

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Role of Magnetic Fields on Superconducting  $\text{Sr}_2\text{RuO}_4$**  DANIEL AGTERBERG, RAMINDER KAUR, University of Wisconsin - Milwaukee, HIROAKI KUSUNOSE, Tohoku University, MANFRED SIGRIST, ETH-Zurich — Nearly all theoretical descriptions of the spin-triplet pairing symmetry in  $\text{Sr}_2\text{RuO}_4$  are characterized by a  $\mathbf{d}(\mathbf{k})$  vector aligned along the four-fold symmetry axis. Two well known consequences of all such theories are that the in-plane anisotropy of the upper critical field should exist up to  $T_c$  and that there must be multiple vortex phases corresponding to changes in the order parameter structure. Neither of these two predictions appear to have strong experimental support. We examine these predictions within an approximate analytic solution of the quasiclassical equations for the vortex phase to provide tentative explanations for this inconsistency.

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Date submitted: 06 Dec 2004

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