Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Vortex Lattice Anisotropy in Sr_2RuO_4 with $H \parallel a$[1] M.R. ESKILDSEN, C. RASTOVSKI, University of Notre Dame, IN, USA, C.D. DEWHURST, Institut Laue-Langevin, France, W.J. GANNON, Northwestern University, IL, USA, D.C. PEETS, H. TAKATSU, Y. MAENO, Kyoto University, Japan — We have studied the vortex lattice (VL) in superconducting Sr_2RuO_4 using spin-polarized small-angle neutron scattering (SP-SANS) and with magnetic fields (H) close to, but not perfectly aligned with, the crystalline basal plane. In this configuration the VL possesses a large transverse field component, due to the large anisotropy of Sr_2RuO_4, which greatly increases the spin-flip SANS scattered intensity. Bragg reflections indicative of a highly distorted hexagonal VL were observed, and an analysis of the magnitude of the scattering vector yielded an anisotropy of $50-60$, roughly two times the H_{c2} anisotropy. We discuss implications of this result in relation to theoretical predictions of Pauli paramagnetic effects in Sr_2RuO_4 with $H \perp c$ [K. Machida and M. Ichioka, Phys. Rev. B **77**, 184515 (2008)].

[1]This work was supported by the Department of Energy, Basic Energy Sciences under Award No. DE-FG02-10ER46783.

Morten R Eskildsen
University of Notre Dame

Date submitted: 11 Nov 2011 Electronic form version 1.4