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# Time Reversal Symmetry Breaking in Unconventional Superconductors

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## Abstract

In this talk we will survey current searches for topological superconductors, concentrating on several classes of systems. Our studies utilize a modified Sagnac interferometer, that can measure polar Kerr effect with resolution exceeding  $10^{-8}$  rad, which is sensitive to time reversal symmetry breaking since it measures the existence of an antisymmetric contribution to the real and imaginary parts of the frequency-dependent conductivity tensor. First is Strontium ruthenate ( $\text{Sr}_2\text{RuO}_4$ ), which is an odd-parity superconductor with odd orbital angular momentum and symmetric spin-triplet (p-wave) pairing. Discussing our studies of  $\text{Sr}_2\text{RuO}_4$ , we will continue to review our recent studies of the heavy fermion superconductors  $\text{URu}_2\text{Si}_2$  and  $\text{UPt}_3$  and discuss their possible pairing symmetry as a result of our measurements. Finally we will discuss results on hybrid systems involving proximity effect between superconductors and magnetoc systems.

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