Magnetism at Surfaces and Interfaces June 8 - 10, 2012 Banff Alberta Canada

Aims and Purposes of the Magnetic North III:

This workshop will bring together experimentalists, theorists and computational scientists from academia and industry. Magnetism at surfaces and interfaces is of continually increasing importance as size scale of structures of greatest interest continues to decrease, and in many cases dominates the magnetic properties. Interfaces are wholly responsible for novel two-dimensional magnetism in complex oxides, and surfaces and interfaces have bearing on the materials properties of new magnetic systems such as multiferroics (materials hosting both a permanent magnetism and one or more other types of spontaneous ordering such as a permanent electric polarization); on aspects of the classical physics materials relevant to current applications (especially thin magnetic films, spin dynamics, and nanomagnetic systems); and on problems in quantum magnetism such as quantum-fluctuation induced spin order and quantum tunneling of magnetization.

The Magnetic North III workshop will consider the spectrum of experimental, theoretical and numerical simulation approaches to the understanding of these phenomena. How they are linked to the resulting magnetic characteristics is a challenging goal of much of the current research in magnetism. These efforts can reveal both potential new technological applications and new physics.

Past Workshops
Magnetic North II www.magneticnorth.mun.ca/MagNorthII
Magnetic North I www.magneticnorth.mun.ca/magneticnorth1.php

Canadian Association of Physicists (CAP) Congress - June 11-15, 2012 at University of Calgary
To facilitate travel to and scheduling of the workshop for participants, both the MM-III timing and location have been chosen in concordance with the Canadian Association of Physicists Congress to be held at the University of Calgary from June 11-15, 2012 (http://www.cap.ca/en/congress/2012).

Scientific Organization:

Dr. Johan van Lierop (johan@physics.umanitoba.ca) and
Dr. Can-Ming Hu (hu@physics.umanitoba.ca)
Department of Physics and Astronomy, University of Manitoba

Dr. Mark Freeman (mark.freeman@ualberta.ca)
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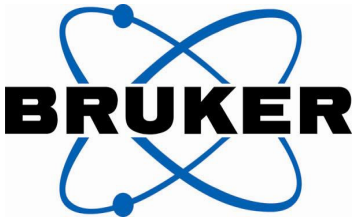
Support and Financing:



Magnetic North

Magnetic North is an organization of magnetism researchers in Canada and their international collaborators. It is a forum for information exchange on individual and group research activities. Magnetic North also serves as the basis for the organization of regular magnetism sessions within the annual congress of the CAP as well as stand-alone Magnetic North workshops. There are a broad range of magnetic researchers in Canada, spanning various academic departments and government laboratories using a variety of experimental, theoretical and computational techniques. Research interests encompass geometrically constrained systems (thin films and wires), molecular magnets, dipolar systems, frustration, quantum effects, phase transitions, magneto-electric materials, etc. A goal of Magnetic North is to facilitate the exchange of ideas between researchers and to reveal overlapping interests that can foster useful collaborations, serving also to strengthen the magnetism research community in Canada as a whole.

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http://www magneticnorth.mun.ca/

Program

Preliminary Program (version: May 14) (subject to further changes)
(Invited talk: 30 + 10 min; contributed talk: 15 +5 min.)

Thursday, 7 June 2012

17:00-19:00 REGISTRATION

18:00- PUB GATHERING

Friday, 8 June 2012

8:00-9:00 BREAKFAST

9:00-9:30 REGISTRATION

9:30-10:50 Session I: Imaging and magnetometry

Chair: Mark R. Freeman (Univ. Alberta)

9:30-10:10 Moreland (NIST, Boulder)
New Prospects for Quantitative Magnetometry at the Nanoscale

10:10-10:30 Venus (Univ. McMaster)
Population dynamics of topological defects (dislocations) in a 2D magnetic stripe domain pattern

10:30-10:50 Losby (Univ. Alberta)
Nanomechanical observation of domain wall pinning in thin permalloy elements

10:50-11:10 COFFEE

11:10-12:30 Session II: Imaging and magnetometry

Chair:

11:10-11:50	Heinonen (ANL, Lemont) **Topological structures in patterned nanomagnets**
11:50-12:10	Burgess (Univ. Albert) **An analytic description of the pinned vortex**
12:10-12:30	Akbari-Sharbaf (Univ. Western) **Magnetic properties of graphene nanoribbons in the non-correlation regime**
12:30-14:00	LUNCH
14:00-15:20	**Session III: x-ray and neutron scattering** Chair: J. van Lierop (Univ. Manitoba)
14:00-14:40	Freeland (ANL, Argonne) **Exploring Magnetic States at Complex Oxide Interfaces**
14:40-15:00	Desautels (Univ. Manitoba) **Tuning the core/shell interface magnetism to control the surface spin disorder of nanoparticles**
15:00-15:20	Vaez-zadeh (KNTUT, Iran) **Magnetic Hysteresis Loop and wasp-waist effect in MnFe2O4 nanoparticles**
15:20-15:40	COFFEE
15:40-19:40	**Free discussion in the fresh air**
20:00-21:30	**Poster + Reception**

Saturday, 9 June 2012

8:00-9:00	BREAKFAST

9:00-10:20 Session IV: transport & dynamics

Chair: Can-Ming Hu (Univ. Manitoba)

9:00-9:40 Bauer (Univ. Tohoku)
Spin Caloritronics

9:40-10:00 Stotz (Univ. Queen's)
Spin manipulation using dynamic surface strain fields

10:00-10:20 Villarreal (MUN, St. John's)
The magnetic phase diagram and Landau free energy of CuO

10:20-10:40 COFFEE

10:40-12:00 Session V: transport & dynamics

Chair

10:40-11:20 Stiles (NIST, Gaithersburg)
Spin transfer torques in magnetic bilayers with strong spin orbit coupling

11:20-11:40 Camley (Univ. Colorado)
Three Magnon Processes in Magnetic Nanoelements: Quantization and Edge Mode Effects

11:40-12:00 Montoya (Univ. Simon Fraser)
Spin pumping and spin transport in magnetic metal and insulator heterostructures

12:00-13:30 LUNCH

13:30-14:50 Session VI: magnetic modeling & Monte Carlo simulation

Chair: Martin L. Plumer (Univ. Memorial)

13:30-14:10 Southern (Univ. Manitoba)

Angular dependence of FMR measurements in exchange coupled NiFe/NiO bilayers: Experiment and Theory

14:10-14:30 Fal (Univ. Memorial)
Semi-analytic formulation of particle magnetization reversal at zero and finite temperatures: an application to recording media

14:30-14:50 COFFEE

15:00-19:30 Excursions

19:45 for 20:00 BANQUET

Sunday, 10 June 2012

8:00-9:00 BREAKFAST

9:00-10:20 Session VII: x-ray and neutron scattering

Chair:

9:00-9:40 Stamp (UBC)
Large-scale Coherence and Decoherence in Magnetic Systems

9:40-10:20 Fitzsimmons (LANL, USA)
Magnetic non-uniformity in $(La_{0.4}Pr_{0.6})_{0.67}Ca_{0.33}MnO_3$ films and measurement of the strain-magnetization coupling coefficient

10:20-10:40 Roshchin (Texas A&M)
New magnetic state in thin-film antiferromagnets and intrinsic exchange bias

10:40-11:00 COFFEE

11:00-12:20 **Session VIII: magnetic modeling & Monte Carlo**

simulation

Chair:

11:00-11:40 Diep (Univ. Cergy-Pontoise)
Surface effects in frustrated magnetic materials: phase transition and spin resistivity

11:40-12:20 Plumer (MUN, St. John's)
Magnetic phase transitions in the fcc Kagomé lattice.

12:30-13:30 LUNCH

Poster

-in alphabetical order of authors-

B. Alkadour, J. I. Mercer, J. P. Whitehead, B. W. Southern
Simulation of γFe2O3 Nanospheres on a Triangular Lattice

Z. Diao, M. Belov, J. E. Losby, D. Vick, S. R. Compton, J. A. J. Burgess, A. E. Fraser, P. Li, W. K. Hiebert, and M. R. Freeman
Nanomechanical torque magnetometry on a focused-ion-beam milled yttrium iron garnet microdisk

C. Eyrich, W. Huttema, M. Arora, Erol Girt, B. Heinrich, O. Mryasov, D. Harrison, M. From, O. Karis
Exchange stiffness in hcp-Co thin film alloys

F. Fani Sani, A.E. Fraser, J.A.J. Burgess, B. Hauer, D. Vick, J.P. Davis, M.R. Freeman
Artificial vortex core pinning sites in a Permalloy disk

Chithra Karunakaran, Stephen Urquhart, Adam Hitchcock
Magnetic Imaging with Soft X-ray Microscopy at the Canadian Light Source