

Abstract Submitted
for the 4CF11 Meeting of
The American Physical Society

Brillouin light scattering study of current controlled spin waves in magnetic microstrips¹ JASON LIU, ARABINDA HALDAR, KRISTEN BUCHANAN, Colorado State University, HELMUT SCHULTHEISS, Argonne National Laboratory, KATRIN VOGT, Technische Universität Kaiserslautern — Spin wave excitations in Permalloy (Py) microstrips were investigated using micro-Brillouin light scattering (micro-BLS). Micro-BLS is a technique that can be used to probe dynamic excitations in magnetic structures on sub-micrometer length scales through inelastic scattering of light with the spin waves. The spin wave dispersion relation is typically controlled via the application of an external magnetic field using an electromagnet. For nanoscale circuits, this means that the external field is spatially uniform. Since the orientation of the field with respect to the wires in the circuit is important, restrictions are placed on what geometries can be studied. This paper will present preliminary measurements on an alternate strategy for applying the magnetic field that is more flexible. A dc control magnetic field is applied locally to a long magnetic nanowire of Py by sending a current through a gold wire deposited under the Py nanowire. The orientation of the dc field is always perpendicular to the wire, thus a favorable geometry can be maintained even in curved wires.

¹This research was funded by the NIST grant number 60NANB10D011 and the NSF award number 0907706.

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Date submitted: 20 Sep 2011

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