

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Observation and coupling of domains in a spin spiral multiferroic¹

DENNIS MEIER, MICHAEL MARINGER, THOMAS LOTTERMOSER, MANFRED FIEBIG, HISKP, University Bonn, PETRA BECKER, LADISLAV BOHATY, Institute for Crystallography, University of Cologne — The intrinsically strong cross coupling between magnetism and ferroelectricity in spin spiral multiferroics suggests these systems as prime candidates for novel multifunctional devices. Comprehension and controlling of the correlated antiferromagnetic (AFM) and ferroelectric (FE) domain structures by external fields is an indispensable prerequisite for future device design. However, very few is know about the domain topology and switching of AFM spin spirals and the magnetically induced FE domains. Here we present the spatial distribution of AFM and FE domains in MnWO_4 , revealed by optical second harmonic generation. Electric fields are used to uniquely control the magnetic domain structure, while applied magnetic fields influence the poling behavior of the FE domains.

¹This work is supported by the DFG through SFB 608.

Dennis Meier
HISKP, University Bonn

Date submitted: 29 Oct 2008

Electronic form version 1.4