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Landau-Lifshitz-Gilbert simulations for nanoscale ferromagnetic JIANG XIAO, ANDREW ZANGWILL, School of Physics, Georgia Institute of Technology, MARK STILES, Electron Physics Group, National Institute of Standards and Technology — We have studied the magnetization dynamics of several types of nanoscale ferromagentic heterostructures using stochastic simulations of the Landau-Liftshitz-Gilbert equation. Dynamic "phase diagrams" are obtained and contrasted using several forms of torque–a simple sine formula, Slonczewski's original spin-transfer torque formula[1] and the new more realistic spin-transfer torque formula appropriate for asymmetric geometries [2]. We also studied the importance of the spin-puming term[3]. For the case of ultra-thin spin valve structures, we obtain good agreement with recent experimental results for the dynamic phase diagram and the systematics of magnetization telegraph noise at finite temperature. [1]. J. C. Slonczewski, JMMM 247, 324-338(2002) [2]. Jiang Xiao et al., Phys. Rev. B 70, 172405(2004) [3]. Y. Tserkovnyak et al., Phys. Rev. L 88, 117601(2002)

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