

# 59th Annual Conference on Magnetism and Magnetic Materials

3-7 November 2014 • Honolulu, Hawaii



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## FIRST CALL FOR PAPERS

**Submissions Open: June 12, 2014**

**Abstract Deadline: June 26, 2014**

**SPECIAL VISA NOTICE:** If you plan to submit an abstract and/or attend the 59<sup>th</sup> MMM Conference, please make an appointment **NOW** to apply for your visa to visit the U.S. This application process may take 3–6 months, so we urge you to submit your application as soon as possible. To request a letter of invitation, please complete the online form found on our web site at [www.magnetism.org](http://www.magnetism.org).

The 59<sup>th</sup> Annual Magnetism and Magnetic Materials (MMM) Conference will be held at the Hilton Hawaiian Village, Honolulu, Hawaii from November 3-7, 2014. Members of the international scientific and engineering communities interested in recent developments in magnetism and associated technologies are invited to attend the Conference and contribute to its technical sessions.

**SCOPE OF THE CONFERENCE:** This Conference will include basic and applied science and technology related to the field of magnetism. The technical subject categories for the Conference are as follows:

### I. Fundamental Properties and Cooperative Phenomena

- a. Electronic Structure
- b. Critical Phenomena
- c. Spin Glasses and Frustration
- d. Heavy Fermion Systems
- e. Superconductivity
- f. Low-Dimensional Systems and Molecular Magnets

### II. Magnetoelectronic Materials and Phenomena

- a. Multiferroic Materials
- b. Magnetoelectric Phenomena
- c. Complex Oxides (bulk)
- d. Complex Oxides (films and heterostructures)
- e. Half-Metallic Materials
- f. (Anisotropic) Magnetoresistance, Magnetoimpedance, and Hall Effect
- g. Magnetic Semiconductors

### III. Spintronics: Fundamentals and Devices

- a. Giant Magnetoresistance
- b. Tunnel Magnetoresistance
- c. MRAM and Magnetic Logic Devices
- d. Voltage-Controlled Magnetic Anisotropy and Switching
- e. Domains and Domain Wall Devices
- f. Spin Injection and Spin Transfer Torques
- g. Electron and Magnon Spin Currents, Spin Hall, and Related Effects



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#### **IV. Magnetization Dynamics and Micromagnetics**

- a. Magnetization Dynamics and Damping
- b. Magnonics
- c. Domain Wall and Vortex Dynamics
- d. Ultrafast Switching
- e. Micromagnetic Modeling and Methods
- f. Hysteresis Modeling

#### **V. Soft Magnetic Materials**

- a. Ferrites and Garnets
- b. Crystalline Alloys
- c. Amorphous and Nanocrystalline Materials

#### **VI. Hard Magnetic Materials**

- a. Rare-Earth Transition Metal Borides
- b. Intermetallic and Other Hard Magnetic Materials
- c. Nanostructured Hard Magnetic Materials
- d. Hard Magnet Processing

#### **VII. Structured Materials**

- a. Thin Films and Surface Effects
- b. Multi-Layer Films and Superlattices
- c. Patterned Films
- d. Nanoparticle and Nanowire Arrays, Self-Assembly
- e. Nanoparticles and Nanowires (not in arrays)
- f. Exchange Bias

#### **VIII. Special Magnetic Materials**

- a. Magneto-Optic Materials
- b. Magneto-Elastic Materials
- c. Magneto-Caloric Materials
- d. Microwave Materials
- e. New Magnetic Materials

#### **IX. Magnetic Recording**

- a. Continuous Granular Media
- b. Discrete Track and Patterned Media Recording
- c. Energy Assisted Recording
- d. Read and Write Heads
- e. Recording Systems and Modeling

#### **X. Sensors (not magnetic recording), High Frequency and Power Devices**

- a. Magnetic Field Sensors (not magnetic recording)
- b. High Frequency, Microwave and Millimeter Wave Devices
- c. Transformers and Inductors
- d. Power and Control Magnetics
- e. Shielding, Levitation, and Propulsion

#### **XI. Interdisciplinary Topics**

- a. Bio/Chemical Magnetism
- b. Biomedical Applications
- c. Magnetic Fluids and Separations
- d. New Applications

#### **XII. Magnetic Characterization**

- a. Magnetic Microscopy and Imaging
- b. Instrumentation and Measurements Techniques

**PROGRAM:** The program will consist of invited and contributed papers falling broadly within the scope of the categories listed above. The Program Committee is co-chaired by Christopher Marrows, YoshiChika Otani, and Evgeny Tsymbal.

**ABSTRACT ACCEPTANCE CRITERIA:** To maximize your chances of acceptance, please follow the submission requirements and keep in mind the following abstract acceptance criteria used by the Program Committee:

- The abstract must report a substantial advance in the science of magnetism or magnetic materials.
- The advance in knowledge must be both original and significant.
- The work reported must be substantially complete, with specific reference to new results. Sufficient context and detail must be included to allow the Program Committee to make an assessment of the work.
- The Program Committee wishes to permit as many groups as possible to present their work. Groups or individuals considering the submission of several related abstracts should, wherever possible, combine them into a single submission.
- The abstract must be written in clear English. If necessary, please have a native English speaker edit your abstract before submission.

#### **ABSTRACT SUBMISSION REQUIREMENTS:**

##### How To Submit an Abstract:

- All abstracts must be submitted electronically. The link will be available starting from June 12, 2014.
- Abstracts sent via e-mail, fax, or regular mail will not be processed or acknowledged.
- Acknowledgment of your submission will be sent via e-mail. If you do not receive an e-mail confirmation, your abstract has not been submitted. Please check the email address that you entered into the online system.
- The presenting author must be a paid registrant at the Conference. The Conference does not provide financial support nor registration fee waivers for any presentations.

##### Online Submission Procedures:

- Read and follow submission procedures, which will be available at each step of the online process.
- Provide an accurate e-mail address for the corresponding author and provide all other information requested on the electronic form. This e-mail address will be used for all communications.
- Use upper and lower case characters. Do not use all upper case. Acronyms of institution names are acceptable. Be sure to type your first and last names in the proper boxes.
- Follow instructions on the allowed image file formats for the abstract submission. Accepted formats are: tiff, gif, bmp, jpeg, and other common image file formats. Do not use .ps, .eps, or .pdf files.
- Submit your abstract only once.
- After creation of the Program, the abstracts will appear online at the Conference web site in a fully searchable format.
- If you have questions, please contact the Abstracts/Publications Coordinator at [info@MMMConference.com](mailto:info@MMMConference.com) or use the help icon on the web page.

#### Formatting Information:

- Abstracts should be 300 words or less, and are limited by the submission system. Titles, authors, addresses, and references will not count in the 300-word limit.
- Two figures/tables are permitted. However, note that this significantly reduces the text permitted. Make your own determination about whether you prefer text or figures and work within the limit.
- The web submission system will automatically produce your abstract in the proper format for publication in the Abstract Book. You may copy and paste your abstract, without formatting or TeX characters, into the space provided at the web site. Figures need to be uploaded. The version you view and edit on the screen is a facsimile.

#### Abstract Edits:

- Draft mode will be available until the deadline date so authors may continue editing at a later date/time.
- If you change your mind about the abstract, you may withdraw it and submit a new one. All information about this process will be available online in the submission system.
- If you change your abstract, you will need to make sure you complete the process to resubmit it, since abstracts returned to draft mode are not automatically submitted.
- The Draft mode will be eliminated, along with anything left in it, on June 26, 2014.

#### Important Deadlines:

- June 12, 2014: Submission site opens.
- June 26, 2014: Deadline to submit abstracts. *This deadline will be strictly observed.*
- Mid August 2014: Authors will be advised via email as to the status of their submission.

**INVITED PAPERS:** Some of the invited papers will be tutorial in nature, while others will review recent work in specialized fields. Nominations for invited speakers and symposia will be accepted March 31–April 18, 2014 via the Abstract Central Conference web site only. This link will be made available on the 2014 MMM Conference web site on March 31, 2014. All are encouraged to submit suggestions. The Program Committee may also select contributed abstracts for upgrade to invited status.

**PRESENTATION OF CONTRIBUTED PAPERS:** Contributed papers accepted for the Conference will be presented either orally or by poster. Both oral and poster presentations are vital to the success of the Conference and are expected to be of similarly high technical quality.

#### Oral Contributed Presentations:

- Conventional format of a 10-minute talk by the registered author using an LCD projector, followed by a 2-minute discussion period.
- Only LCD projectors will be provided.
- Authors are expected to bring their presentation on their own laptop computer along with a backup copy on USB drive in case of laptop failure.
- All Oral talks will be presented in this manner. No other presentation format is available.

#### Poster Presentations:

- Consist of well-prepared visual materials about the work posted on a designated board.
- Author must be present to provide details and answer questions during the selected poster session times.
- Posting a copy of a paper is NOT appropriate and will be treated as a NO SHOW.
- The surface area available is 6' (1.8m) long by 4' (1.2m) high.
- The Conference provides: a small sign designating the ID of the paper to be posted on each board and a small number of push pins for posting the paper on the board.

Authors are requested to indicate their preference for oral or poster presentations in the box provided on the electronic form. However, the Program Committee will make the final decision on the assignment of papers to specific sessions and the presentation format (oral or poster) for each session. In the acceptance e-mail notice, authors will be notified of the type of session for their presentation and provided with a URL for detailed rules and instructions for effective presentations.

**PUBLICATION:** The Proceedings of the Conference will be published in April 2015 as a special issue of the *Journal of Applied Physics*. The papers of invited presentations are published in a special section at the front of the special issue of the *Journal of Applied Physics*. In addition, these invited papers will have one year of open access after publication. All accepted contributed papers are published in the next section, and identified by presentation ID.

Detailed instructions on the preparation of manuscripts for submission to the journal will be available on the Conference home page for authors whose papers are accepted for presentation at the Conference. The site will be available for submission beginning **August 22, 2014.**

- The maximum paper length is six journal pages for invited papers and three journal pages for contributed papers.
- All manuscripts must be received by **September 22, 2014.** *This deadline will be strictly observed.*
- Post-deadline manuscripts will not be accepted and not forwarded for review.
- Papers must be presented at the Conference by an author registered at the Conference in order to be published in the Proceedings.
- All manuscripts related to contributed presentations must be submitted to the AIP web submission system, PeerX-Press (PXP). All papers to appear in the proceedings **MUST** be submitted in this way. No paper manuscripts will be accepted.
- Instructions for submission and accepted formats for the journal will be available on the submission site (<http://mmm.peerx-press.org/>). Presenters of invited talks will receive separate submission instructions.
- Reviewing and revisions will all be handled through the online system. Authors are reminded that review standards will mirror those used for regular articles submitted to the *Journal of Applied Physics*, and that, because of time constraints, a second review may not be possible for resubmitted papers that were originally rejected.

## FUTURE CONFERENCES:

### 2014 InterMag Conference

May 4–8, 2014, Dresden, Germany

### 2015 InterMag Conference

May 4–8, 2015, Beijing, China

### 13<sup>th</sup> Joint MMM-InterMag Conference

January 11–15, 2016, San Diego, California

### 61<sup>st</sup> Conference on Magnetism and Magnetic Materials

October 31–November 4, 2016, New Orleans, Louisiana

### 62<sup>nd</sup> Conference on Magnetism and Magnetic Materials

November 6–10, 2017, Pittsburgh, Pennsylvania

### The 21<sup>st</sup> International Conference on Magnetism (ICM 2018)

July 16–20, 2018, San Francisco, California

### 14<sup>th</sup> Joint MMM-InterMag Conference

January 14–18, 2019, Washington, DC

**EXHIBITS:** An exhibition of related services, equipment, materials, software, technical journals and books will be held as a part of the 2014 MMM Conference. Individuals and organizations that are interested in purchasing booth space should contact Jennifer Fiske, Exhibits Manager, at [jennifer@MMMConference.com](mailto:jennifer@MMMConference.com). The Exhibitor Prospectus will be available on the web site in March 2014.

**HOTEL:** MMM 2014 will be held at the Hilton Hawaiian Village Waikiki Beach Resort, located in downtown Honolulu. The hotel grounds are quite large and offer direct access to the Pacific Ocean, the resort's beach, and a view of Diamond Head. It is a charming location offering newly renovated meeting space in its Mid-Pacific Conference Center where all MMM sessions and exhibits will be located.

Special MMM Conference sleeping room rates are **\$187 USD plus tax for single or double rooms** in the Tapa and Diamond Head Towers. The link to the hotel's reservations web site to obtain this special rate will be published in early August. A small block of student rooms has been reserved at the Hilton Hawaiian Village at a rate of **\$165 USD/single or double plus tax per night**. This rate is for students ONLY. In order to obtain the "code" to use to make a room reservation, you must first register and pay the Student Registration Fee for the 59<sup>th</sup> MMM Conference. The access code will be sent to you with your letter of confirmation of your Advance Registration. When you arrive at the hotel you will be required to show a valid current student ID when checking in.

**The hotel rate is only good until October 10, 2014.** These rooms are available on a first-come-first-served basis until the block is exhausted, so please make your reservations early. The direct link for making your hotel room reservations will be posted in early Summer when the reservations web site opens.

For more information about the Hilton Hawaiian Village and surrounding area, please see the information available at this link: <http://www.hiltonhawaiianvillage.com/about-the-resort>.

**Please note that the Conference begins on Monday November 3<sup>rd</sup> with a tutorial in the afternoon, and ends on Friday, November 7<sup>th</sup> in the late afternoon.**

**REGISTRATION:** The Conference registration fees will be published and the Advance Registration Form will be available on the web site in mid-August 2014. Please note that the Conference registration fees do not include any meals/meal service during the Conference week.

**VISA REQUIREMENTS FOR ENTRY INTO THE USA:** Obtaining your visa to enter the U.S. for the 2014 MMM Conference may take you 3-6 months for processing of your application and receipt of your visa. **For details that apply specifically to your country, please go immediately to the nearest U.S. Consulate or Embassy.** Review your visa status now to determine if you need a U.S. visa or visa renewal and to find out how to schedule an interview appointment, pay fees, and other vital instructions. If you need a personal letter of invitation to attend the Conference, please request one by filling out the form at this link: [http://www.magnetism.org/invite\\_letter\\_request.html](http://www.magnetism.org/invite_letter_request.html).

Please do not ask for additional information to be included in the invitation letter. The web form at this link provides space for entering information such as the title of your paper and whether or not you are the presenting author. **All invitation letters are generated in PDF format and will be emailed to you.** The PDF file, which you should print out on white paper using a color printer, is the original version of your letter. Please understand that it is absolutely identical to a letter that would be printed out in the conference office and mailed to you. **The conference no longer provides "hard copies" of invitation letters by mail.**

**The MMM Conference cannot contact or intervene with any U.S. Embassy or Consulate office abroad on your behalf so please begin your visa application process as soon as you determine that you want to attend the 2014 MMM Conference.**

**VISA WAIVER PROGRAM TRAVEL:** All nationals and citizens of Visa Waiver Program (VWP) countries who plan to travel to the U.S. for temporary business or pleasure for 90 days or less are required by law to obtain travel authorization prior to travel to the United States. This authorization can be obtained online through the Electronic System for Travel Authorization (ESTA).

**FURTHER INFORMATION:** To receive additional information about the 59<sup>th</sup> MMM Conference, to be added to the Conference mailing list, or to update your mailing address, please contact Regina Mohr at [regina@MMMConference.com](mailto:regina@MMMConference.com). The latest information on the 59<sup>th</sup> MMM Conference can be found on the Conference homepage at <http://www.magnetism.org>.

**BEST STUDENT PRESENTATION AWARD:** This award recognizes and encourages excellence in graduate studies in the field of magnetism. Congratulations to the winner at the 2013 MMM Conference, Yanan Geng from Rutgers University, and the finalists: Nicholas Aimon, Alan Farhan, Elizabeth Rapoport, Jean-Philippe Tetienne and Tianxiang Nan.

Eligibility:

- The nominee must be a full time graduate student expecting to graduate within one year of the 59<sup>th</sup> MMM Conference.
- The student's area of research may either be theoretical or experimental in any of the general technical and scientific areas normally presented as part of the 59<sup>th</sup> MMM Conference.
- The student's regularly submitted abstract must have been accepted for presentation through the normal abstract review process by the 59<sup>th</sup> MMM Conference Program Committee as an oral presentation.

Nature of Award:

- This award consists of a one-year fellowship of \$1,000 USD for the winner and a one-year fellowship of \$250 USD to each of the remaining finalists.
- The names of all finalists competing for the award will be announced in the 59<sup>th</sup> MMM Conference program book and abstract CD.
- The name of the winner will also be published in the program book of the following MMM Conference.

Selection Process:

- Up to eight finalists will be selected by a Student Award sub-committee of the 59<sup>th</sup> MMM Conference Program Committee.
- Because almost all abstracts have multiple authors, selections will be made based on an extended 2-page version of the regularly submitted abstract plus a brief explanation of the student's contribution.
- Notification to the finalists will be made by e-mail in mid-August 2014.
- The presentations, which must be made by the finalist, will be evaluated at the Conference by the Student Award sub-committee and the winner will be announced shortly after the conclusion of the 59<sup>th</sup> MMM Conference. The decision of the Student Award sub-committee is final.

Student Award Application Procedure:

1. Students must submit an abstract to the 59<sup>th</sup> MMM Conference according to the standard submission guidelines and deadlines as outlined in the Call for Papers. Please DO NOT identify the abstract as part of the student award competition in the text of the abstract. The 59<sup>th</sup> MMM abstract deadline is June 26, 2014.
2. Students must also submit an extended 2-page abstract of their presentation, including the already submitted abstract number,

plus a short (300 words or less) explanation of their contribution to the work described and its significance, directly to the Awards Chair, by the submission deadline of June 26, 2014.

3. Applications MUST be submitted via e-mail as .pdf attachments. Fax or mail submissions will not be considered. The e-mail containing the student award application must have a subject line that reads "STUDENT AWARD - <APPLICANTS NAME>".
4. Submit extended abstracts via e-mail to:  
Barry Zink, University of Denver  
To: [StudentPresentationAwards@MMMConference.com](mailto:StudentPresentationAwards@MMMConference.com)  
Subject: STUDENT AWARD – <APPLICANTS NAME>

**STUDENT TRAVEL:** The Conference will offer travel grants to a limited number of students working in magnetism and magnetic materials. The grants are intended to partially offset travel costs (with the exception of Conference registration) for presenting students to attend the 59<sup>th</sup> MMM Conference. The Conference grants will be in the amount of \$750 USD.

Eligibility:

- The student must be presenting a paper at the Conference.
- The student's supervisor must submit a letter of recommendation.
- The student must NOT have previously received a Conference or Magnetism Society travel grant.
- Only ONE application per research group will be accepted.
- Preference will be given to students who are nearing completion of their PhD graduate studies, although a limited number of Conference travel grants will be awarded to Masters and Undergraduate students.
- Postdoctoral fellows and non-students are NOT eligible.

How to apply for a Conference Travel Grant:

- Applications MUST be submitted online using the forms at <http://www.magnetism.org/studenttravel.html>.
- Incomplete or late applications and endorsement letters will NOT be considered.
- All students who will be presenting a Conference paper are eligible for travel support and, subject to the conditions stated above.
- Applicants will be notified of the committee's decision in late September.
- **The deadline for submitting applications and letters of endorsement is 5:00 PM Eastern daylight time on September 12, 2014.**

**CHILDCARE GRANTS:** There are a limited number of childcare grants, up to \$400 USD each, for MMM 2014 conference attendees who are bringing small children to the meeting or who incur extra expenses in leaving their children at home (i.e., extra daycare or babysitting services). Details about allowable expenses and an application form are available at the conference web site ([www.magnetism.org](http://www.magnetism.org)) under "Childcare Support". After acceptance of your presentation, applications for childcare support may be submitted to [ChildCareSupport@MMMConference.com](mailto:ChildCareSupport@MMMConference.com). **The deadline for submitting applications is September 5, 2014.** Recipients will be notified upon approval of their application on or before October 3, 2014. A list of allowable expenses and receipts is due no later than November 21, 2014.

## BEST POSTER AWARD

### Eligibility:

All posters will be eligible for nomination for this award provided they meet the requirements and guidelines for the 59<sup>th</sup> MMM Conference as detailed on the web site.

- The presentations should consist of well-prepared visual materials about the work, posted on a designated board.
- It is required that an author be registered for the conference and in attendance to present details and answer questions during the designated session time.
- Since the award will be made at the session, it is recommended that the authors be present for the majority of the session.
- All posters must include a full contact mailing address in the case that the authors are not present when the award is made.

### Nature of the Award:

- This award consists of a \$50 USD certificate.
- The awards will be made in the last hour of each poster session and a ribbon will be attached to the successful posters.
- Winning posters will be prominently displayed through the remainder of the conference.

### Selection Process:

- A Poster Award Committee will review all of the posters at the beginning of each session.
- Nominations, made by the individual session chairs, will be forwarded to the Award Committee.
- Selections will be based on the level of the research, quality of the poster, and clarity of the presentation.



## IMPORTANT DATES

Invited Speaker and Symposium Nomination deadline .....	April 18, 2014
Abstract submission opens .....	June 12, 2014
Abstract submission closes.....	June 26, 2014
Best Student Oral Award nomination deadline.....	June 26, 2014
Accept / reject notices .....	August 8, 2014
Conference pre-registration opens.....	August 15, 2014
Hotel reservations open .....	August 15, 2014
Manuscript submission opens.....	August 22, 2014
Child support application deadline .....	September 5, 2014
Student travel award application deadline.....	September 12, 2014
Manuscript submission closes .....	September 22, 2014
Conference pre-registration closes .....	October 10, 2014
Hotel reservation deadline .....	October 10, 2014