

GMAG NEWSLETTER – August 2021

<https://engage.aps.org/gmag>

Note from the Chair

Dear GMAG Members:

It definitely was an exciting year with the return of the APS March Meeting in a virtual format. Plans are underway for the 2022 APS March Meeting, which will be in-person with virtual components, on March 15-19 in Chicago, IL To ensure that magnetism and GMAG are a vibrant part of the meeting program, we need your active involvement in the planning process. Please submit nominations for symposia (GMAG can sponsor eight) and for invited speakers in focus topic sessions. **These nominations are due August 13, 2021 (see below)**. Additionally, we encourage nominations of students for the GMAG Dissertation Awards (**September 17, 2021 deadline**), as well as applications for the March Meeting student travel awards (**November 24, 2021 deadline**). In the sections that follow, this newsletter provides detailed information on each of these March Meeting activities.

Other important opportunities for GMAG members include:

- Nominations for new GMAG officers for the 2021-22 election (**Oct. 1, 2021 deadline**).
- Proposals for GMAG-funded outreach activities (**Submit by Dec. 1, 2021** for strongest consideration).

Your participation in these activities will help us to maintain GMAG as one of the strongest Topical Groups of the APS.

Also, we would like to take this opportunity to welcome Cristian Batista as a Member-at-Large on the GMAG Executive Committee. He has graciously agreed to serve in this capacity until March 2022 to replace Luc Thomas, who recently stepped down. We are appreciative to both for their service to GMAG. Stay tuned for the 2021 GMAG election that will take place in November 2021. In addition to voting to elect a new Vice-Chair and two new Members-at-Large in this election, there will be an the opportunity to vote on an amendment to the GMAG bylaws that would add early career member(s) to the Executive Committee.

As always, we welcome ideas about how GMAG can support the magnetism and physics community with activities and programs. Feel free to contact any member of the GMAG executive committee. Thank you for your valuable time and contributions.

Julie Borchers, GMAG Chair, julie.borchers@nist.gov

March Meeting Program

Chair-Elect, Marcelo Jaime (mjaime@lanl.gov) is the GMAG Program Chair for the 2022 APS March Meeting. Marcelo and his team are coordinating the organization of both GMAG sponsored and co-sponsored focus topics, as well as the GMAG invited symposia and a GMAG co-sponsored tutorial. Invited speaker nominations for focus topics, some of which have revised scopes, titles, and descriptions for 2022, and symposia are welcomed before the deadline of **August 13, 2021**. The deadline for submission of meeting abstracts is **October 22, 2021**.

Focus Topics - Nominations for invited speakers

For the 2022 meeting, GMAG is the lead sponsor of eight focus topics and the co-sponsor of three additional topics. Each will consist of multiple sessions of contributed talks based on a common theme. Each resulting session can also include one or two invited talks. Suggestions for invited speakers are

welcome and should be submitted through the website <https://march.aps.org/nominations-2022/> by the deadline of **August 13, 2021**. Access to the submission system requires a single login using your APS web account. Nominations require submission of a short justification with supporting references. *Please make sure to select the correct Focus Topic from the pull-down menu on the submission site.*

Contributed talks relating to a focus topic should be submitted using the same online system, again by selecting the appropriate sorting category. The GMAG focus topics for 2022 are listed below, with the co-sponsoring units shown in parentheses. Detailed descriptions appear on the following pages.

GMAG-Led Focus Topics

10.1.1 Magnetic Nanostructures: Materials and Phenomena (GMAG/DMP)

10.1.2 Emergent Properties of Complex Oxides: Bulk, Thin Films and Heterostructures (GMAG/DMP/DCOMP)

10.1.3 Spin Transport and Magnetization Dynamics in Metals and Semiconductors (GMAG/DMP/FIAP)

10.1.4 Chiral Spin Textures and Dynamics, Including Skyrmions (GMAG/DMP)

10.1.5 Quantum Spin Liquids, Candidate Materials, Models, and Predictions (GMAG/DMP/DCOMP)

10.1.6 Spin-Dependent Phenomena in Semiconductors, Including 2D Materials and Topological Systems (GMAG/DMP/FIAP/DCOMP)

10.1.7 Frustrated Magnetism (GMAG/DMP)

10.1.8 Low-Dimensional and Molecular Magnetism (GMAG/DMP)

GMAG Co-sponsored Focus Topics

10.1.9 Magnetic Topological Materials (DMP/GMAG)

10.1.10 Magnetism in Biomedicine (GMED/GMAG/DBIO)

10.1.11 2D Materials: Advanced Characterization (DMP/GMAG)

08.01.03 Multiferroics, Magnetoelectrics, Spin-electric Coupling, and Ferroelectrics (DMP, DCOMP, FIAP, GMAG)

Nominations for GMAG Symposia

Invited symposia are an important part of the APS March Meeting, highlighting significant recent contributions to topical research areas. GMAG members are encouraged to recommend topics for these symposia, each of which includes five speakers. Please upload your symposium nomination at the APS nominations website, <https://march.aps.org/nominations-2022/>, before **August 13, 2021**. A symposium nomination requires: (1) Suggested title of the symposium; (2) A paragraph describing the theme of the symposium and its justification; (3) A list including five speakers, a Chair, and up to two potential back-up speakers, with the following for each: (a) full contact information, (b) a tentative presentation title, (c) a brief description and justification, including references where available. Detailed instructions can be found within the nomination system. Submission of a complete nomination package is essential for the review process, which is quite competitive. Compelling justification and breadth of interest statements are important for a successful proposal.

Note that Focus Topic organizers need to avoid conflicts of interest in selecting invited speakers, and that the selections will be monitored by the GMAG Program Chair. Related to this, APS regulations do not allow speakers to give invited talks at consecutive March meetings. There is a searchable index of invited talks at the 2020 meeting available at: http://meetings.aps.org/Meeting/MAR21/APS_Invited.

Nomination for GMAG Student Dissertation Awards

In order to encourage students working in magnetism, every year GMAG sponsors Outstanding Dissertation in Magnetism Awards (<https://engage.aps.org/gmag/honors/prizes-awards>). GMAG will present up to three dissertation awards at the next APS March Meeting. These awards will recognize students who have conducted outstanding research leading to their dissertation and will consist of an **invited talk** in an appropriate session at the APS March Meeting, a \$500 prize to the student, and up to \$250 towards his/her travel expenses to the APS March Meeting. The student must be in the final year before graduating with a Ph.D., and both the student and the advisor must be current members of GMAG. Nominations should consist of: (i) A nominating letter, (ii) an extended abstract on the research (maximum of 3 pages, including figures and references), (iii) the student's CV and publication list, and (iv) contact information for the student. These nomination documents must be submitted by the student's advisor or another senior researcher who knows the student's work well. The nominating letter must include the following information:

- Quality and independence of the student's work.
- Student's speaking ability.
- Year the student began graduate school.
- Student's expected completion date (must be after September 1, 2021, but before September 1, 2022 to be eligible for the 2022 APS March Meeting award).
- Assessment of the student's future potential as a research scientist.

Nominations should be sent by email as a single PDF file to Julie Borchers (julie.borchers@nist.gov) by **September 17, 2021**. The subject line for the email should be **"GMAG Student Dissertation Award."** Evaluation of the nominations will be conducted by the GMAG Executive Committee. Conflict of interest situations will be handled in accordance with [APS guidelines](#).

The 2021 recipient of the GMAG Dissertation Award was:

Mitchell Bordelon, University of California, Santa Barbara

Thesis title: *Magnetic Frustration and Quantum Disorder in $J_{\text{eff}} = 1/2$ Lanthanide-Based Al_nX_2 Materials.*

Dr. Bordelon's invited presentation will be featured at the 2022 March Meeting. Congratulations!

Nominations for GMAG Student Travel Awards

To increase student participation and involvement in activities essential to GMAG and the APS as a whole, GMAG will sponsor up to ten Student Travel Awards for the March Meeting. The awards will consist of \$250 in travel assistance to attend the meeting. An additional \$200 is available for those students at institutions outside the United States. The selected students will have lunch with a GMAG Executive Committee member and are expected to attend the GMAG business meeting. We also ask selected students to assist at the GMAG membership table and/or serve one shift at the "Contact Congress" booth to support APS outreach for congressional support for scientific research. To be eligible, students must present at the March Meeting and should submit an application, which can be downloaded from the GMAG website (<https://engage.aps.org/gmag/honors/prizes-awards>). Applications should be submitted by email to Clarina Dela Cruz (delacruzcr@ornl.gov) by **November 24, 2021**. Please put "GMAG Student Travel Award" in the subject line of the email.

Evaluation of the applications will be conducted by the GMAG Executive Committee. Conflict of interest situations will be handled in accordance with [APS guidelines](#).

Congratulations GMAG Student Travel Award winners for the virtual 2021 March Meeting. (Note that the 2021 award was limited to registration fee reimbursement.) We regret that they were unable to receive their awards in person:

David Raftrey, University of California Santa Cruz
Brendan Sheehan, Amherst College
Ambika Shakya, University of Florida
Po-Hsun Wu, National Taiwan University
Juile Soho Shim, University of Illinois at Urbana Champaign
Arezoo Etesamirad, University of California Riverside
Guanchu Chen, Amherst College
Lazar Kish, University of Illinois
I-Ting Chiu, University of California Davis

GMAG Co-Sponsored Tutorial

GMAG will be co-sponsoring a tutorial on Kitaev Materials at the 2022 March Meeting. The tutorial is oriented to advanced students, postdocs and young researchers who are interested in learning about the modern challenges posed by the search for quantum spin liquids in the real world. Kitaev materials are attracting much interest because they can potentially host quantum spin liquids or unconventional spin textures in two- and three-dimensional geometries. The main goal of the tutorial is to introduce the basic design principles and concepts behind the realization and characterization of quantum spin liquid states in these materials. The covered topics include:

- Design principles for Kitaev materials
- Overview of experimental probes used to diagnose proximity to a quantum spin liquid state
- Spectroscopy and anomalous transport properties
- Role of disorder and phonons

Additional details will be provided in upcoming March Meeting Announcements. In the meantime, you are encouraged to contact the Tutorial Organizer, Cristian Batista (cbatist2@utk.edu) for additional information.

GMAG Focus Topic Descriptions and Organizers

Focus Topic sessions bring new areas of interest and new people to the March meeting and are an opportunity to explore recent developments in a sub-area of the magnetism sorting categories. The GMAG-led Focus Topics are co-sponsored with the Division of Materials Physics (DMP), Division of Computational Physics (DCOMP), Division of Condensed Matter Physics (DCMP) and the Forum on Industrial and Applied Physics (FIAP). Note there is some overlap within the focus topic areas as well as with other DMP and GMAG sessions. The organizers of related Focus Topic sessions and the general magnetism sorting categories will share information in order to appropriately sort each submitted abstract and thus optimize the meeting program. Following are detailed descriptions of each Focus Topic along with a list of the associated organizers for the 2022 March meeting (* denotes the lead organizer).

10.1.1 Magnetic Nanostructures: Materials and Phenomena (GMAG/DMP)

DESCRIPTION:

Reduced dimensionality and confinement lead to magnetic states and spin behaviors that are markedly different from those observed in bulk materials. This Focus Topic explores advances in magnetic nanostructures, the novel properties that arise in magnetic materials at the nanoscale, and the advanced characterization tools required for understanding these properties. Magnetic nanostructures of interest include thin films, multilayers, graded layer structures, superlattices, nanoparticles, nanowires,

nanorings, nanotubes, 3D nanostructures, nanocomposite materials, hybrid nanostructures, magnetic point contacts, and self-assembled, as well as patterned, magnetic arrays. Sessions will include talks on the methods used to synthesize such nanostructures, the variety of materials used, and the latest original theoretical, experimental, and technological advances. Synthesis and characterization techniques that demonstrate nano- or atomic-scale control of properties will be featured, such as: novel deposition and lithography methods; electron microscopy (Lorentz and holographic imaging, in-situ techniques, time / frequency resolution); advances in synchrotron methods and neutron scattering techniques; and novel near field imaging techniques including NV center-based imaging. Phenomena and properties of interest include magnetization reversal and dynamics (including ultrafast and THz dynamics), topology in nanoscale spin textures, spintronics, magnonics, magnetic interactions including anti-symmetric and antiferromagnetic exchange, magnetic quantum confinement, spin tunneling and spin crossover, proximity and structural disorder effects, strain effects, and thermal and quantum fluctuations.

ORGANIZERS:

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Rajesh Chopdekar, Berkeley Laboratory, rvchopdekar@lbl.gov

10.1.2 Emergent Properties of Complex Oxides: Bulk, Thin Films and Heterostructures

[same as 16.01.34] (GMAG/DMP/DCOMP)

DESCRIPTION:

The emergence of novel states of matter, arising from the intricate coupling of electronic and lattice degrees of freedom, is a unique feature in strongly correlated electron systems. Of special interest are the ways in which the spin, lattice, charge, and orbital degrees of freedom cooperate, compete, and/or reconstruct in complex oxides to produce novel phenomena as well as novel magnetic states, often with exotic topological properties that can arise from the interplay of spin-orbit coupling and Coulomb interactions. This is further enhanced in thin films and heterostructures, where these competitions might lead to a wide variety of interfacial phenomena such as charge transfer, orbital reconstruction, quantum confinement, proximity effects, and modifications to local atomic structure. Novel magnetic interactions and ground states thus can emerge, generating exciting new prospects both for the discovery of fundamental physics and the development of technological applications.

This Focus Topic explores the nature of such ordered states observed in bulk compounds, thin films, heterostructures, superlattices, and nanostructures of these complex metal oxides. It will provide a forum for discussion of recent developments in theory, simulation, synthesis, characterization, and devices, with the aim of covering basic aspects and identifying future key directions in complex oxides.

Associated with this complexity is a tendency for new forms of order, such as the formation of spin stripes, ferroic states, exotic spin-liquid phases with topological order and fractionalized excitations, spin-orbit entangled states or phase separation. An additional focus of this session is on how competing interactions result in spatial correlations over multiple length scales, giving rise to enhanced electronic and magnetic susceptibilities and responses to external stimuli. Advances in experimental techniques to probe and image magnetic order and transitions in complex oxide bulk materials and thin films (including scanning probes, optical, electron, neutron, and synchrotron-based techniques) are also emphasized. Note that overlap exists with other DMP and GMAG focus topic sessions. As a rule of thumb, if magnetism plays a key role in the investigation, then the talk is appropriate for this Focus Topic.

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10.1.3 Spin Transport and Magnetization Dynamics in Metals and Semiconductors

[same as 22.01.04] (GMAG/DMP/FIAP)

DESCRIPTION:

The generation, manipulation, and detection of spin currents in metals and magnetic heterostructures are of great interest for fundamental science and applications. Understanding fundamental spin-dependent transport physics, accompanied by progress in materials and nanoscale engineering, has already dramatically impacted technology. Discoveries like the giant and tunneling magnetoresistance have moved to applications, and concrete implementations of more recent discoveries, including magneto-thermal effects, spin-transfer torque, spin-Hall effects, and chiral domain walls, are imminent. This Focus Topic aims to capture experimental and theoretical developments in spin transport and magnetization dynamics in metallic and semiconducting systems, such as ultra-thin films, heterostructures, lateral nanostructures, perpendicular nanopillars, and tunnel junctions. In particular, contributions describing new results in the following areas are solicited: (i) Interplay between spin currents and magnetization dynamics in magnetic nanostructures; spin-transfer, spin-pumping and related phenomena, including current-induced magnetization dynamics in heterostructures and domain wall motion in magnetic wires; (ii) Theoretical predictions and/or experimental discovery of half-metallic band structures, both in bulk solids and at the surfaces of thin films; Spin transport and magnetization dynamics in magnetic nanostructures (e.g., TMR, CPP-GMR and lateral spin valve structures) based on half-metallic materials; (iii) Manifestations of spin-orbit interactions including, but not limited to field-like and damping-like torques on magnetic films and nanostructures, the spin-Hall, inverse spin-Hall, and anomalous Hall effects; microscopic mechanisms of magnetization damping; (iv) Electric field control of magnetic properties (e.g., anisotropy, phase transitions, etc.), including but not limited to hybrid metal/oxide structures, piezoelectric layers coupled to ferromagnetic films, and electrolyte/ferromagnetic systems; (v) Ultrafast magnetization response to (and reversal by) intense laser pulses; magnetization dynamics at elevated temperatures, and thermally-assisted magnetization reversal; (vi) Spin dependent thermoelectric phenomena such as giant magneto-thermopower and Peltier effects, spin-Seebeck and Peltier effects, spin and anomalous Nernst and Ettingshausen effects, spin entropy in hopping systems, dilute Kondo systems due to the resonant interaction of the magnetic impurities with free electrons, magnon electron drag in magnetically ordered systems, paramagnon carrier drag, and paramagnetic spin fluctuation systems; (vii) Thermal gradient and/or RF-driven magnonic magnetization dynamics in nanostructures, including spin wave excitation, propagation, and detection; Interactions between electronic spin current and magnon propagations in thin-film and device structures; and (viii) General considerations concerning spin angular momentum, energy, and entropy flow, conservation laws, and Onsager reciprocity relations.

ORGANIZERS:

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10.1.4 (Chiral Spin Textures and Dynamics, Including Skyrmions (GMAG/DMP))

DESCRIPTION:

Materials that display non-collinear or other complex magnetic textures are known to develop novel charge, heat, or spin transport characteristics. These properties are intrinsically related to the topology of the global magnetic spin arrangement. Understanding and mastering these phenomena may help reveal hidden order/dynamics in novel materials and offer exciting opportunities towards next-generation device applications. At large, the study of these topological spin textures is also relevant to fields as diverse as spintronics, nanomagnetism, neuromorphic and quantum computing, strong correlation, and thermal management. This Focus Topic will address the most relevant and recent developments, from materials to physical modeling and device technology, in the field of chiral magnetism. Specific areas include but are not limited to: magnetic skyrmions (and more complex solitons) in various material

architectures (bulk/thin-films/2D), chiral magnetization dynamics, spin-orbit torques, the physics and control of Dzyaloshinskii-Moriya interaction (DMI), DMI-induced non-reciprocity in spin waves, interfacial magnetism, topological transport phenomena, emergent electrostatics, and novel devices based on non-trivial topological spin textures and dynamics. Advanced techniques to study chiral magnetism, such as spin-polarized scanning tunneling microscopy, magneto-optical Kerr effect microscopy, Brillouin light scattering spectroscopy, spin-polarized low energy electron microscopy, NV center microscopy, Transmission electron microscopy (e.g. Lorentz, off-axis holography), neutron scattering, and synchrotron-based techniques will also be included. The aim of this Focused Topic is not only to promote fundamental understanding of chiral magnetism but also facilitate innovative technology.

ORGANIZERS:

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Stefan Blugel, Juelich Research Center, s.blugel@fz-juelich.de

10.1.5 Quantum Spin Liquids, Candidate Materials, Models, and Predictions (GMAG/DMP/DCMP)

DESCRIPTION:

Quantum spin liquids (QSLs) are systems built from magnetic spins or pseudospins displaying long-range entanglement, quantized topological numbers, and other phenomena with no classical counterpart. This sorting category includes real candidate materials that exhibit proximate spin liquid behavior, as well as prototypical models manifesting different forms of ground states, including topologically ordered states with anyonic excitations. Also included are theoretical and experimental efforts towards the unambiguous characterization of QSL phases, such as theoretical classifications of possible QSLs, focused material searches, standard and novel experimental probes, and interpretation of experimental results aided by numerical simulations and first principles derivations of minimal models. Traditional candidate structures for QSL materials are frustrated networks of quantum pseudospins with particular interest in two-dimensional honeycomb, Kagome, and triangular lattices of heavy *d*- and *f*-block elements, for which strong spin-orbit coupling can induce highly anisotropic effective exchange interactions. The rare-earth pyrochlores and various Kitaev QSL candidates featuring enhanced fluctuations driven by competition between interactions on different bonds are prominent examples. The role of disorder and the development of many-body techniques that do not rely on semi-classical approximations, such as novel variational approaches, new numerical methods, and large-N expansions oriented to model the static and dynamical properties of QSLs are also part of this category. Finally, machine learning assisted efforts oriented to discover new candidate materials and to characterize QSL states are also included under this focus topic.

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10.1.6 Spin-Dependent Phenomena in Semiconductors, Including 2D Materials and Topological Systems [same as 08.01.01, 16.01.36] (GMAG/DMP/FIAP/DCOMP)

DESCRIPTION:

The field of spin-dependent phenomena in semiconductors addresses a wide range of new effects, materials systems [e.g., III-V and II-VI heterostructures, group-IV materials including Si, Ge, SiC, diamond and graphene, transition-metal dichalcogenides (TMDs) and other 2D semiconductors, and oxide semiconductors] and new structures (e.g., quantum dots and nanocrystals, nanowires and carbon nanotubes, hybrid ferromagnetic/semiconductor structures, and van der Waals heterojunctions). This Focus Topic solicits contributions aimed at understanding spin-dependent processes in magnetic and

non-magnetic structures incorporating semiconducting materials. Topics include: (i) electrical and optical spin injection and detection, spin pumping, spin Hall effects, spin-dependent topological effects, spin filtering, spin dynamics and scattering; (ii) growth and electrical, optical and magnetic properties of magnetic semiconductors, nanocomposites, and hybrid ferromagnet-semiconductor structures, including quantum dots, and nanowires; (iii) spin and valley dynamics in bulk (e.g. Si, Ge) and monolayer semiconductors (e.g. TMDs); (iv) spin-dependent electronic and thermal transport effects, and dynamical effects in semiconductors with or without spin-orbit interactions, including proximity effects in heterostructures; (v) manipulation, detection, and entanglement of electronic and nuclear spins in quantum systems, including dots, impurities and point defects (e.g., NV centers in diamond); (vi) magneto-resistance, magneto-electroluminescence, and resonance-driven spin pumping in organic semiconductors; (vii) spin-dependent devices and device proposals involving semiconductors; and (viii) spin-dependent properties (e.g. quantum anomalous Hall effects) in topological insulators and topological insulator/ferromagnet hybrid structures.

ORGANIZERS:

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10.1.7 Frustrated Magnetism (GMAG/DMP)

DESCRIPTION:

Simple antiferromagnets on bipartite lattices have well-understood ground states, elementary excitations, thermodynamic phases and phase transitions. At the forefront of current research are frustrated magnets where competing interactions suppress magnetic order and may lead to qualitatively new behavior. This Focus Topic solicits abstracts for presentations that explore both theoretical and experimental aspects of the field. The themes to be represented are united by magnetic frustration: valence-bond solids; spin singlets; Shastry-Sutherland systems; spin pyrochlores; spin nematics; topological magnons and other exotic ordered states; spin ices; classical spin liquids; order-from-disorder; the interplay of spin, lattice, and orbital degrees of freedom; and design, synthesis and modeling of new materials with magnetic frustration. Also of interest are the effects of strongly fluctuating spins on properties beyond magnetism, including charge, spin, and energy transport, as well as ferroelectricity. Note that quantum spin liquids (QSL) are now called in FT 10.01.05

ORGANIZERS:

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10.1.8 Low-Dimensional and Molecular Magnetism (GMAG/DMP)

DESCRIPTION:

The possibility of reduction to zero-dimensionality allows exploration of novel size and quantum effects in magnetic systems. While single spins can be isolated in semiconducting devices or by scanning probe techniques, the molecular approach introduces synthetic flexibility, providing the possibility of engineering the magnetic quantum response of a spin system. The development and study of molecular and low-dimensional magnetic systems continue to provide a fertile testing ground to explore complex magnetic behavior and new challenges for the development of experimental techniques and theoretical models. New frontiers are also represented by the possibility of combining low-dimensional magnetic systems in hybrid architectures and to study the interplay between spins and functional nanostructures. This Focus Topic solicits abstracts that explore inorganic and organic molecule-based, as well as solid state, systems, and both theoretical and experimental aspects of the field. Topics of interest include: magnetism in zero, one, and two dimensions (e.g., quantum dots, single-molecule magnets, spin chains, interfaces between molecular spins and functional surfaces), spin-orbit and super-exchange couplings,

quantum critical low-dimensional spin systems, topological excitations, quantum tunneling of magnetization, coherent spin dynamics and quantum correlation (e.g. entanglement), and novel field-induced behavior.

ORGANIZERS:

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Stuart Calder, Oak Ridge National Laboratory, caldersa@ornl.gov

Xianglin Ke, Michigan State University, ke@pa.msu.edu

Mark Meisel, University of Florida, meisel@ufl.edu

March Meeting Task Force

Former GMAG Chair, Stephen Hill, is serving on a Task Force that is examining how the APS can continue to provide optimal experiences for all participants, better respond to the emerging needs of various communities involved, address future growth, and connect people and speakers around the world. Further details can be found here: <https://www.aps.org/meetings/task-force.cfm> . Input from GMAG members is welcome. Please submit comments either through the above URL, or feel free to contact Stephen Hill directly (shill@magnet.fsu.edu).

2021 GMAG Election

The 2021 GMAG Election will take place in November 2021. In this election the GMAG members will elect a new Vice-Chair and two Members-at-Large for terms that will start in March 2022. In this election the GMAG members will also vote on an amendment to the bylaws that would add early career member(s) to the Executive Committee. Stay tuned.

Nominations for Members of the GMAG Executive Committee

GMAG requests nominations for Vice-Chair (who succeeds sequentially to Chair-Elect, Chair, and Past Chair) and for two new Members-at-Large of the Executive Committee. Nominations for these positions should be sent to Christianne Beekman (beekman@magnet.fsu.edu), Chair of the GMAG Nominating Committee, before **October 1st, 2021**. Per the GMAG Bylaws, after the GMAG Nominating Committee has prepared a slate of candidates, additional candidates may be added if >5% of the GMAG membership (*i.e.*, more than ~57 GMAG members) petition.

The Member-at-Large term of Yayoi Takamura (University of California, Davis) and Cristian Batista (University of Tennessee) will end in March 2022. Geoff Beach will rotate off the GMAG Executive Committee when his term as Past Chair ends in March 2022. We thank all of them for their service to GMAG and its members.

Request for Magnetism Outreach Proposals

GMAG invites proposals directed towards educating non-scientists and the general public about the role of magnetism (<https://engage.aps.org/gmag/honors/prizes-awards>). Funds up to \$5000 per project (larger proposals may be considered) are available to cover supplies and expenses. These grants should foster new activities and are 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 high school labs on magnetism, and the production of videos on magnetism that would appeal to the general public. Preference will be given to innovative activities, that are properly 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. For these purposes, proposers will be required to provide GMAG with appropriate material when requested. Proposers are also encouraged to consider alternate avenues for dissemination; this could include presentation of the results at an APS

meeting. The GMAG Executive Committee will review proposals on an ongoing basis, strong consideration will be given to proposals received by December 1, 2021. Although partnership with a GMAG member is encouraged, all applications for projects related to outreach in magnetism will be considered. The GMAG Executive Committee 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 GMAG Chair (julie.borchers@nist.gov):

- Cover sheet clearly stating the name, address, phone number, and email of the main contact person for your application. 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. 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 essential for the project. An APS statement on indirect costs is available at (<http://www.aps.org/programs/outreach/upload/rfp-indirectcosts15.pdf>).

2021 funded proposals:

- *Materials Science & Engineering and Magnetism Summer Camp*,
Prof. Roopali Kukreja, University of California, Davis
A week-long STEM summer camp for 25-30 underrepresented minority and first-generation High School and Community College students, organized in collaboration with AvenueE and UC Davis Mathematics, Engineering Science Achievement (MESA) Center.

Nominations for APS Prizes and Awards

The APS awards several prizes, awards, and lectureships each year that are relevant to the research interests of the GMAG membership. You are encouraged to nominate your colleagues for these awards. A list of awards and instructions may be found at <http://www.aps.org/programs/honors/>.

Ask your Colleagues to Join GMAG

For only \$10 additional dues, APS members can become GMAG Members with the following benefits (students join for free!):

- Receipt of the 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 US.

GMAG will waive this fee for one year for new GMAG enrollees who are currently APS members. To take advantage of this offer, log onto my.aps.org and select ‘Join an APS Unit.’ At checkout there will be an option to add the coupon code “GMAG-JOIN-0321” after GMAG is selected. This coupon code is valid for a free year of membership within GMAG until the next APS membership is up for renewal. Note that GMAG membership is **always free for current student members** of APS (up to two Divisions or Focus Topic groups). For more information about these offers, contact GMAG at aps-gmag@aps.org .

The GMAG Executive Committee

Chair: Julie Borchers (julie.borchers@nist.gov)
Chair-Elect: Marcelo Jaime (mjaime@lanl.gov)
Vice-Chair: Clarina Dela Cruz (delacruzcr@ornl.gov)
Past Chair: Geoffrey Beach (gbeach@mit.edu)
Secretary-Treasurer: Jaime Fernandez-Baca (fernandezbj@ornl.gov)
Members-at-Large: Yayoi Takamura, *University of California, Davis*
 Cristian Batista, *University of Tennessee*
 Sarah Watzman, *University of Cincinnati*
 Christianne Beekman, *Florida State University*
 Gregory Fuchs, *Cornell University*
 Satoru Emori, *Virginia Tech*

Assigned Council

Representative: Peter Schiffer, *Yale University*

Reminder of Important Deadlines

Date	Reason	Contact
August 13	Invited Symposia nominations for March Meeting	Marcelo Jaime (mjaime@lanl.gov), submit at https://march.aps.org/nominations-2022/
August 13	Invited speaker nominations for Focus Topics for March Meeting	Focus Topic Organizers, or at https://march.aps.org/nominations-2022/
September 17	GMAG Dissertation Award Nomination	Julie Borchers (julie.borchers@nist.gov)
October 1	Officer and Executive Committee nominations	Christianne Beekman (beekman@magnet.fsu.edu)
October 22	March Meeting Abstracts	https://www.aps.org/meetings/march/abstracts/
November 24	March Meeting Student Travel Grants	Clarina Dela Cruz (delacruzcr@ornl.gov)
December 1 (for strongest consideration)	Outreach Proposals	Julie Borchers (julie.borchers@nist.gov)

Thanks for your interest in GMAG, and please do not hesitate to get actively involved in any of the many activities described above.

Other Recent Magnetism-Related News

IUPAP Prize Winners

The IUPAP (International Union of Pure and Applied Physics) C9. Commission on Magnetism announced the winners of

- the 2021 IUPAP Magnetism Award and Néel Medal
- the 2021 Young Scientist Prize in Magnetism.

See the full announcement at <https://iupap.org/who-we-are/internal-organization/commissions/c9-magnetism/c9-awards/>

The 2021 IUPAP Magnetism Award and Néel Medal will be awarded to:

Prof. Agnès Barthélémy, University Paris-Saclay / Unité Mixte de Physique CNRS-Thales, France, and Prof. Nicola Spaldin, ETH Zürich, Switzerland

"For pioneering contributions to the fundamental and applied science of magnetic and ferroelectric materials, particularly multiferroics".

The recipient of the 2021 IUPAP Young Scientist Prize in the field of Magnetism is:

Dr. Can Onur Avci, Institute of Materials Science of Barcelona, Spain

"For outstanding contributions to understand current-induced spin-orbit torques and electrical control of the magnetization in magnetic insulators, and for the discovery of unidirectional spin Hall magnetoresistance."

The IUPAP Commission on Magnetism (C9) was established by the International Union of Pure and Applied Physics in 1957 to promote the exchange of information and views among the members of the international scientific community in the general field of Magnetism. Refer to <http://iupap.org/commissions/c9-magnetism/c9-news-2/> for news items from IUPAP C9.

Women in Magnetism Network

The IEEE Magnetics Society manages and maintains the "Women in Magnetism" mailing list which provides periodic updates on professional opportunities including invited speaker nominations, conference or Society related grants and awards, job openings and other professional opportunities. For example, the group moderators coordinate the Women in Magnetism Networking event which is regularly held at MMM and Intermag conferences. The form to subscribe to this network is available at <http://phplist.magnetism.org/?p=subscribe> . This form can also be accessed on the IEEE Magnetics Society website (<https://www.ieeemagnetics.org/>) under the "Society" menu.

Though not focused on magnetism, you may also be interested in a complementary networking website that highlights women in physics: <https://1400degrees.org/> and features many APS members.

Upcoming Conferences and Schools

32nd Magnetic Recording Conference (TMRC 2021)

August 16- 19, 2021

Virtual Conference

<http://www.dssc.ece.cmu.edu/TMRC2021/index.html>

The 2021 Around-the-Clock Around-the-Globe Magnetics Conference

August 24, 2021

Virtual Conference

https://ieeemagnetics.org/index.php?option=com_content&view=article&id=305&Itemid=212

2022 Joint MMM-Intermag
January 10 – 14, 2022
Hybrid Conference based in New Orleans, LA
<https://magnetism.org/>

International Conference on Magnetism
July 3 – 8, 2022
Shanghai, China
<http://www.icm2021.com/>

7th Workshop on Magnonics
July 31 – August 4, 2022
Southern California, USA
<https://www.magnonics.us/>

A list of APS and GMAG related conferences can be found on the GMAG website:
<http://www.aps.org/units/gmag/meetings/index.cfm>

An additional list of magnetism-related meetings can be found here (from the European Magnetism Association):
http://magnetism.eu/TPL_CODE/TPL_AGENDALISTE/6-agenda.htm