

Abstract Submitted
for the 4CF10 Meeting of
The American Physical Society

Setup of a micro- Brillouin light scattering apparatus for measuring magnons in patterned magnetic thin films¹ JASON LIU, ANDREW POLEMI, KRISTEN BUCHANAN, Colorado State University, Fort Collins, CO 80523 — Brillouin light scattering (BLS) is a sensitive technique for probing the dynamics of a wide variety of magnetic systems. We are currently developing a micro-BLS apparatus where we focus a monochromatic solid state laser at 532 nm onto a magnetic sample using a 100x microscope objective. The incident light scatters inelastically from spin waves or magnons in the magnetic sample. The scattered light is collected by this same microscope objective and the spectral components are analyzed using a Tandem Fabry-Perot Interferometer. The sample sits on a three dimensional translation stage allowing us to map the spin excitations as a function of position with 355 nm spatial resolution. This micro-BLS apparatus will allow for local spectroscopic measurements on the submicron scale. We plan to use this technique to measure quantized spin wave excitations in nanopatterned structures. Measurements on thin film test samples will be presented.

¹This research was funded by the National Institute of Standards and Technology grant number 60NANB10D011 and National Science Foundation award number 0907706.

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Date submitted: 10 Sep 2010

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