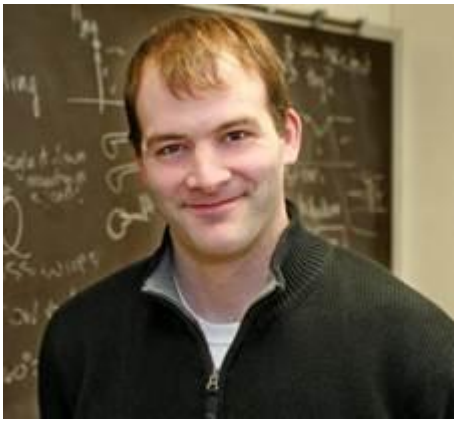
PHYSICS & ASTRONOMY COLLOQUIUM
UNIVERSITY OF WISCONSIN – STEVENS POINT

FRIDAY, APR 6, 2012
2:00 PM Room A106 SCI

Andrew Kunz

Department of Physics, Marquette University

Fast Control of Domain Wall Motion in Ferromagnetic Nanowires



Andrew Kunz is an associate professor of physics at Marquette University who works with undergraduate students to better understand magnetization dynamics in nanoscale systems. Prior to Marquette University Andrew was a visiting professor at Lawrence University in Appleton and was a postdoctoral fellow at the National Institute of Standards and Technology in Gaithersburg, MD. He completed his PhD at the University of Minnesota and has a BS from the University of Illinois.

ABSTRACT: Spintronic devices exploit the spin of the electron and its associated magnetic moment to sense, transport and store information. Recently there has been a particular interest in developing devices that depend on the magnetic properties of long, thin wires where the information is encoded by the transition between two magnetic domains. This transition region, called a domain wall, can be moved changing the value. Controlling the motion of the domain wall is essential for realizing new fast, high-density non-volatile data storage devices. We use a combination of computer simulation and some simple classical models to investigate techniques for improving control from domain wall creation to final positioning. The presentation will focus mostly on our results but experimental verification will be presented along with some recent results showing how defects can be used to improve control. (funded by NSF-DMR)

Faculty, staff and students are cordially invited to attend.
Refreshments will be served beginning at 1:45 pm