

Subject: MSD Colloquium, Bauer, Thurs, 3/29, 11am, 212, A-157 *Note Building Change*
From: Suzanne Kokosz <kokosz@anl.gov>
Date: Mon, 05 Mar 2007 15:12:41 -0600
To: Materials Science Division <msd@anl.gov>

SPEAKER: Dr. Gerrit E. W. Bauer
Kavli Institute of Nanoscience
Delft University of Technology
The Netherlands

TITLE: Spin Torques in Magnetoelectronic Nanodevices

DATE: Thursday, March 29, 2007

TIME: 11:00 a.m.

PLACE: Building 212, A-157

HOST: Axel Hoffmann

*****NOTE BUILDING CHANGE*****

Refreshments will be available at 10:45 a.m.

Abstract:

Magnetoelectronics is the science and technology to integrate ferromagnets into electronic circuits to realize new effects and functionalities. Ferromagnetism in transition metals is a robust quantum phenomenon with critical temperatures of up to 1400 K. Nevertheless, the magnetic order parameter can be rotated rather easily as whole, e.g. by applied magnetic fields. The modulation of the electron current by magnetic-field-induced configuration changes of the magnetization profile in heterostructures is referred to as the Giant Magnetoresistance. Vice versa, electric currents can affect the magnetization configuration by the so-called Spin-Transfer Torque. The current-induced magnetization reversal has great application potential as a scalable mechanism to write information into magnetic random access memories.

In this seminar, I will discuss the physics of the spin-transfer torque and a selection of its many manifestations observable in the dynamics of magnetic nanostructures.