

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Scanning element-specific magnetic microscopy at low temperatures ANDREW CADY, D. HASKEL, J. C. LANG, G. SRAJER, Argonne National Lab, P. CHUPAS, R. OSBORN, J. F. MITCHELL, Argonne National Lab, S. PARK, S-W. CHEONG, Department of Physics & Astronomy, Rutgers University — We have developed a low-temperature element-specific magnetic microscopy tool at beamline 4-ID-D at the Advanced Photon Source. The setup provides a means to measure localized (~ 1 sq. micron) magnetic behavior in materials at low temperature (>10 K) under a moderate applied field (<0.8 T). We demonstrate the potential of this apparatus by presenting results from two experiments. The first experiment shows the techniques ability to measure paramagnetic-to-ferromagnetic transition temperatures in micron sized regions of a sample and correlate them with small chemical inhomogeneities. The second experimental result illustrates how the technique can be used to correlate magnetic and chemical domains in a multiferroic system. Work at the Advanced Photon Source was supported by the DOE, Office of Basic Sciences, under contract no. W-31-109-Eng-38.

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Date submitted: 07 Dec 2004

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