Superconductivity and magnetism in the presence of interface-induced Rashba spin-orbit coupling\textsuperscript{1} FLORIAN LODER, ARNO KAMPF, THILO KOPP, University of Augsburg, Germany, TRR 80 TEAM — Two dimensional electron systems at oxide interfaces are often influenced by a Rashba type spin-orbit coupling (SOC), which is tunable by a transverse electric field. Ferromagnetism at the interface can simultaneously induce strong local magnetic fields. This combination of SOC and magnetism leads to anisotropic two-sheeted Fermi surfaces, on which superconductivity with finite-momentum pairing is favored. The superconducting order parameter is derived within a generalized pairing model realizing both, the FFLO superconductor in the limit of vanishing SOC and a mixed-parity pairing state with zero pair momentum if the magnetism vanishes. The nature of the pairing state is discussed in the context of interface superconductivity and ferromagnetism at LAO-STO interfaces [1,2].


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