Electronic Inhomogeneity and Pair Breaking in Heavy Fermion Superconductors

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Cooper pair breaking by impurity scattering is often described by the Abrikosov-Gor'kov theory. It is, however, slightly different in heavy fermion superconductors, in which impurities may create local vacancies of magnetic f-moments in the periodic Kondo lattice. Here we report detailed analysis of specific heat data in doped heavy fermion superconductors and show that the superconducting condensation energy follows a simple relation versus doping. Our results suggest formation of Kondo holes around impurities, which is further confirmed by nuclear quadrupole resonance measurements.