

Abstract Submitted
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Incomplete condensation in Konh-Luttinger superconductors DA

WANG, National Laboratory of Solid State Microstructures and School of Physics, Nanjing University — In BCS superconductors, all conduction band electrons are bound together by exchanging phonons to form Cooper pairs at zero temperature. Therefore, all conduction band electrons contribute to superfluid density, regardless of the value of T_c . However, such a picture may fail in intrinsic superconductors (termed as Konh-Luttinger superconductors) mediated by Coulomb interaction between conduction electrons themselves. In Konh-Luttinger superconductors, I propose that one part of electrons has to remain normal in order to mediate pairing interactions for the superconducting electrons. This picture is hopeful to explain the experimentally observed relation between superfluid density and T_c in cuprates. Both a microscopic model calculation and a generalized phenomenological two fluid model are discussed to support to my proposal.

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