

Abstract Submitted
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Derivation of the Ginzburg-Landau equations of a ferromagnetic p -wave superconductor¹ ESKIL DAHL, ASLE SUDBO, Norwegian University of Science and Technology — We derive a Ginzburg-Landau free energy for a p -wave ferromagnetic superconductor. The starting point is a microscopic Hamiltonian including a spin generalised BCS term and a Heisenberg exchange term. We find that coexistence of magnetisation and superconductivity depends on the sign of the energy-gradient of the DOS at Fermi level. We also compute the tunnelling contribution to the Ginzburg-Landau free energy, and find expressions for the spin-currents and Josephson currents across a tunnelling junction separating two ferromagnetic p -wave superconductors.

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