

Abstract Submitted
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Phase-sensitive tests of the pairing state symmetry in Sr_2RuO_4

IGOR ZUTIC, State University of New York at Buffalo, IGOR MAZIN, Naval Research Laboratory — Exotic superconducting properties of Sr_2RuO_4 have provided strong support for an unconventional pairing symmetry. However, the extensive efforts over the past decade have not yet unambiguously resolved the controversy about the pairing symmetry in this material. While recent phase-sensitive experiments using flux modulation in Josephson junctions consisting of Sr_2RuO_4 and a conventional superconductor have been interpreted as conclusive evidence for a chiral spin- triplet pairing [1], we propose here an alternative interpretation [2]. We show that an overlooked chiral spin- singlet pairing is also compatible with the observed phase shifts in Josephson junctions and propose further experiments which would distinguish it from its spin-triplet counterpart. Supported by the US ONR and the National Research Council.

[1]K. D. Nelson, Z. Q. Mao, Y. Maeno, and Y. Liu, *Science* **306**, 1151 (2004); T. M. Rice, *Science* **306**, 1142 (2004).

[2] I. Zutic and I. Mazin, *Phys. Rev. Lett.* **95**, 217004 (2005).

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