Effect of copper-site spin polarization on the pair state in the high Tc superconductors

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Abstract

The resonating valence bond state, i.e. the hopping pair state generated via local exchange interaction is the key concept to understanding of high Tc superconductivity. We give a brief review and comments on the effect of the Cu-site spin polarization on the possible pair state in the two-band structure of a high Tc superconductor, which gives rise to the instability of Zhang-Rice singlet. On the other hand, the spin polarization induces effective spin coupling and the pairing between doped holes on the oxygen sites in the neighbor of a Cu spin, and plays a key role in the cross-over from the anti-ferromagnetic to the superconductive state.