

Local pairing mechanism in local multiplet systems: electron-phonon theory in fullerene superconductivity

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Recently electron-phonon superconductors in strongly interacting regime have gained much attention. Local symmetry of electron-phonon coupling in a degenerate electron-phonon manifold proves to be crucial to produce a strong local pairing, as exemplified in alkali-doped fullerene systems. The local pairing mechanism emerges in the local limit of strong Coulomb interaction and can be generalized to other multiplet interactions, such as triplet-pairing induced by the Hund's rule coupling. I demonstrate the existence of the pairing from quantum Monte Carlo simulations within the dynamical mean field theory. I discuss the highly renormalized pairing potential and its implications on isotope effects.