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Current induced dynamics in thin ferromagnets SHAFFIQUE ADAM, MIKHAIL L. POLIANSKI, PIET W. BROUWER, Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca NY 14853 — Recent theoretical work by Polianski and Brouwer, Phys. Rev. Lett. 92, 026602 (2004), and experimental work by Oezylmaz, Kent, Sun, Rooks, and Koch, Phys. Rev. Lett. 93,176604 (2004) demonstrate that a sufficiently strong unpolarized electric current induces transverse spin-wave instabilities in thin, asymmetric ferromagnetic nano-junctions for only one polarity of the current. Here we present analytic and numerical calculations for the ferromagnet dynamics in the linear and non-linear regimes.

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