

Abstract Submitted  
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**Ground state electromagnetic moments of  $^{53}\text{Fe}$** <sup>1</sup> KEI MINAMISONO, A. J. MILLER, B. A. BROWN, NSCL/Dep. Phys. Astronomy, MSU, D. M. ROSSI, B. MAASS, W. NOERTERSHAEUSER, TU Darmstadt, D. GARAND, C. SUMITHRARACHCHI, NSCL/MSU, P. F. MANTICA, NSCL/Dep. Chemistry, MSU, R. BEERWERTH, S. FRITZSCHE, Helmholtz Institute Jena, A. KLOSE, Dep. Chemistry, Augustana Univ., Y. LIU, ORNL, P. MUELLER, ANL, M. R. PEARSON, TRIUMF — Nuclear structure studies around the  $^{56}\text{Ni}$  nucleus with  $N = Z = 28$  are critical since  $^{56}\text{Ni}$  is considered to be a soft core. In this region of interest, the nuclear magnetic-dipole moment and the electric-quadrupole moment of  $^{53}\text{Fe}$  were determined for the first time. A novel scheme of projectile-fragmentation reactions followed by in-flight separation and gas stopping was used in the present study for laser spectroscopy. Details of the experiment and a comparison with shell model calculations will be presented.

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