

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Anisotropic vortex structure in tilted magnetic fields in the spin triplet superconductor Sr_2RuO_4 VOICU OCTAVIAN DOLOCAN, CRTBT-CNRS, YING LIU, Pennsylvania State University, PASCAL LEJAY, CRTBT-CNRS, DOMINIQUE MAILLY, LPN-CNRS, KLAUS HASSELBACH, CRTBT-CNRS, CRTBT-CNRS COLLABORATION, PENNSYLVANIA STATE UNIVERSITY COLLABORATION, LPN-CNRS COLLABORATION — Using a μ SQUID microscope we imaged magnetic flux above the ab surface in the unconventional anisotropic superconductor Sr_2RuO_4 , at temperatures between 0.4 K and 1.3 K and magnetic fields between 0 to 70 gauss at various angles. We observed vortex chains as well as coexistence of vortices and chains for tilted fields. The distance between the chains varies as $1/B$. The mass anisotropy expressed as the ratio of the penetration depth (λ_c/λ_{ab}) is about 20 for Sr_2RuO_4 , situating Sr_2RuO_4 in respect of anisotropy between YBCO and BSCCO. We'll discuss the different origins for vortex chain formation for these three superconductors. In the case of Sr_2RuO_4 we can successfully describe the ordering of the flux into vortex chains using Ginzburg-Landau theory.

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Date submitted: 29 Nov 2004

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