## Abstract Submitted for the MAR10 Meeting of The American Physical Society

Origin and Properties of Uncompensated Magnetization in FeF<sub>2</sub> KARIE BADGLEY, Department of Physics and Astronomy, Texas A&M University, M. EREKHINSKY, IVAN K. SCHULLER, Physics Department, UCSD, MIKHAIL ZHERNENKOV, MICHAEL R. FITZSIMMONS, LANSCE, Los Alamos National Laboratory, CASEY W. MILLER, Physics Department, University of South Florida, IGOR V. ROSHCHIN, Department of Physics and Astronomy, Texas A&M University — Recent studies<sup>1</sup> of exchange bias demonstrated uncompensated magnetization in an antiferromagnet. To further investigate the properties and the origin of this magnetization, two types of 36nm thick samples of FeF<sub>2</sub> on MgF<sub>2</sub> were prepared: with and without a 3nm top layer of Al used to prevent possible oxidation. SQUID VSM measurements on these samples showed uncompensated magnetization. Samples coated with Al were found to have larger magnetic susceptibility. These findings are in agreement with neutron scattering measurements, which also showed the uncompensated magnetization primarily at the top surface of FeF<sub>2</sub> for the Al-coated sample. Comparative analysis of the field and temperature-dependent magnetization of the Al-coated and uncoated samples provides insight into the origin of the uncompensated magnetization in FeF<sub>2</sub>. Funded by Texas A&M University, Texas A&M University – CONACyT Collaborative Research Grant Program, DOE, and NSF-9976899.

<sup>1</sup>M.R. Fitzsimmons et al. Phys. Rev. B **75**, 214412 (2007).

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