

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Control of Magnetic States of Cobalt Nanorings by an External Azimuthal Field¹ NIHAR PRADHAN, Mount Holyoke College and UMass Amherst, MA, USA, TIANYU YANG, UMass Amherst, MA, USA, ABBEY LICHT, YIHAN LI, Mount Holyoke College, South Hadley, MA, USA, MARK TUOMINEN, UMass Amherst, MA, USA, KATHERINE AIDALA, Mount Holyoke College, South Hadley, MA, USA — Ferromagnetic nanorings attract interest due to their potential application in high density data storage and Magnetoresistive Random Access Memory (MRAM) devices. These nanorings show multidomain stable states that need to be well controlled by external in-plane or circular magnetic fields. This talk presents a new method to generate circular magnetic fields to control the magnetic states in different geometries of Cobalt nanoring structures, of varying diameter, width and thickness. A solid platinum AFM tip was used to pass current through a single nanoring, generating a circular magnetic field. In applying this field we were able to change the state of the individual ring without affecting the states of other neighboring rings. The evolution of the magnetic states of individual symmetric and asymmetric Cobalt nanorings with applied azimuthal field will be presented.

¹The work was supported by the National Science Foundation under DMR Grant 906832 and Research Corporation Grant 7889

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Date submitted: 22 Nov 2010

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