PHASE FLUCTUATIONS IN SHORT COHERENCE LENGTH SUPERCONDUCTORS

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We analyze the effects of phase fluctuations on the extended s-wave and d-wave superconductivity in 2D model with intersite electron pairing described by the extended Hubbard Hamiltonian with the nearest–neighbour and next–nearest–neighbour hopping. Within the Kosterlitz-Thouless scenario the critical temperatures were determined and compared with the ones from BCS-HFA. Our results indicate a possibility of new phases in which pairs are incoherent, but the fermionic spectrum has a gap. The Uemura-type plots, i.e. the critical temperature *vs* zero temperature phase stiffness, were obtained for extended s-wave and d-wave pairings.

9.7 cm

13.4 cm

Subject category :

1. Correlated Electrons and High Temperature Superconductors

Presentation mode :
POSTER

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