

# Mixed-pairing superconductivity in $5d$ Mott insulators with antisymmetric exchange: Application to $\text{Sr}_2\text{IrO}_4$

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We investigate the potential existence of a superconducting phase in  $5d$  Mott insulators with an eye to hole doped  $\text{Sr}_2\text{IrO}_4$ . Using a mean-field method, a mixed singlet-triplet superconductivity is observed due to the antisymmetric exchange originating from a quasi-spin-orbit-coupling. Our calculation on ribbon geometry shows possible existence of the topologically protected edge states while the spin-triplet component of the order parameter is larger than the spin-singlet one. These edge modes emerge as zero-energy flat bands, supporting a symmetry protected Majorana states. We propose an innovative approach for experimental observation of these edge states based on the quasi-particle interference (QPI) technique.