Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Ferromagnetic resonance of a YIG film in the low frequency regime JOHN KETTERSON, Northwestern University, Evanston, IL., SCOTT GRUDICHAK, Lawrence University, Appleton, WI., JOSEPH SKLENAR, Northwestern University, Evanston, IL., C. C. TSAI, Chang Jung Christian University, Tainan 71101, Taiwan., MOONGYU JANG, Hallym University, Chuncheon, 200-702 South Korea., QINGHUI YANG, HUAIWU ZHANG, State Key Laboratory of Electronic Films and Integrated Devices, University of Electronic Science and Technology, Chengdu, Sichuan, 610054, China., SEONGJAE LEE, Research Institute for Natural Sciences, Hanyang University, Seoul, 133-791 South Korea. — An improved method for characterizing the magnetic anisotropy of films with cubic symmetry is described and is applied to an yttrium iron garnet (111) film. Analysis of the FMR spectra performed both in-plane and out-of-plane from 0.7 to 8 GHz yielded the magnetic anisotropy constants as well as the saturation magnetization. The field at which FMR occurs is sensitive to anisotropy constants in the low frequency (¡ 2 GHz) regime and when the orientation of the magnetic field is nearly normal to the sample plane; the restoring force on the magnetization arising from the magnetocrystalline anisotropy fields is then comparable to that from the external field, thereby allowing the anisotropy constants to be determined with greater accuracy. Work at Northwestern was supported by the US DOE, Office of Basic Energy Sciences, Materials Science and Engineering Division under grant number DE-SC0014424. The film growth was supported by the National Natural Science Foundation of China (NSFC) under Grants 51272036 and 51002021 and 51472046.

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Date submitted: 09 Nov 2015 Electronic form version 1.4