

Topical Group on Magnetism and its Applications

units.aps.org/units/gmag/

Note from the Chair

Dear GMAG Member,

This year's March Meeting will be held in Baltimore MD, from March 14-18. Our GMAG program chair Suzanne te Velthuis has arranged a very exciting program, covering many important advances in magnetism.

Among the activities at the March Meeting, I would like to call your attention to the GMAG Business Meeting on Tuesday March 15th, 2016, (5:45pm-6:45pm Session J15, Room 314 at the Convention Center). At this meeting we will welcome our new GMAG-sponsored APS Fellows and also honor the student dissertation and travel award winners. We will also report on a proposed revision of the GMAG Bylaws to keep them consistent with the new APS governance structure.

Finally, please note the various deadlines below for APS Fellowship nominations as well as prizes and awards. In particular, the deadline for Fellowship nominations sponsored by GMAG is June 1, 2016.

-Jonathan Sun, GMAG Chair

Election of GMAG Officers for 2016-2017

The GMAG election ballot closed on Jan.22, 2016. Congratulations to our newly elected officers:

Vice Chair:

Stephen Hill, NHMFL and Florida State Univ.

Members-at-Large:

Christian Binek, Univ. of Nebraska, Lincoln.

Peter Fischer, LBNL, UCSC.

We are pleased to have our new officers join us in serving the magnetism community. Their terms will start after the March Meeting. We thank the Nominating Committee, Jonathan Friedman (Chair), Jonathan Betts, David Lederman, Laura Lewis, for putting together our slate of candidates.

We would also like to thank outgoing Executive Committee members for their dedicated service: Past Chair Yves Idzerra, and Members-at-Large William Ratcliff and Yuri Suzuki.

GMAG Sponsored APS Fellows

In 2015, by nominations from the magnetism community, GMAG identified 7 APS members for nomination as Fellows of the APS. We were very pleased that 5 were approved by the APS General Fellowship Committee. The new GMAG APS Fellows are listed below along with their citations.

Johan Akerman, University of Gothenburg and KTH Royal Institute of Technology, Sweden

Citation: For advancing the understanding of dynamics

induced by spin-transfer torque, including the experimental confirmation of magnetic solitons, and for contributions to the development of magnetic random access memory.

Manuel Bibes, Centre National de la Recherche Scientifique, France

Citation: For seminal contributions to the materials physics of multiferroics and electric field control of magnetism.

Julie Grollier, Centre National de la Recherche Scientifique, France

Citation: For measurements of spin-transfer torque dynamics and the development of devices to implement biologically inspired computing.

Roland Kawakami, Ohio State University, USA

Citation: For pioneering advances in understanding the magnetic properties of graphene, including mechanisms of spin lifetime and spin transport, and the role of adatoms in magnetic moment formation.

Roderich Moessner, Max Planck Institute, Dresden, Germany

Citation: For pioneering contributions to the theoretical study of new types of magnetism, particularly in topological spin liquids, including the resonating valence bond liquid; and of emergent monopoles in spin ice.

GMAG Fellowship Selection in 2016

Please nominate deserving candidates for APS Fellowship. Please send your nominations to Prof. Stephen Hill, our new Vice Chair. The deadline for nominations through GMAG is June 1, 2016. The link for submitting nominations is provided at the end of this newsletter and on the APS-GMAG website.

GMAG Dissertation Awardees 2016

In order to encourage students working in magnetism, every year GMAG sponsors Outstanding Dissertation in Magnetism awards. These awards recognize students who have conducted outstanding research leading to their dissertation. The award consists of an invited talk in an appropriate session at the APS March Meeting, a \$500 prize to the student, and up to \$250 toward his/her travel expenses to the APS March Meeting. The award winner this year is:

Joseph Sklenar, Northwestern University/Argonne.

"Spin-torque ferromagnetic resonance in arbitrarily magnetized thin films". (P18.00011)

The deadline for nominations for Dissertation Awards for the 2017 March Meeting is October 1, 2016. See the GMAG website in the coming months for instructions.

GMAG Student Travel Awardees 2015-16

To increase student participation and involvement in activities essential to GMAG, and in APS as a whole, GMAG sponsors ten Student Travel Awards for the March Meeting. The award consists of \$250 in travel assistance to attend the meeting. The student is expected to attend the GMAG business meeting and if called upon, to serve one shift at the "Contact Congress" booth to support the APS outreach for congressional support for scientific research. This year's (March 2016) award winners are:

Lakshmi Bhaskaran, Florida State University, USA
Dax Crum, University of Texas Austin, USA
Han Kyu Lee, University of California Irvine, USA
Michael Page, Ohio State University, USA
Mariona Piris, Universidad Complutense de Madrid, Spain
Narayan Poudel, University of Houston, USA
MacCallum Robertson, Lawrence Berkeley National Laboratory, USA
Zhengjun Wang, West Virginia University, USA
Jie Zhang, IBM, USA
Chi Zhang, Ohio State University, USA

March Meeting 2016 GMAG Program

GMAG is sponsoring or co-sponsoring 80 scientific sessions, including 13 symposia and 65 Focus Topic Sessions.

The GMAG sponsored/co-sponsored symposia are:

A3. Recent Progress on 'Order by Disorder' Phenomena (DCMP, GMAG)

C3. Antiferromagnetic Spintronics (GMAG)

E3. A New Approach to the Kitaev Quantum Spin Liquid (GMAG, DCMP)

F3. Superconducting Spintronics (GMAG, DCMP)

H2. Emergent Topological Phenomena in Pyrochlore Iridates II (DCMP, DMP, GMAG)

H12. Beyond STT-MRAM: Future Perspective for Spintronics Devices (FIAP, GMAG)

K2. Kitaev Spin Liquid Physics in Honeycomb and Related Lattice Materials (DCMP, DMP, GMAG)

R2. Advances in Collective Effects in Organic Semiconductors (DCMP, GMAG)

V13. Heat Current Effects on Magnetization Dynamics (GMAG, DMP)

X1. Complex Oxide Interfaces at the Nanoscale: Electronic, Magnetic and Superconducting Properties (DCMP, GMAG)

X13. Hall-Bar Structure for the Detection of Spin/Valley Hall Effect (GMAG, DMP)

Y2. Spin and Valley Pseudo-Spin Transport in Strongly Spin-Orbit Coupled Systems (DCMP, DMP, GMAG)

Y3. Skyrmions in Chiral Magnets (DCMP, GMAG)

GMAG Business Meeting (Tuesday, March 15th)

The GMAG annual Business Meeting (Session J15 in the program) will be held on Tuesday March 15th, 2016, 5:45pm -

6:45pm in Room 314 of the Convention Center. Please join us for the introduction of new GMAG fellows and student award winners! Food and drink refreshments will be served at the meeting.

Lunch with the Experts (Tuesday, March 15th)

We thank the following GMAG experts for volunteering their time for the APS "Lunch with the Experts" event on Tuesday March 15th, 12:30p-2:00p. Student members will have an opportunity to sign up for these or other tables. Sign-up will open Sunday, March 13 at 3:00 p.m., near the APS Registration Desk in Hall D. Registration will be on a first-come, first-served basis. Attendance is limited to eight students per topic. See link <http://www.aps.org/meetings/march/events/experts.cfm> for details.

Jonathan R. Friedman

Amherst College

Topic: Studying single-molecule magnets in a Liberal-Arts Environment

Timothy Phung

IBM Almaden Research Center

Topic: Spintronics at IBM

John Cumings

University of Maryland

Topic: Lorentz-force electron microscopy

Laura Heyderman

ETH Zurich - Paul Scherrer Institute, Switzerland

Topic: Artificial ferroic systems

GMAG Jobs Mixer (New Event. Wednesday March 16th)

GMAG will hold a Jobs Mixer aimed at bringing together members of the community that are looking for jobs in magnetism and those that are currently recruiting new employees, within an informal setting. Attendees can enjoy drinks and appetizers during the mixer, to be held on Wednesday March 16, 5:45PM - 6:45PM in the Pickersgill room of the Baltimore Hilton Hotel.

2016 Beller Lectureship

Each year the APS Office of International Affairs and the Committee on International Scientific Affairs (CISA) invites the APS units to submit nominations for the Beller Lectureship, which provides travel funds to support distinguished physicists living outside the U.S. who have been invited to speak during sessions at the annual March and April APS meetings. For 2016 one of the lectureships went to a GMAG nominee:

Laura Heyderman, ETH Zurich - Paul Scherrer Institute
Artificial Ferroic Systems (L5.00004)

Thanks to GMAG Focus Topic Organizers:

We also thank all of the focus topic organizers who contributed to the success of the March Meeting Program:

10.1.1 Magnetic Nanostructures: materials and phenomena
Kathryn Krycka, NIST
Sujoy Roy, Lawrence Berkeley National Lab
Bethanie Stadler, University of Minnesota

10.1.2 *Emergent Properties in Bulk Complex Oxides*

Daniel Phelan, Argonne National Laboratory
Nandini Trivedi, The Ohio State University
Stephen Wilson, University of California, Santa Barbara

10.1.3 *Magnetic Oxide Thin Films and Heterostructures*

Carmela Aruta, National Research Council CNR-SPIN Rome
Ho Nyung Lee, Oak Ridge National Laboratory
Philip J. Ryan, Argonne National Laboratory

10.1.4 *Spin Transport & Magnetization Dynamics in Metal Based Systems*

William Bailey, Columbia University
Olof Karis, Uppsala University
Kyung-Jin Lee, Korea University
Hans Nembach, NIST Boulder and University of Colorado

10.1.5 *Spin Dependent Phenomena in Semiconductors*

Pengke Li, University of Maryland, College Park
Masashi Shiraishi, Kyoto University
Igor Žutić, State University of New York at Buffalo

10.1.6 *Frustrated Magnetism*

Jayasimha Atulasimha, Virginia Commonwealth University
Kate Ross, Colorado State University
Oleg Starykh, University of Utah

10.1.7 *Spin-orbit Mediated Chiral Spin Textures*

Geoffrey S. Beach, Massachusetts Institute of Technology
Wanjun Jiang, Argonne National Laboratory
Christopher Marrows, University of Leeds

10.1.8 *Low-Dimensional and Molecular Magnetism*

Marco Affronte, University of Modena and Reggio Emilia
Chris Landee, Clark University
Mark Meisel, University of Florida

Thanks to GMAG sorters:

Thanks to everyone who participated in the abstract sorting meeting at the American Center for Physics on December 9-10, 2015: I. Appelbaum, U. Maryland; J. Atulasimha, Virginia Commonwealth Univ.; W. Bailey, Columbia Univ.; D. Gilbert, NIST; D.L. Gopman, NIST; O. Karis, Uppsala Univ.; K. Krycka, NIST; C. Landee, Clark Univ.; Ho Nyung Lee, Oak Ridge Nat. Lab.; C. Leighton, U. Minnesota; P. Li, U. Maryland; H. Nembach, NIST & U. Colorado; D. Phelan, Argonne Nat. Lab.; K. Plumb, Johns Hopkins Univ.; W. Ratcliff, NIST; M. Stiles, NIST; O. Tchernyshyov, Johns Hopkins Univ.

Nominations for APS Prizes and Awards

APS prize descriptions and nomination deadlines appear at <http://www.aps.org/programs/honors/index.cfm> Several prizes of interest to the GMAG membership and their corresponding deadlines are:

APS Fellowship (GMAG Deadline is June 1, 2016)

See <http://www.aps.org/units/gmag/fellowship/index.cfm>. If the nominee is a member of the GMAG Executive Committee, please make the nomination to another Unit of the APS or defer the nomination until his or her term has finished.

Oliver E. Buckley Condensed Matter Prize (July 1, 2016)

To recognize and encourage outstanding theoretical or experimental contributions to condensed matter physics.

Lars Onsager Prize (July 1, 2016)

To recognize outstanding research in theoretical statistical physics, including the quantum fluids.

James C. McGroddy Prize for New Materials (July 1, 2016)

To recognize and encourage outstanding achievement in the science and application of new materials. This shall include the discovery of new classes of materials, the observation of novel phenomena in known materials leading to both fundamentally new applications and scientific insights, and shall also include theoretical and experimental work contributing significantly to the understanding of such phenomena.

Frank Isakson Prize for Optical Effects in Solids (July 1, 2017 – given every other year)

To recognize outstanding optical research that leads to breakthroughs in the condensed matter sciences.

Prize for a Faculty Member for Research in an Undergraduate Institution (July 1, 2016)

To honor a physicist whose research in an undergraduate setting has achieved wide recognition and contributed significantly to physics and who has contributed substantially to the professional development of undergraduate physics students.

Request for Magnetism Outreach Proposals

The topical group on Magnetism (GMAG) invites proposals directed towards educating nonscientists and the general public about the role of magnetism. Funds (up to \$5000 per project, although larger proposals may be considered) are available to cover supplies and expenses associated with activities that aim to educate non-scientists about magnetism and its applications. These grants are to foster new activities and not meant to support ongoing programs. Examples of outreach activities include (but are NOT limited to) the development of magnetism kits that may be used at elementary schools and/or at museums and other public places, the development of a high school lab on magnetism, or the production of a video on magnetism that would appeal to the general public. Preference will be given to innovative activities that will be documented so that they can be reproduced elsewhere. GMAG will disseminate the outcome of the activities to the GMAG membership through the GMAG Newsletter and to the broader magnetism community through the GMAG website; the proposers are encouraged to consider alternate avenues for dissemination, this should include presentation of the results at an APS meeting.

The GMAG Executive Board will review proposals on an ongoing basis. Although partnership with a GMAG member is encouraged, all applications for projects related to outreach

in magnetism will be considered. The GMAG executive board can assist in identifying potential partners for outreach proposals submitted by non-members.

Application Process

To apply for these funds, please submit the following information as one PDF file to the current GMAG Chair. That is, to Jonathan Sun (jonsun@us.ibm.com) till March 15th, 2016, and to Suzanne te Velthuis (tevelthuis@anl.gov) after March 15th 2016. The PDF should include:

- Cover sheet clearly stating the name, address, phone number, and email of the main contact person for your application. Please include the name of your program, and, if affiliated with an institution, the department and institution you represent.
- One page CV for main contact person.
- Narrative description (no more than two pages) of your program. Please include a description of the proposed activity or activities, the anticipated impact and the process of documentation to enable reproduction of the activity, details of other financial support (if any), and description of personnel working on the program (instructional lab technicians, students, professors, etc.).
- Rough budget detailing your plans for utilizing the funds.
- Letter of support from your department chair or similar administrative official (this can be sent separately, as long as it clearly identifies the main contact person and institution).
- Tax ID number or Employee ID number if part of an organization, Social Security Number if an individual. For Universities, the organizational tax ID number can be obtained from the grants and contracts department.

Important Information

These funds cannot be used for salaries, stipends, etc. of the main participants, but can be used to hire a student, an intern, or professional services if that is essential for the project. An APS statement on indirect costs is available at (<http://www.aps.org/programs/outreach/upload/rfp-indirectcosts15.pdf>)

Ask your Colleagues to Join GMAG

For only \$8 additional dues APS members can become GMAG Members with these benefits (students are free for one year):

- GMAG newsletter.

Important Deadlines

Date	Reason	Contact
June 1	GMAG Fellowship Nominations http://www.aps.org/units/gmag/fellowship/index.cfm	Stephen Hill shill@magnet.fsu.edu
August/September	Invited speaker and symposium nominations for March Meeting 2017	Chris Leighton leighton@umn.edu
October 1	GMAG Dissertation Award Nominations	Suzanne te Velthuis tevelthuis@anl.gov
December 1	March Meeting Student Travel Grants	Stephen Hill shill@magnet.fsu.edu
ongoing	Outreach Proposals	Suzanne te Velthuis tevelthuis@anl.gov

Thanks for being involved with GMAG and please do not hesitate to get actively involved in the many activities described above.

- 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 US.

See the GMAG website: <http://www.aps.org/units/gmag>. TO JOIN: Go to the APS page for “Membership Units” (<http://www.aps.org/membership/units/join-unit.cfm>) 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.

Other Recent Magnetism-related News

GMAG was proud to sponsor a best student presentation award for the first time at the 13th Joint MMM-Intermag Conference that was held January 11-15, 2016 in San Diego. The winner received \$1000 award, and the five finalists received \$250 award. Congratulations to the winner and finalists! The winner was:

Breakdown of the Antiferromagnetic Order in Transition Metal Oxide Nanoparticles: A Matter of Size
Natalia Rinaldi-Montes (University of Oviedo)

The finalists were:

Magnetic Origami

Chenattukuzhiyil Safeer (Spintec/Neel Institute)

Controlling Individual Magnetolectric Heterostructure by Localized Strain in a Thin Film Piezoelectric
Jizhai Cui (UCLA)

Magnon-Photon Interaction in YIG Opto-Magnetic Cavity
Xufeng Zhang (Yale University)

Giant Enhancement of Magnetocrystalline Anisotropy in Ultrathin Manganite Films via Nanoscale 1D Periodic Depth Modulation
Anil Rajapitamahuni (University of Nebraska at Lincoln)

CPP-GMR Devices Using Co₂Fe(Ga_{0.5}Ge_{0.5}) Full Heusler Alloy and a Ag-Zn Alloy Spacer
Ye Du (University of Tsukuba)

The GMAG Executive Committee:

Chair: Jonathan Sun (jonsun@us.ibm.com)

Chair-Elect: Suzanne te Velthuis (tevelthuis@anl.gov)

Vice-Chair: Chris Leighton (leighton@umn.edu)

Past Chair: Yves Idzerda (idzerda@physics.montana.edu)

Secretary-Treasurer: Tiffany Santos

(tiffany.santos@hgst.com)

Members-at-Large: William Ratcliff (04/13 - 03/16)
NIST - National Institute of Standards and Technology

Yuri Suzuki (04/13 - 03/16) Stanford University
John Cumings (04/14 - 03/17) Univ of Maryland-
College Park

Jonathan Friedman (04/14 - 03/17) Amherst College

Ilya Krivorotov (04/15 - 03/18) UC Irvine

David Lederman (04/15 - 03/18) UC Santa Cruz

Christian Binek (4/16 - 3/19) Univ. Nebraska, Lincoln

Peter Fischer (4/16 - 3/19) UC Santa Cruz

Upcoming Conferences

APS March Meeting 2016

March 14-18, 2016
Baltimore, MD

2016 International Conference on Microwave Magnetics

June 5-8, 2016
Tuscaloosa, AL

9th International Symposium on Metallic Multilayers

June 19-23, 2016
Uppsala, Sweden

Magnetic North V

June 26-30, 2016
Colorado Springs, CO

12th International Workshop on Magnetism and Superconductivity at the Nanoscale

July 4-7, 2016
Coma-ruga, Tarragona, Spain

2016 Gordon Research Conference on Multiferroic & Magnetoelectric Materials

August 7-12, 2016
Lewiston, ME

2016 Gordon Research Conference and Gordon Research Seminar on Conductivity and Magnetism in Magnetic Materials

August 14-19, 2016
Mount Holyoke College, South Hadley, MA

The Magnetic Recording Conference (TMRC 2016)

August 17-19, 2016
Stanford University
Stanford, CA

15th International Conference on Molecule-Based Magnets

September 4-8, 2016
Sendai, Japan

8th Joint European Magnetics Symposium (JEMS)

August 21-26, 2016
Glasgow, UK

International Conference on Highly Frustrated Magnetism 2016 (HFM 2016)

September 7-11, 2016
Taipei, Taiwan

61st Annual Conference on Magnetism and Magnetic Materials (2016 MMM)

October 31-November 4, 2016
New Orleans, LA

APS March Meeting 2017

March 13-17, 2017
New Orleans, LA

Intermag Conference – Dublin, Ireland

April 24-28, 2017
Dublin, Ireland