Abstract Submitted
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Nanomechanical Torque Magnetometry of Individual Mesoscopic Superconductors[1] ABDUL SUHEL, University of Alberta, DOUG VICK, National Institute of Nanotechnology, MARK R. FREEMAN, University of Alberta and National Institute of Nanotechnology, JOHN P. DAVIS, University of Alberta — We have developed an extremely sensitive form of torque magnetometry based on thin nanomechanical resonators [1]. Previously, we applied this technique to study single magnetic vortices in nanomagnetic samples [2]. One advantage of this technique is that it has good time resolution, and each measurement can be performed quickly enough to gather significant statistics on such events [2]. We are now applying this technique to study single mesoscopic superconducting samples. We intend to measure the magnetic moment associated with superconducting vortices, as well as other magnetic effects that occur in mesoscopic superconductors [3,4]. We will discuss our progress towards this goal. [1] J.P. Davis, et al. Appl. Phys. Lett. **96**, 072513 (2010). [2] J.P. Davis, et al. New Journal of Physics **12**, 093033 (2010). [3] A.K. Geim, et al. Nature **396**, 144 (1998). [4] A.K. Geim, et al. Nature **407**, 55 (2000).

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