

Abstract Submitted
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The Microscopic Spin fluctuation theory of superconductivity in Spin Density Wave metals WENYA ROWE, Department of Physics, University of Florida, Gainesville, FL, ILYA EREMIN, Institute für Theoretische Physik III, Ruhr-Universität Bochum, D-44801 Bochum, Germany, ASTRID RØMER, BRIAN ANDERSEN, Niels Bohr Institute, University of Copenhagen, Denmark, PETER HIRSCHFELD, Department of Physics, University of Florida, Gainesville, FL — We revisit the problem of electron pairing by spin waves in the commensurate spin density wave ordered state, and generalize the existing theory to include situations with electron pockets, hole pockets, or both. We derive simple analytic forms and the leading instabilities for the fluctuation exchange pairing vertex in these cases. In general pairing arises both from transverse spin waves and from gapped longitudinal charge and spin fluctuations, they acts primarily within one type of pocket. Only the d-wave state in the electron doped case is robust in the limit of weak magnetism and doping. By contrast, in the hole-doped case, we find that the spin-singlet odd parity p -wave state allowed in the SDW represents the leading instability.

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