

Abstract Submitted
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***d*-wave Cooper pairing in multiband models for the high- T_c cuprates** CARSTEN HONERKAMP, STEFAN UEBELACKER, RWTH Aachen
— We investigate possible reasons for the significant differences of T_c s in high- T_c cuprate compounds, based on renormalization group treatments of downfolded models for the electronic structure. Generally, cuprates with a square like Fermi surface exhibit lower critical temperatures than materials with a more rounded Fermi surface, which contradicts with many theoretical studies of the one band Hubbard model. To resolve this contradiction we study multiband models which in addition to the $d_{x^2-y^2}$ orbital contain $4s$ and d_{z^2} orbitals using different approximation levels of the functional renormalization group technique. Our results suggest that the observed material trend can be explained in parts by the influence of orbital mixing, which can dominate over the effect of the Fermi surface shape.

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