

MATERIALS SCIENCE COLLOQUIUM

SPEAKER: Dr. Valentyn Novosad
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TITLE: Soft Ferromagnets with Restricted Geometry

DATE: Thursday, July 28, 2005

TIME: 11:00 a.m.

PLACE: Building 212, Room A157

HOST: Axel Hoffmann

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

Abstract: In general, the magnetic properties of ferromagnets can be understood in terms of competition between the magneto-crystalline, exchange, and magnetostatic energies. The latter originates from long range dipole-dipole interactions and, therefore, can be tuned effectively by the choice of the shape, physical dimensions, and proximity of magnetic structures. Thus patterning and thin film growth processes offer an excellent opportunity to experimentally investigate model micromagnetic systems with restricted geometries, systems that often demonstrate unique and interesting behavior. One particular phenomenon that has attracted much attention recently is the magnetic vortex state that is often observed as the ground state for lithographically defined particles [1, 2]. This talk will focus on our recent investigations of the size- and geometry-dependent magnetization reversal mechanisms [3, 4], coupling effects [5] and spin dynamics of magnetic vortices in restricted geometries [6, 7].