

Topical Group on Magnetism and its Applications

A Focused Group within the American Physical Society

Message From the Chair

We are greatly reassured by the continued growth of the magnetism community within the APS. Our Topical Group on Magnetism came into being only 10 years ago and now has 771 members (October 2006), which represents continued substantial growth. We appreciate the efforts made by our members to bring GMAG to the attention of our colleagues and to encourage them to join (it's only \$7 per year and students are free until their next APS membership renewal!) The more members we have, the more we represent the magnetism community within the APS and in the US, and the more effective we can be as an organization.



GMAG is now responsible for the organization of all abstracts submitted to Sorting Category 6 (Magnetism) in the March meeting. This includes 3 GMAG-sponsored symposia, as well as 7 sponsored or co-sponsored Focus Sessions. A tutorial on Spintronics was also sponsored by GMAG on the Sunday before the start of the Denver meeting. As detailed below 850 magnetism-related abstracts were submitted for the 2007 meeting, which were placed into 62 sessions. A time-table of these sessions is included on the insert page of this newsletter. Limited copies will also be available at the meeting.

For 2006, GMAG elected four of our members to fellowship in the APS. We extend our congratulations to Andrew Kent, Gang Xiao, Chi-Chang Kao, and Michael Fitzsimmons for achieving this distinction conferred to only 0.5% of the unit membership in any one year. Their citations appear later in this newsletter. The GMAG deadline for nominating APS fellow for next year is April 3, 2007. The nomination process has entered the brave new world of electronic-only submission. Instructions can be found on the APS web site at <http://www.aps.org/programs/honors/fellowships/nominations.cfm>.

As a reminder the general business meeting of GMAG will be held at 5:45 on Tuesday, March 6 in Korbel 3C at the Denver Convention Center. This is an opportunity to meet other members of GMAG, share your thoughts on the GMAG part of the program for the next March meeting, and find out about or suggest new activities for GMAG in the

coming year. The new GMAG-sponsored APS Fellows and student dissertation award winners will be recognized at the meeting. In addition to hearing reports on GMAG membership and its financial status, you can enjoy free soft drinks and snacks. We do hope you will attend this meeting and help shape the future of GMAG.

This is my final newsletter message to you as chair of GMAG. Dan Reich will become the new GMAG Chair at the close of the March Meeting in Denver. Dan organized the GMAG portion of the program for this meeting for which we are highly indebted.

On behalf of the officers of GMAG, we appreciate the continued support of your organization in ensuring an outstanding magnetism program for the March meeting and in the other GMAG activities.

—Jim Rhyne, GMAG Chair

Four GMAG members achieve APS Fellowship for 2006

We congratulate the following four individuals for being nominated by the Topical Group on Magnetism and selected for APS Fellowship:

Andrew Kent (New York University) *for seminal contributions to quantum tunneling through experimental studies of the tunneling of the magnetization in molecular magnets.*

Gang Xiao (Brown University) *for his significant contributions to spintronics research, especially on half-metallic ferromagnets, magneto-tunneling, colossal magnetoresistance, nanoscale structures and devices.*

Chi-Chang Kao (Brookhaven National Laboratory) *for his many contributions to resonant elastic and inelastic x-ray scattering techniques and their application to materials physics.*

Michael Fitzsimmons (Los Alamos National Laboratory) *for his work in elucidating the magnetization reversal processes in exchange bias systems using polarized neutron reflectometry.*

They will be honored at the GMAG business meeting on Tuesday during the March Meeting as well as being invited to dinner by the Executive Committee.

Election of GMAG officers for 2007-08

The election of new officers and members of the Executive Committee for GMAG will be underway when you receive this newsletter. Each year a GMAG nominating committee is formed whose chair is a member of the Executive Committee with two additional GMAG members, one of whom may not be a member of the Executive Committee. This year's committee was chaired by Sara Majetich with members David Lederman and Laura Lewis. The committee presents nominations for a new Vice Chair (who succeeds to Chair-Elect, Chair, and Past Chair), and two new at-large members of the Executive Committee who serve until 2010. The nominees this year are:

Vice Chair: Axel Hoffmann and Berry Jonker

At-large Members of the Executive Committee:

Mike Fitzsimmons, Hariharan Srikanth, Mick Pechan, and Evgeny Tsybal

Brief biographies of these candidates are given on page 4 of this newsletter. **Please vote for your choice of candidates for both Vice Chair and for the at-large members of the Executive Committee before the deadline of February 23, 2007.** All members of GMAG should have received an e-mail with a link to the on-line election site. GMAG members may vote on-line, or request a paper ballot from the election web page. The web site also gives statements from the candidates about their vision for GMAG.

Two Ph.D. students selected for GMAG Dissertation Awards

We received a record number of nominations for the GMAG Ph.D. dissertation awards this year and all the candidates had exceptional credentials. The GMAG Executive Committee selected the following two to receive the award, which consists of a \$500 check and a maximum of an additional \$250 that may be used for travel expenses to the March meeting. The winners will also present invited talks in a Focus Session and their award will be presented during the session. Congratulations to:

Vanessa A. Sih, University of California-Santa Barbara (David Awschalom, advisor) —Electrical manipulation of spin-orbit coupling in semiconductor heterostructures, Focus Session: Spin Orbit Coupling, P12, Wednesday, March 7, 11:15, Korbel 3C

Stephen D. Wilson, University of Tennessee (Pengcheng Dai, advisor) -- Field Induced Suppression of the Resonance Mode in N-type High-Tc Cuprate $\text{Pr}_{0.88}\text{La}_{0.12}\text{CuO}_4$ -($T_c = 24$), Focus Session: High Tc Cuprates and Nickelates, P13, Wednesday, March 7, 12:15, Korbel 4C

2007 March Meeting Magnetism Sessions

The 2007 APS March Meeting will be held March 5-9 at the Denver Convention Center. The headquarters hotel is the Adams Mark. For more details see the web site announcement <http://www.aps.org/meetings/march/index.cfm>.

Paper Sorting Category #6 (Magnetism) generated a total of 850 contributed abstracts and was the largest category for the 2007 meeting. GMAG is sponsoring or co-sponsoring seven Focus Topics and sponsoring three invited symposia in the Denver meeting. The Focus Topics have generated a total of 56 sessions, which include 46 invited talks and the remainder are contributed talks. There are an additional 6 magnetism-related sessions of contributed talks.

GMAG Invited Symposia

Spin-Transfer-Driven Magnetic Excitations

– organized by D. Ralph

Magnetic Bose Einstein Condensation

– organized by S. Hill

Symposium on Exchange Bias

– organized by D. Dahlberg

Focus Topics (sponsoring organizations are in parentheses)

Theory and Simulation of Spin-Dependent Effects and Properties (DCOMP/DMP/GMAG)

– organized by Oleg Mryasov and Qian Niu

Magnetic Nanostructures: Materials and Phenomena (DMP/GMAG)

– organized by Hariharan Srikanth and Andrew Kent

Complex Oxides (DMP/GMAG)

– organized by Valery Kiryukhin, Warren Pickett, and Tsuyoshi Kimura

Spin Transport and Magnetization Dynamics in Metal-Based Systems (GMAG/DMP/FIAP)

– organized by Axel Hoffmann and Jonathan Z. Sun

Spin-Dependent Phenomena in Semiconductors (GMAG/DMP/FIAP)

– organized by Igor Zutic, Nitin Samarth, and Tomasz Dietl

Nanomagnetic Particles and Structures for Information Storage Applications (GMAG/FIAP)

– organized by Shouheng Sun and Eric Fullerton

Frustrated and Low Dimensional Magnetism (GMAG)

– organized by Collin Broholm and Shivaji L. Sondhi

A time-table of all these sessions is included as an insert in this newsletter.

Biographical Sketches of the Candidates for GMAG Officers

Candidates for Vice Chair:

Axel Hoffman: Currently I am a staff member at the Materials Science Division at the Argonne National Laboratory. Furthermore I also act as a scientific theme leader for nanomagnetism at the Center for Nanoscale Materials, which recently opened its doors for supporting outside users from the U.S. and abroad. Before joining Argonne in 2001 I was a postdoctoral fellow at the Los Alamos National Laboratory and in 1999 I received my Ph.D. in physics at the University of California – San Diego under the supervision of Professor Ivan K. Schuller. My research interests encompass a wide variety of magnetism related subjects, including basic properties of magnetic heterostructures, spin-transport in novel geometries, and biomedical applications of magnetism. In the past I have served the magnetism community as a publication editor for the MMM conference and currently as the publication chair (IEEE) for the joint MMM/Intermag conference as well as one of the co-organizers for a focused session at the upcoming APS March Meeting. In addition I am a member of the IEEE Magnetic Society Technical Committee.

Berend (Berry) T. Jonker is Head of the Magneto-electronic Materials & Devices section in the Materials Science & Technology Division at the *Naval Research Laboratory*, Washington, DC. His current research focuses on semiconductor spintronics, including electrical spin injection and transport in semiconductors, and the fabrication and development of prototype spintronic devices. His work also addresses the epitaxial growth and study of ferromagnetic semiconductors, a class of materials which combine both ferromagnetic and semiconducting properties with the potential for new device functionality. Berry obtained his Ph.D. in solid state physics / surface science from the University of Maryland in 1983 in the area of thin film quantum size effects. He came to NRL as a National Research Council Postdoctoral Associate in 1984, and became a staff member in 1986, where he began work on low-dimensional magnetism in epitaxial magnetic metal films and superlattices, and on spin-dependent carrier localization in semiconductor heterostructures. He has co-authored approximately 170 refereed publications and presented 80 invited talks. Berry is a Fellow of the American Physical Society and of the AVS Science & Technology Society, and an Adjunct Professor at the State University of New York, Buffalo. He has served as co-organizer for the APS Focus Topics *Magnetic Nanostructures & Heterostructures* (1999) and *Spin-Dependent Phenomena in Semiconductors* (2004), and as program or conference chair for several magnetism and spin-related conferences, including SpinTech II (2003). He has recently served on the AIP Steering Cmte for Magnetic Materials, and as a committee member for Emerging Research Devices & Materials for the 2005 International Technology Roadmap for Semiconductors.

Candidates for Executive Committee members-at-large:

Mike Fitzsimmons: Technical staff member, Los Alamos National Laboratory. I received my B.A. in Physics from Reed College (1982) and my M.S. and Ph.D. in Materials Science and Engineering from Cornell University (1988). After graduation, I was a Fulbright Jr. Research Fellow in the group of Prof. J. Peisl, Ludwig Maximilians Universität in Munich. In 1990 I joined the Lujan Neutron Scattering Center at Los Alamos as a postdoc, where since 1993 I have been a technical staff member and responsible for operating the user program for the polarized neutron reflectometer/diffractometer Asterix. Professional service to the magnetism community includes symposium organizer for the Fall 2002 MRS meeting, meeting chair of the Fall 2008 MRS meeting, and attendance at too many neutron scattering workshops.

Mick Pechan: BS Physics and Math, Wisconsin- Platteville, 1971. PhD Physics, Iowa State University, 1977. Faculty at Miami University (Ohio) since 1981, currently Professor and Chair. Visiting positions at Illinois, Champaign-Urbana; Argonne National Lab; and UC-San Diego. Past five years: sixteen refereed journal publications; twenty two national or international conference presentations; \$526k in external funding; and directed research of five Masters, fifteen undergraduates and one high school student. Named Miami University Society of Physics Students Outstanding Teacher in 1998 and 2002. Member of American Physical Society (4 divisions), Sigma Xi and American Scientific Affiliation.

Hariharan Srikanth: Associate Professor, Department of Physics, University of South Florida. I received my Ph.D. in Experimental Condensed Matter Physics from the Indian Institute of Science (Bangalore) in 1993. Following postdoctoral research at Northeastern University (1995-98) and a two-year research faculty position at the University of New Orleans (1998-2000), I joined USF as an Assistant Professor and received tenure and promotion in 2004. My research has spanned a broad range of complex functional materials. While earlier work was on oxide superconductors and other strongly correlated systems, research over the past 8 years has exclusively focused on magnetism in nanostructures, thin films and multilayers. I have developed and used novel dynamic susceptibility methods to study anisotropy and other phenomena. I have served for the past two years as a Program Committee member and Publication Editor for the MMM conferences. I am also co-organizing a DMP/GMAG sponsored Focus Topic on magnetic nanostructures at the upcoming 2007 APS March meeting.

Evgeny Tsymbal received his Masters Degree from M.V. Lomonosov Moscow State University in 1981 and Ph.D. in Theoretical Solid State Physics from the Russian Academy of Sciences in 1988. After that he did research work at the Russian Research Center “Kurchatov Institute” and later at the Research Center-Jülich, Germany, and then at Oxford University, UK. He has been a faculty member at University of Nebraska-Lincoln since 2002 and is now a full professor there. Evgeny Tsymbal was the recipient of an Alexander von Humboldt Fellowship and of the I. V. Kurchatov Award in Physics. He is the co-author of more than 100 peer-reviewed publications.

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Evgeny Tsymbal has been involved in the magnetism community as an organizer of a Focus Session "Theory and Simulation of Magnetism and Spin Dependent Properties" at the APS-2005 March Meeting. He was a member of the International Advisory Committee for Symposium on Metallic Multilayers in 2004 and for Moscow International Symposium on Magnetism in 2005. He was an invited speaker at APS, MRS, AVS and EPS Meetings and MMM and Gordon Research Conferences.

Tsymbal's research group has been focused on theory of spin dependent transport in magnetic nanostructures and the prediction of new functional properties of nanoscale magnetic materials and structures. Recent research activities include spin-dependent tunneling in magnetic tunnel junctions; electronic and atomic structure of ferromagnet/organic interfaces; interlayer exchange coupling; ballistic conductance of magnetic nanocontacts and nanowires; domain-wall resistance in constrained geometries; interplay between ferroelectric and magnetic properties.

Reminder -- Ask your colleagues to Join GMAG

For only \$7 additional dues APS members can become GMAG Members with the following benefits (students are free for one year.)

- Quarterly GMAG newsletter.
- Eligibility for GMAG graduate student awards and sponsorship.
- Potential to increase the number of APS Fellows sponsored by GMAG.
- Potential to increase the number of invited talks on Magnetism at the March Meeting.
- Opportunity to help shape the voice and future of the Magnetism Community (your community) in the USA.

See the GMAG website: <http://www.aps.org/units/gmag/index.cfm>. TO JOIN: Go to the APS page for "Application to add units" (<http://www.aps.org/memb/unitapp.html>) and follow instructions for adding a unit to your membership. Or call the APS at 301-209-3280 and tell a Membership Representative that you want to join topical group GMAG.

Upcoming Magnetism-Related Conferences

A feature of the GMAG web site (<http://www.aps.org/units/gmag/>) is a listing of upcoming conferences on magnetism-related topics (also listed below). If you would like to feature your meeting or conference on this page, please contact the GMAG Secretary/Treasurer, Caroline Ross (caross@mit.edu)

Materials Research Society (MRS) 2007 Spring Meeting, April 9-13, 2007, San Francisco, CA, <http://www.mrs.org>

European MRS Meeting, May 28-June 1, 2007, Strasbourg, France, <http://www.emrs-strasbourg.com/>

1st WUN Int. Conf. on Spintronics, Aug. 8-10, 2007, York UK, www.wun.ac.uk/spintronics

Third Seeheim Conference on Magnetism, August 26-30, 2007, Frankfurt, Germany, www.tu-darmstadt.de/magnetism

MORIS 2007: Workshop on Thermal and Optical Mag. Mats. & Devices, Sept 24-26 2007, Carnegie Mellon University, Pittsburgh PA, www.dssc.ece.cmu.edu/moris2007ws/

6th Int. Conf. on Fine Particle Magnetism (ICPFM), Oct. 9-12 2007, Rome, Italy, www.icfpm.mlib.cnr.it

52nd Conference on Magnetism and Magnetic Materials, November 5-9, 2007, Tampa, FL, <http://www.magnetism.org>

Materials Research Society (MRS) 2007 Fall Meeting, December 3-7, 2007, Boston, MA, <http://www.mrs.org>

APS 2008 March Meeting, March 10-14, 2008, New Orleans, LA, <http://www.aps.org>

Materials Research Society (MRS) 2008 Spring Meeting, March 24-28, 2008, San Francisco, CA, <http://www.mrs.org>

Intermag 2008, May 4-8 2008, Madrid, Spain, <http://www.intermagconference.com>

53rd Conference on Magnetism and Magnetic Materials, Nov 10-14, 2008, Austin, TX, <http://www.magnetism.org>

Materials Research Society (MRS) 2008 Fall Meeting, Dec 1-5, 2008, Boston, Massachusetts, <http://www.mrs.org>

APS 2009 March Meeting, March 16-20, 2009, Pittsburgh, PA, <http://www.aps.org>

Materials Research Society (MRS) 2009 Spring Meeting, April 13-17, 2009, San Francisco, CA, <http://www.mrs.org>

Materials Research Society (MRS) 2009 Fall Meeting, Nov. 30 - Dec. 4, 2009, Boston, Massachusetts, <http://www.mrs.org>

2010 Joint MMM/INTERMAG Conference, Jan 17-21, San Francisco, CA

APS 2010 March Meeting, March 15-19, 2010, Portland, OR, <http://www.aps.org>

APS 2011 March Meeting, March 21-25, 2011, Dallas, TX, <http://www.aps.org>