

# Charge Kondo States, Superconductivity and CDW in systems of coexisting electron and local pairs

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We study the phase diagrams and thermodynamic properties of a system of coexisting local pairs and itinerant electrons described by the (hard-core) boson-fermion model. The model considered takes into account both the density-density interaction  $V_0$  as well as the intersubsystem charge exchange coupling  $I_0$ . The charge Kondo state (CKS) being an analogue of the magnetic Kondo state in the systems of the periodic Kondo lattice is characterized by a compensation of a local charge moment (isospin singlet) and it can compete with the superconducting and charge orderings. A mutual stability, within an extended mean-field approximation, of CKS, SC and CDW states are determined at  $T > 0$  for various lattice structures and various particle concentrations.