

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Magnetic Field Imaging of the Spinel MnV_2O_4 ¹ BRIAN WOLIN, TYLER NAIBERT, TAYLOR BYRUM, SAMUEL GLEASON, Department of Physics, University of Illinois at Urbana-Champaign, Urbana, Illinois, 61801, HAIDONG ZHOU, Department of Physics and Astronomy, University of Tennessee, Knoxville, Tennessee, 37996, S. LANCE COOPER, RAFFI BUDAKIAN, Department of Physics, University of Illinois at Urbana-Champaign, Urbana, Illinois, 61801 — The complex interplay of spin, orbital degeneracy, and lattice degrees of freedom result in many intriguing behaviors in condensed matter systems. Due to its simple lattice structure and extensive theoretical work, the spinel MnV_2O_4 is a prime candidate for archetypal study of these phenomena. We perform magnetic force microscopy imaging on single crystal samples of MnV_2O_4 at variable temperature and magnetic field. Our results show previously unobserved magnetic structure and behavior (including stripes and domain switching) as the phase diagram is explored. These represent the first direct imaging of the magnetic properties of a vanadium oxide spinel and inform the current debate over the low temperature magnetic phases of MnV_2O_4 .

¹Supported by US Department of Energy grant DE-FG02-07ER46453

Brian Wolin
Department of Physics, University of Illinois at
Urbana-Champaign, Urbana, Illinois, 61801

Date submitted: 15 Nov 2013

Electronic form version 1.4