Enhancing Triplet Superconductivity by the Proximity to a Singlet Superconductor in Oxide Heterostructures

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We show, how in principle, a coherent coupling between two superconductors of opposite parity can be realised in a three-layer oxide heterostructure (Horsdal et al., 2015 arXiv:1501.02077). Due to strong intraionic spin-orbit coupling in the middle layer singlet Cooper pairs are converted into triplet ones, and vice versa. The result is a large enhancement of the triplet order parameter that persist well beyond the native triplet critical temperature.