

Abstract Submitted
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Magnon emission and radiation induced by spin-polarized current.¹ ANDREI ZHOLUD, RYAN FREEMAN, RONGXING CAO, SERGEI URAZH DIN, Emory University — The spin-torque effect due to spin injection into ferromagnets can affect their effective dynamical damping, and modify the magnon populations. The latter leads to the onset of nonlinear damping that can prevent spontaneous current-induced magnetization oscillations. It has been argued that these nonlinear processes can be eliminated by the radiation of magnons excited by local spin injection in extended magnetic films. To test these effects, we studied the effects of spin injection on the magnon populations in nanoscale spin valves and magnetic point contacts. Measurements of the giant magnetoresistance show a significant resistance component that is antisymmetric in current, and linearly dependent on temperature T . This component is significantly larger for the nanopatterned ferromagnets than for point contacts. We interpret our observations in terms of stimulated generation of magnons by the spin current, and their radiation in point contacts. 1. V.E. Demidov, S. Urazhdin, H. Ulrichs, V. Tiberkevich, A. Slavin, D. Baither, G. Schmitz, and S. O. Demokritov, *Nature Mater.*, **11**, 1028-1031 (2012)

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