceptibility at T_K is shifted towards T=0. For some critical strength of the LE interaction the susceptibility approaches Curie-type dependence as for uncompensated impurity magnetic moment. A relation to the 'Kondo disorder' model, which leads to the non-Fermi-liquid behavior, is discussed.

13.4 cm

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