

2025 Joint Conference

New Orleans, LA • January 13-17, 2025 • www.magnetism.org



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Final Call for Papers



The 2025 Joint Conference will be held from January 13-17, 2025. The Joint MMM-Intermag Conferences, convened every three years, are the combination of two annual premiere international conferences on magnetism: the IEEE International Magnetics Conference (Intermag) and the Conference on Magnetism and Magnetic Materials (MMM). Members of the international scientific and engineering communities interested in recent developments in fundamental and applied magnetism are cordially invited to attend and actively participate in its technical sessions. The Conference provides an opportunity to share your research and interact with a large and broad collection of researchers working in magnetism, and to learn about the most recent developments in the field. Up-to-date information on the Conference can be found at www.magnetism.org. A compilation of this information is provided in this PDF. We look forward to seeing you in New Orleans for an exciting, enjoyable, and productive Conference.

Important Dates

Abstract Submission Site Opens.....	June 28, 2024
Abstract Submission Deadline (<i>deadline will be strictly observed</i>).....	July 19, 2024
Best Student Presentation Award Application Deadline.....	July 19, 2024
Early Decision Notifications Sent for Visa Applications.....	July 26, 2024
Child Care Support Application Deadline.....	September 5, 2024
Student Travel Support Application Deadline.....	September 5, 2024
Conference Registration Opens	September 13, 2024
Author Abstract Status Notification	September 20, 2024
Manuscript Submission Site Opens	October 21, 2024
Manuscript Submission Deadline	November 11, 2024
Magnetism as Art Showcase Submission Deadline	December 9, 2024
Advance Registration Deadline	December 13, 2024
Hotel Reservations Deadline.....	December 23, 2024



January 13-17, 2025 • New Orleans, Louisiana

Jointly sponsored by AIP Publishing LLC
and the IEEE Magnetics Society



PROGRAM: The 2025 Joint Conference will offer both in-person and on-demand content. The program will consist of invited and contributed presentations that fall broadly within the scope of the categories listed on the previous page. Special sessions held onsite, including the Symposia, Tutorial, Plenary, and Evening Sessions, will be recorded and available for viewing on-demand after the Conference. The on-demand content will also include slides from invited and contributed talks (optional) and electronic posters.

2025 JOINT TECHNICAL SUBJECT CATEGORIES: This Conference will include basic and applied science and technology related to the field of magnetism and magnetic materials. The technical subject categories are as follows:

1. Fundamental Properties and Cooperative Phenomena

- a. Electronic Structure and Critical Phenomena
- b. Highly Frustrated Magnetism, Spin Glasses and Heavy Fermion Systems
- c. Quantum Materials and Cooperative States: Superconductivity, Spin Liquids, Chern Insulators
- d. f-electron Magnetism, Low-Dimensional Systems
- e. Molecular and Organic Magnets
- f. Topological Insulators and Dirac Materials
- g. 2D materials and Layered van der Waals Materials

2. Magnetoelectronic Materials and Phenomena

- a. Heusler Alloys
- b. Complex Oxides
- c. Half-Metallic Materials and Magnetic Semiconductors
- d. Multiferroics and Magnetoelectric Phenomena and Materials
- e. Voltage-Controlled Magnetic Anisotropy
- f. Magneto-Ionics

3. Soft Magnetic Materials

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

4. Hard Magnetic Materials

- a. Rare-Earth Compounds
- b. Intermetallic Alloys
- c. Nanostructured and Composite Hard Magnetic Materials
- d. Other Hard Magnetic Materials
- e. Rare-Earth Free Hard Magnetic Materials

5. Structured Materials

- a. Thin Films and Surface Effects
- b. Multi-Layered Films and Superlattices
- c. Patterned Films and Elements
- d. Exchange Bias
- e. Nanoparticle and Nanowire (Individual and Arrays) and Self-Assembly
- f. Nanocomposite Magnetic Materials
- g. 3D and Other Magnetic Structures

6. Materials with Coupled Magnetic Functionality

- a. Magneto-Optical Materials
- b. Magneto-Elastic Materials
- c. Magneto-Caloric and Multi-Caloric Materials
- d. New Coupled Magnetic Phenomena

7. Spintronics

- a. Magnetoresistance (Homogenous Materials, GMR, TMR, TAMR)
- b. Spin Injection, Damping and Spin Pumping
- c. Spins transport in Graphene, Topological Insulators, and 2D Materials
- d. Spin Caloritronics and Topological Thermoelectrics
- e. Spintronic Devices (MRAM, Magnetic Logic, Oscillators, Detectors, etc)
- f. Spin-Orbitronics (Spin-Orbit Torque, Orbital Torque, Dzyaloshinskii-Moriya Interaction)
- g. Spin-Orbitronics Devices
- h. Antiferromagnetic and Ferrimagnetic Spintronics
- i. THz Spintronics
- j. Altermagnets

8. Magnetization Dynamics and Micromagnetics

- a. Ultrafast Magnetization Dynamics and Switching
- b. Spin Waves and Magnonics
- c. Magnetic Texture Static and Dynamics (Domain Wall, Skyrmions, Hopfions, etc.)
- d. Micromagnetic and Hysteresis Modeling
- e. Modeling of Magnetic Metamaterials
- f. New Approaches in Computational Magnetism

9. Magnetic Recording

- a. Recording Media, Write and Read Heads
- b. Energy-Assisted Recording
- c. All-Optical Recording and Other New Recording
- d. Recording Physics, Modeling, Theory, and Testing

10. Sensors and Applications

- a. Sensors (Non-Recording Devices and Concepts)
- b. Microwave and Millimeter Wave Materials and Devices
- c. Shielding, Bearings, and Levitation
- d. Applications to Internet of Things (IoT)
- e. Security with Magnetic Materials and Devices
- f. New Applications

11. Microscopy, Imaging, and Magnetic Characterization

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

12. Interdisciplinary and Emerging Topics

- a. Bio-Magnetism and Biomedical Applications
- b. Biomedical Diagnostics and Imaging
- c. Biomedical Therapies and Nanomedicine
- d. Magnetic Fluids and Separations
- e. Geomagnetism
- f. Interdisciplinary and Emerging Topics Related to Magnetism and Magnetic Materials

13. Electrical Machines and Power Electronics

- a. (Semi)-Analytical and Numerical Techniques for Design
- b. Magnetic Aspects of Electrical Machine Optimization
- c. Magnetic Loss and Thermal Modeling and Measurements
- d. High-Speed Machines
- e. Wound-Field and Multi-Excited Rotating Electrical Machines
- f. Induction and Reluctance Machines
- g. Magnetic Bearings and Magnetic Levitation
- h. Transformers, Inductors and Magnetic Aspects Related to Power Electronics
- i. Linear Machines, Actuators, and Application
- j. Surface and Interior Permanent Magnet Machines
- k. Non-Rare Earth Permanent Magnet Machines
- l. Reluctance Machines

14. Special Machines and Geared Machines

- a. Magnetically Geared Electrical Machines
- b. Vernier Machines
- c. Memory and Variable Flux Machines
- d. Special Rotating Electrical Machines

15. Energy Harvesting, Vibration Analysis and Advanced Materials/Manufacturing

- a. Energy Harvesting Applications
- b. Magnetic Aspects of Vibration Analysis
- c. Additive Magnetic Material Modeling and Application

16. Computing with Magnetism and Magnetic Materials

- a. AI and Machine Learning
- b. Neuromorphic Computing
- c. Reservoir Computing
- d. Reversible Computing
- e. Quantum Transduction and Spin Qubits
- f. Ising Machines
- g. Probabilistic and Unconventional Computing



INVITED PAPERS: The submission site for nominations is now closed. Individual invited presentations and symposia, consisting of up to five invited presentations, are an important aspect of the program. Invited speakers will be selected from the nominations received and will be contacted by the Program Co-Chairs in June. **All invited speakers (single speakers and symposia) will be expected to present onsite in New Orleans.** The Program Committee may also select certain contributed abstracts on important late-breaking results for upgrade to invited status. **Please note that if you submitted a nomination, that does not guarantee an invited talk. Nominating someone does not guarantee that they will be given an invited talk.** If their nomination for an invited talk is accepted, they must submit an abstract through the invited speaker submission site. If their nomination is not accepted, they must resubmit their abstract for consideration as a contributed talk if they want to be considered for the technical program.

ABSTRACT SUBMISSION REQUIREMENTS: Complete details on formatting your abstract and the online submission process may be found at www.magnetism.org under "Authors, Abstract Submissions." All abstracts must be submitted electronically, and the presenting author must be a registered Conference attendee. The Conference does not provide financial support or registration fee waivers for any presenters.

Important Deadlines:

- June 28, 2024: Abstract submission site opens.
- **July 19, 2024: Abstract submission deadline** (option for early decision for visa application available). *This deadline will be strictly observed.*
- July 26, 2024: Early decision notifications sent for visa applications
- September 20, 2024: Authors notified regarding the status of their submission.

New **THIS YEAR**

Option for early decisions
for visa applications!

We encourage our participants from countries that have experienced long wait times for approval of visas to the US to apply for their visas as early as possible! **If you need to apply for such a visa and would like to receive an early decision notification, you must submit an abstract by July 19, 2024, and select the "Early Notification for Visa" box during the submission process.** Early decision notifications will be sent by July 26. Please note that early decision letters will not contain any presentation date, time, or session details. Presentation details will be included in the abstract notification emails sent by September 20. **Early decisions are only available for applicants in countries experiencing visa delays.**

CONTRIBUTED PAPERS: Contributed papers accepted for the Conference will be presented either as oral or poster presentations. 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:

- All oral contributed presenters must present onsite.
- The contributed presentation format is a 10-minute talk by the registered author, followed by a 2-minute discussion period.
- All oral presenters will have the option to submit presentation slides for inclusion in the Conference Resource Center. Prerecorded presentations will not be collected. Instructions for uploading presentation slides will be posted in early December.

Poster Presentations:

- Poster presenters will have the option to present onsite or, if they cannot attend in person, to upload an electronic poster to the Conference Resource Center.
- Posters should consist of well-prepared visual materials describing the work.
- Posters should be printed to fit the onsite presentation board dimensions of 46 inches tall by 94 inches wide (landscape orientation).
- Posting a copy of a paper is NOT appropriate and will be treated as a NO SHOW.
- Virtual poster presenters are required to submit an electronic poster for inclusion in the Conference Resource Center no later than January 17. Onsite poster presenters will also have the option to submit an electronic poster, but it will not be required. Presentation upload instructions will be posted in early December.

No Show Policy: If any of the following applies, then the paper will be recorded as a NO SHOW and will not be published.

- Abstracts that are listed in the program but are NOT presented in person.
- Abstracts that are presented by an unregistered and/or unknowledgeable author or representative.
- Abstracts that did not have a registered author or representative available and responsive during their poster session to address questions.

Authors should indicate their preference for oral or poster presentations when submitting their abstracts; however, the Program Committee will make the final decision on the assignment of papers to specific sessions and the presentation format (oral or poster). Authors will be notified by email of their presentation format and specific session.

ABSTRACT CRITERIA: To maximize your chances of acceptance, keep in mind the following abstract criteria:

- Choose your category and subcategory with care, this helps ensure the most informed review of your abstract.
- 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 complete, with specific reference to new results. Lack of sufficient context and details may result in abstract rejection.
- 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.



PUBLICATIONS: Conference-related manuscripts will be published online in late 2025 in either *AIP Advances* or *IEEE Transactions on Magnetics*. Manuscripts from entire sessions will be assigned to one of these publications by the Publication Co-Chairs. All accepted papers are identified by presentation IDs. Detailed instructions on the preparation of manuscripts are available for authors whose abstracts are accepted for presentation at the Conference will be available on both submission sites in October.

- The manuscript submission site opens on October 21, 2024. All manuscripts must be received by November 11, 2024. Post-deadline manuscripts will not be accepted and not forwarded for review.
- To be published, papers must be presented at the Conference by an author (or representative) registered at the Conference AND knowledgeable about the work to be published in *AIP Advances* or *IEEE Transactions on Magnetics*.
- Reviewing and revisions will be handled through the online systems. Review standards are the same as those used for regular articles submitted to *AIP Advances* and *IEEE Transactions on Magnetics*. Due to time constraints, a second review may not be possible for resubmitted papers that were originally rejected.
- **Paper submissions are limited to one per registered virtual participant and two per registered in-person participant.**

AIP Advances

Conference papers will be published online in late 2025 in *AIP Advances* as a special topic. *AIP Advances* is an open-access journal published by AIP Publishing, and articles are freely available to read, download and share. All previously published MMM articles can be viewed at <http://mmm.aip.org>. All MMM Conference papers published in *AIP Advances* will be open access at no additional cost to the authors.

- Paper length recommendations are 6,000 words for invited papers and 3,500 words for contributed papers. The length of the paper should be dictated by good use of journal space.
- All manuscripts must be submitted through the AIP Publishing online submission system, PeerX-Press.
- All papers will have one peer review, and the final decision on the publication of the manuscripts will be made by the AIP editors.

IEEE Transactions on Magnetics

Accepted conference-related papers will be posted online in late 2025 with DOIs as “Early Access” papers. They will be published in final form as regular articles (not as “conference papers”) in a special-topic issue on “Applied Magnetics”. Authors of some manuscripts not accepted for *IEEE Transactions on Magnetics* will be offered the opportunity to publish in IEEE Magnetics Society

Conference Proceedings on *IEEE Xplore*. There is no cost to the authors for publication unless the authors want open access.

- Paper length recommendations are ten (10) journal pages for invited papers and five (5) journal pages for contributed papers. The length of the paper should be dictated by good use of journal space.
- All manuscripts must be submitted through the IEEE online submission site, ScholarOne-Manuscript Central. (*This is a different site from the abstract submission site.*)
- All papers will have at least two peer reviews, and the final decision on the publication of the manuscripts will be made by the INTERMAG editors.

SUPPORT OPPORTUNITIES: Organizations interested in supporting Conference events should contact info@magnetism.org.

HOTEL: 2025 Joint has negotiated a special discounted rate for attendees at the Hyatt Regency New Orleans. Reservation links are now available at www.magnetism.org under “Travel, Hotel Information.”

REGISTRATION: Conference registration fees and the online registration link will be available on the Conference website in September 2024.

REQUIREMENTS FOR ENTRY INTO THE USA: Obtaining your visa to enter the U.S. may take up to three to six months. Applicants should consult the U.S. Department of State’s website to determine first if you need a U.S. visa or visa renewal, and then to schedule an appointment for an interview and to determine processing wait times. **If you need to apply for such a visa and would like to receive an early decision notification, you must submit an abstract by July 19, 2024, and select the “Early Notification for Visa” box during the submission process.** Early decision notifications will be sent by July 26 for presenters to obtain their visa. To request a letter of invitation from the Conference, complete the online form at www.magnetism.org under “Travel, Visa Info.” **You must be either a registered Conference attendee or have submitted an abstract in order to receive an invitation letter.**



BEST STUDENT PRESENTATION AWARD: This award recognizes and encourages excellence in graduate studies in the field of magnetism. The winner receives \$1,000 and remaining finalists each receive \$250. For additional details on and the selection process go to www.magnetism.org under "Awards."

Congratulations to the Best Student Presentation Award Winners!

MMM 2023 Conference:

Muhammad Usama Hasan, Massachusetts Institute of Technology

Intermag 2024 Conference:

Beatriz Sisniega Soriano, Universidad del País Vasco
Federica Luciano, Imec, KU Leuven

Eligibility:

- The nominee must be a full-time graduate student expecting to graduate within one year of the Conference. Postdoctoral fellows, undergraduates or non-students are not eligible.
- 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 Conference.
- The student's regularly submitted abstract must be accepted as an oral presentation through the normal abstract review process by the Program Committee.
- The student must attend the Conference and present in person.

Student Award Application Procedure:

1. Students must submit an abstract to the Conference according to the standard submission guidelines and deadlines as outlined on the Conference website. DO NOT identify the abstract as part of the student award competition in the text of the abstract. The Conference **abstract submission deadline is July 19, 2024**.
2. Award applications will be accepted via ScholarOne, and must include the following supplemental information:
 - Expected graduation date, advisor name, advisor email;
 - Extended two-page abstract of the presentation which includes a short (300 words or less) explanation of your contribution to the work and significance of the research results; and
 - Letter of support from the student's advisor.

STUDENT TRAVEL SUPPORT: The 2025 Joint Conference and the IEEE Magnetics Society will both offer travel support to a limited number of students who wish to attend the Conference. **Applicants may apply for support from the Conference or the IEEE Magnetics Society but not both.**

The deadline for submitting applications and letters of endorsement is **September 5, 2024**. For additional details on eligibility requirements and the application process, go to www.magnetism.org under "Travel, Travel Support."

CHILD CARE SUPPORT: A limited amount of child care support funding is available for Conference attendees who bring small children to the meeting or who incur extra expenses in leaving their children at home (i.e., extra daycare or babysitting services). For additional details on allowable expenses and the application form, go to www.magnetism.org under "Travel, Child Care Support." **The deadline for submitting applications is September 5, 2024.**

BEST POSTER AWARDS: All in-person posters will be eligible for nomination for this award provided they meet the requirements detailed on the Conference website. Authors must attend in person to present their poster. Selections, made by Poster Session Chairs, will be based on the level of the research, quality of the poster, and clarity of the presentation. Award winners will be announced during the Conference and prominently displayed onsite.

MAGNETISM AS ART SHOWCASE: The 2025 Joint Conference will host a Magnetism as Art Showcase to highlight the beauty of magnetism and magnetic materials. All submissions will be displayed on the Conference website. Four finalists will be selected by a panel of judges and those submissions will be displayed onsite. The winner will be selected by popular vote.

Detailed information on the Showcase rules and submission requirements are available at www.magnetism.org under "Program, Magnetism as Art Showcase." **The submission deadline is December 9, 2024.**

ADDITIONAL INFORMATION: To receive additional information about the 2025 Joint Conference, to be added to the Conference mailing list, or to update your address, contact

info@magnetism.org. The latest information on the 2025 Joint Conference can be found at www.magnetism.org.

Future Conferences

2025 CONFERENCE ON MAGNETISM AND MAGNETIC MATERIALS

October 27-31, 2025
Palm Beach, Florida, USA

2026 INTERMAG CONFERENCE

April 13-17, 2026
Manchester, United Kingdom

2026 CONFERENCE ON MAGNETISM AND MAGNETIC MATERIALS

November 2-6, 2026
Honolulu, Hawaii



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