

Abstract Submitted  
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**Superconductivity and magnetism in the presence of interface-induced Rashba spin-orbit coupling**<sup>1</sup> 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].

[1] Lu Li, C. Richter, J. Mannhart, and R. C. Ashoori, *Nature Physics* **7**, 762 (2011)

[2] J. A. Bert, B. Kallisky, C. Bell, M. Kim, Y. Hikita, H. Y. Hwang, and K. A. Moler, *Nature Physics* **7**, 767 (2011)

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