Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Electrical measurements of nonlinear magnetization dynamics[1]
CAN-MING HU, YONGSHEN GUI, LIHUI BAI, PAUL HYDE, Department of Physics and Astronomy, University of Manitoba, Winnipeg, Canada R3T 2N2, UNIVERSITY OF MANITOBA TEAM — A new approach to measure precisely nonlinear magnetization dynamics is demonstrated by using spin dynamos in combination with sensitive electrical probing techniques. The directly measured intrinsic foldover effect of ferromagnetic resonance in Py unravels a 50-year-old mystery of ferromagnetic metals. Pivotal importance of nonlinear ferromagnetic damping is uncovered via its distinct dependence on the frequency, amplitude, and initial conditions. The experimental results are in excellent agreement with a phenomenological model, which revises the pioneer theoretical work of Anderson and Suhl for nonlinear magnetization dynamics. New evidence for electrically detected pure spin pumping in the nonlinear dynamic regime will be briefly discussed. For more information and references, please check our group website at: http://www.physics.umanitoba.ca/˜hu/.

[1]This work has been funded by NSERC and URGP grants.

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Date submitted: 03 Dec 2012 Electronic form version 1.4