

Abstract Submitted  
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**Imaging Magnetic Normal Modes Driven by Spin Transfer Torque in Magnetic Nanopillars using Soft X-ray Microscopy**<sup>1</sup> YONG-TAO CUI, LIN XUE, Cornell University, PETER FISCHER, MI-YOUNG IM, Center for X-ray Optics, Lawrence Berkeley National Laboratory, R.A. BUHRMAN, D.C. RALPH, Cornell University — Motivated by the desire to understand the spatial structure of the high-frequency dynamical magnetic modes that can be excited by spin transfer from spin-polarized currents, we report measurements using X-ray microscopy to image magnetic normal modes in nanopillar devices resonantly excited by spin torque from a microwave frequency current. The frequency of the microwave current is phase locked to the incident X-ray pulses. We achieve 70 ps time resolution and 25 nm spatial resolution, enabling us to study the spatial configuration of the magnetization throughout the cycle of resonant magnetization dynamics. We will discuss the initial results of our measurements and comparisons with micromagnetic simulations.

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