Symmetry of the order parameter in superconducting strontium ruthenate

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The superconductivity of strontium ruthenate has been a mystery for over 20 years: it was heralded as the first known example of a chiral, triplet superconductor; but this has since been challenged by experiments detecting nodes in the gap function. In this talk, I will present a group-theoretical classification of superconducting states of this material. I will explain why the notion of symmetry-imposed node does not strictly exists in the context of multi-band superconductivity, but that we can nevertheless a good idea of where gap nodes are located for each irreducible representation of the point group, given a relatively robust model for low-energy band structure of strontium ruthenate.

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