Abstract Submitted
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Theoretical Investigation of Fermion Pairing in Three-band Extended Hubbard Model PARTHA GOSWAMI, University of Delhi — We analyze for fermion pairing the two-dimensional extended Hubbard model (or d-p model) on a square lattice by a slave-boson method reported in a previous work[1] . The onsite coulomb repulsion between Cu d holes is assumed to be strong. The nearest-neighbor interaction in momentum space U_{kq} , introduced additionally, for transition from a momentum q to k is assumed to be separable and is expanded in terms of basis functions corresponding to d_{xy} and d_{x2-y2} .The possibility of a mixed (s-d)-wave symmetry also exists for the spin degeneracy N>>1 if bose field fluctuations are taken into consideration. For the hole doping (δ >0) case, the additional holes are expected to occpy oxygen sites. This implies that the renormalized charge transfer gap Δ_{reg} tends towards zero for $\delta > 0$. We find the approximate Fermi liquid behavior for $\Delta_{reg} \rightarrow 0$ once the pure d_{x2-y2} wave singlet superconducting instability sets in; otherwise non-Fermi liquid behavior is the prevalent one. The charge and the spin ordering gaps appear in the single-particle excitation spectrum when d_{xy} component is taken into account. The latter is expected to shed light on the pseudo-gap phenomenon in cuprates. 1.Partha Goswami, Presented in **SCES'07** proceedings and accepted for publication in Physica B (see http://dx.doi.org/10.1016/j.physb2007.10.076).

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