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Magnetic States in Singlet-Triplet Superconducting Heterostructures¹

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Surface and interface states in unconventionally ordered materials have become a focus of significant interest both because of their importance in fundamental physics, and because of their potential use in technological applications. Often the existence of these states is protected by symmetry or topology of the bulk, but their properties are not universal. I will discuss the surface and interface states appearing at the boundaries of triplet superconductors, such as Sr_2RuO_4 , and show that, under rather general conditions, such states are spin-polarized. Moreover, their magnetization can be controlled by the phase difference in junctions with conventional superconductors. The behavior of the magnetization reflects the nature of underlying pairing interaction, and can be used to test symmetries of the order parameter in spin-triplet superconductors.

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