

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Single domain wall manipulation in curved nanowires using a mobile, local, circular field¹ MADELINE SHORTT, JESSICA BICKEL, MINA KHAN, Mount Holyoke College, MARK TUOMINEN, University of Massachusetts Amherst, KATHERINE AIDALA, Mount Holyoke College — Ferromagnetic nanostructures present exciting physics with a range of potential applications in data storage devices, such as magnetoresistive random access memory (MRAM). These proposals require precise control and understanding of domain wall (DW) movement and interactions. We developed a technique that generates a local circular Oersted field at a precise location by applying current through the tip of the atomic force microscope (AFM). We previously used this technique to control DW motion in nanorings [1]. We extend this method to control individual DW movement in curved nanowires by placing the tip near a 180° DW at the vertex of a curved wire and generating a local field. In this way, we can examine the motion of domain walls through regions with different curvature and the effects of pinning. [1] T. Yang, N. R. Pradhan, A. Goldman, A. Licht, Y. Li, M. T. Tuominen and K. E. Aidala, Applied Physics Letter, <http://apl.aip.org/resource/1/applab/v98/i24/p242505>, 98, 242505, (2011)

¹This work was supported in part by NSF DMR-1207924 and the UMass Center for Hierarchical Manufacturing, NSF CMMI-1025020.

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Date submitted: 15 Nov 2013

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