Abstract Submitted
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Spin-Transfer-Torque-Driven Domain-Wall Dynamics in Permalloy Nanowires[1] SHUQIANG YANG, JAMES ERSKINE, University of Texas at Austin — Pulse-current-driven domain-wall dynamics in Permalloy nanowires are studied using high-temporal-resolution magneto-optical techniques. The time-resolved measurements elucidate mechanisms responsible for stochastic variation in pulse-current-stimulated wall displacements, and resolve factor-of-10 disagreements between prior experimental [1,2] and theoretical determinations [3] of domain-wall velocity and spin-flip efficiency in magnetic nanowire structures. Current pulses with different width and amplitude are used to probe the domain-wall motion. By reducing the pulse width, higher current densities can be achieved, leading to more complex domain structures (probed by MFM) in the final state. [1] A. Yamaguchi et al. PRL 92, 077205-1, 2004 [2] M. Klaui et al. PRL 95, 026601-1, 2005 [3] Z. Li and S. Zhang, PRL 92, 207203-1, 2004

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