

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Effects of disorder and temperature on vortex domain wall dynamics¹ HONGKI MIN², Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD 20899-6202, MICHAEL DONAHUE, Mathematical and Computational Sciences Division, National Institute of Standards and Technology, Gaithersburg, MD 20899-8910, MARK STILES, Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD 20899-6202 — Domain wall motion, whether driven by applied magnetic fields or electrical current, can be strongly affected by sample irregularities. Using micromagnetic simulations and a collective coordinate approach, we study the dynamics of domain wall motion driven by a spin-polarized current or an external magnetic field in the presence of extrinsic random potential at finite temperatures. We compare these calculations and discuss the region of validity of the approximations in the simple model. Information about the strength of the random potential is taken from recent magnetic resonance experiments.

¹This work has been supported in part by the NIST-CNST/UMD-NanoCenter Cooperative Agreement.

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Date submitted: 01 Dec 2008

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