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Final Call for Papers

Dear Colleagues,

It is my privilege to invite you to the IEEE International Magnetism Conference which will be held as a Virtual Conference, from 26-30 April 2021.

INTERMAG is the premier international Conference on all aspects of applied magnetism, bringing together international researchers through a series of oral and poster presentations, invited talks and symposia, a tutorial session, and exhibits reviewing the latest developments in magnetism ranging from fundamental to applied aspects, including advances in spintronics, magnetic recording, magnetic memory, sensors, bio-magnetism, energy and power technologies, electrical machines, power electronics and electric drives, and the emerging fields of Internet-of-Things and smart living. All members of the international scientific community interested in new developments in magnetism and associated technologies are invited to attend and submit their latest results to INTERMAG 2021. Selected papers from the Conference will be published in the *IEEE Transactions on Magnetism*.

On behalf of the Management Committee of INTERMAG 2021, I would like to cordially invite you to attend the Conference, actively participate in its technical sessions, and contribute to the continued success of this Conference series. Up-to-date information on all aspects of the Conference can be found on the Conference website at www.intermag.org.

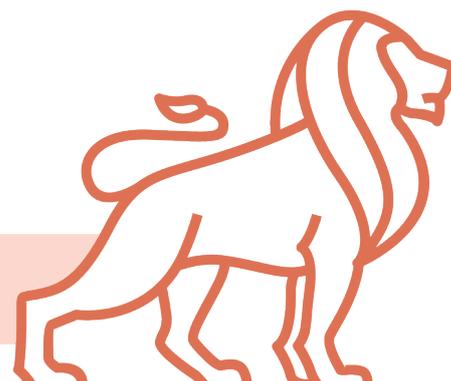
I look forward to seeing you in April 2021 and to an exciting and enjoyable Conference!



Bernard Diény
INTERMAG 2021 General Chair



For more information,
contact: info@intermag.org



Conference Topics

1. Spintronics – Fundamentals

- a. Magnetoresistance in Heterostructures (GMR, TMR)
- b. Voltage-Controlled Magnetic Anisotropy and Switching
- c. Skyrmions and Spin-Orbitronics
- d. Antiferromagnetic Spintronics
- e. Spin Injection and Spin Transfer Torques
- f. Spin Currents, Spin Pumping, Spin Hall and Related Effects
- g. Spins in Graphene, Topological Insulators and Other 2D Materials

2. Memory, Logic and Data Storage

- a. MRAM and Related Devices
- b. Magnetic Logic
- c. Neuromorphic and Unconventional Computing
- d. Domains and Domain Wall Devices
- e. All-Optical Recording and Other New Recording
- f. Energy-Assisted Recording
- g. Recording Heads and Media
- h. Recording Physics, Modeling & Systems (inc. Coding, Actuators and Channels)
- i. Head-Disk Interface and Tribology

3. Electrical Machines, Drives and Control

- a. Advances in (Semi)-Analytical and Numerical Techniques for Design
- b. Surface Mounted and Interior Mounted Permanent Magnet Electrical Machines
- c. Magnetically Geared Electrical Machines
- d. Vernier Motors and Flux-Modulated Machines
- e. High-Speed Motors and Energy Storage Machines
- f. Reluctance and Inductance Rotary Machines
- g. Linear Machines, Short and Long Stroke Actuators and Applications
- h. Vibration Analysis and Energy Harvesting Applications
- i. Wound Field and Special Rotating Electrical Machines

4. Electric Drive Applications, Monitoring and Transformers

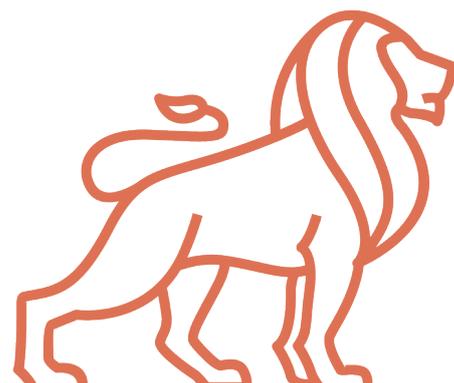
- a. Magnetic Aspects Related to Motor Drives, Testing and Controls
- b. Transformers, Inductors and Magnetic Aspects Related to Power Electronics
- c. Thermal and Magnetic Loss Modelling and Measurement
- d. EMI, EMC and Shielding of Electrical Drives
- e. Magnetic Bearings and Magnetic Levitation
- f. Additive Magnetic Modelling and Applications

5. Applications of Fine Particle Magnetism

- a. Bio-Magnetism
- b. Biomedical Diagnostics and Imaging
- c. Biomedical Therapies and Nanomedicine
- d. Magnetism and the COVID-19 Pandemic
- e. Magnetic Fluids and Separation
- f. Geomagnetism

6. Magnetization Dynamics and Micromagnetics

- a. Magnetization Dynamics, Damping and Ultrafast Switching
- b. Spin Waves and Magnonics
- c. Vortex Dynamics and Magnetic Texture
- d. Micromagnetic and Hysteresis Modeling
- e. New Approaches in Computational Magnetism



Conference Topics *(Continued)*

7. Sensors, High Frequency Devices and the Internet of Things

- a. Magnetic Field Sensors (Non-Recording)
- b. Sensors (Not of Magnetic Fields)
- c. Microwave and Millimeter Wave Materials and Devices
- d. Applications to “Internet of Things” (IoT)

8. Multi-Functional Magnetic Materials and Applications

- a. Magneto-Optic Materials and Devices
- b. Magneto-Elastic Materials and Devices
- c. Magneto-Caloric Materials and Devices

9. Magnetoelectronic Materials and Cooperative Phenomena

- a. Multiferroics and Magnetoelectric Phenomena
- b. Complex Oxides
- c. Half-Metallic Materials
- d. Magnetic Semiconductors
- e. Electronic Structure
- f. Critical Phenomena
- g. Quantum Materials and Cooperative States: Superconductivity, Spin Liquids, Heavy Fermions etc.
- h. Spin Glass and Frustrated Magnets
- i. Low Dimensional Systems, Molecular and Organic Magnets
- j. Magnetoresistance, Magnetoimpedance and Hall Effects in Homogeneous Materials

10. Soft Magnetic Materials

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

11. Hard Magnetic Materials

- a. Rare-Earth Compounds
- b. Intermetallic Alloys
- c. L10 alloys
- d. Nanostructured and Composite Hard Magnetic Materials
- e. Other Hard Magnetic Materials

12. Structured Materials

- a. Thin Films and Surface Effects
- b. Multi-Layered Films and Superlattices
- c. Patterned Films and Elements
- d. Nanoparticles and Nanowire Arrays and Self-Assembly
- e. Individual Nanoparticles and Nanowires
- f. Exchange Bias

13. Magnetism and Spintronics in Education and Outreach

- a. Computer Based Online Activities
- b. Physical Demonstrations for Science Fairs and the Classroom

14. Novel Imaging and Measurement Techniques

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



Conference Format

The INTERMAG 2021 program will consist of invited and contributed digests falling broadly within the scope of the topics listed above. All content for contributed sessions (that is single invited talks, contributed talks, and posters which may include a short video) will be prerecorded and available on-demand about a week before the Conference begins. To best serve our global community, the Conference will schedule live programming during three “golden global hours,” best for Asia/Europe, US/Europe and US/Asia. Live Q&A sessions will be scheduled during the Conference week with several special sessions dispersed throughout the week to include: a MRAM innovation Forum with live panel discussion, live tutorials, a live award ceremony, career development and networking events. These livestreams will be recorded and made available to registered attendees, along with all the prerecorded content, for a period after the Conference.

1. Invited Presentations and Symposia

Individual invited presentations and symposia consisting of 6 invited presentations, are an important aspect of the program. Invited speakers will be selected from the nominations received and will be contacted by Program Co-Chairs in mid-December. The Program Committee may also select certain contributed digests on important late-breaking results for upgrade to invited status. The format for an invited talk will be a prerecorded 25-minute video presentation. Symposia speakers will be expected to answer questions during a live Q&A session and all invited speakers via a message chat board, during the week of the conference and the following month.

2. Digest Submission

The deadline for digest submission is 8 January 2021 and will be strictly observed. All digests must be submitted online at the Conference website at www.intermag.org. Digests sent via e-mail or regular mail will not be processed or acknowledged. Digests should provide a clear summary of the work and results obtained. The maximum length for digests is 5600 characters plus 2 figures/tables representing about one and a half pages. More details about the format are posted on the Conference website. Authors will be informed of the status of their submission via e-mail by 12 February 2021.

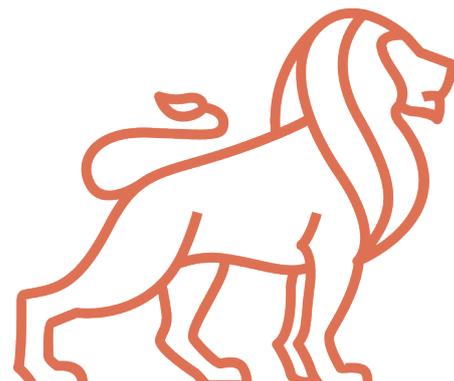
3. Presentation

Contributed papers accepted for the Conference will be presented as oral or poster presentations. Authors are requested to indicate their preference for an oral or poster presentation during the online submission process. The Program Committee will make the final decision on the assignment of papers to sessions and the presentation format for each session. Authors will be notified of their session type in their acceptance e-mail.

Contributed oral presentations will be in the format of a 12-minute prerecorded talk by a registered author.

Poster presentations will feature an electronic poster of well prepared visual materials about the work. Poster presenters will have the option to also submit a prerecorded video (up to 90 seconds). (The video will be required to be eligible for the Best Poster Awards.)

All presenters will be required to actively monitor a chat message board and respond to any questions during the conference week and the following month.



4. Publication

Authors of accepted digests may submit a manuscript for publication in *IEEE Transactions on Magnetics*. The editorial process will follow the same high standards as for regular submissions to the journal.

Accepted conference-related papers will be posted online 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”. The 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. Post-deadline manuscripts will not be accepted and not forwarded for review.

Instructions for submission and accepted formats will be available on the submission site, <https://mc.manuscriptcentral.com/magconf-ieee>.

- The maximum paper length is ten (10) journal pages for invited papers and five (5) journal pages for contributed papers.
- Reviewing and revisions will be handled through the online system. Authors are reminded that review standards will mirror those used for regular articles submitted to *IEEE Transactions on Magnetics*. Because of the time constraints, a second review may not be possible for resubmitted papers that are originally rejected.
- All manuscripts submitted for consideration of publication in *IEEE Transactions on Magnetics* will undergo the regular peer review process involving at least two reviewers, and *Transactions* editors will make the final decision on the publication of the manuscripts.

IEEE Transactions on Magnetics publishes research in science and technology related to the basic physics and engineering of magnetism, magnetic materials, applied magnetics, magnetic devices, and magnetic data storage. Details of the journal can be found at <http://ieeexplore.ieee.org/xpl/aboutJournal.jsp?punumber=20>.

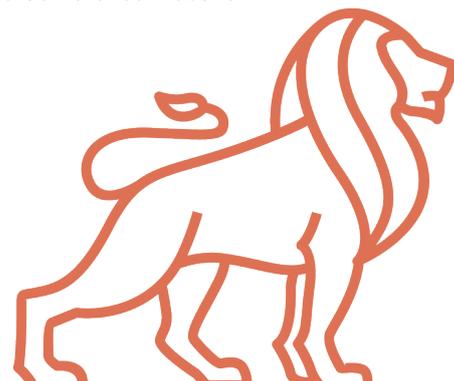
5. Best Student Oral Presentation Award

A competition will be held during the Conference for the IEEE Magnetics Society Best Student Oral Presentation Award, which recognizes and encourages excellence in graduate studies of magnetism. Full-time graduate students who will be the presenting author of an oral contribution may apply. Note that supplementary information is required to describe the motivation for the research, significance of the research results and the applicant’s contribution to the work being presented. A brief letter of support from the student’s advisor is also required, and should be submitted along with the digest. Up to five finalists will be selected based on accepted digests and the supplementary information. Preference will be given to students and their advisors who are current members of the IEEE Magnetics Society. Only the finalists will receive notification from the selection committee. The winner will be selected at the Conference by the Best Student Oral Presentation Award subcommittee, and announced during the Conference. The award consists of a prize of \$1000 USD and certificate for the winner, and a \$250 USD prize and certificate for the remaining finalists.

6. Best Poster Awards

All posters will be eligible for nomination for this award provided they meet the following requirements:

- Virtual posters will feature an electronic poster of well prepared visual materials about the work.
- It is required that an author be registered for the Conference and submit a short video (up to 90 seconds) in a prerecorded presentation.
- 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 on the Conference website.



7. Registration

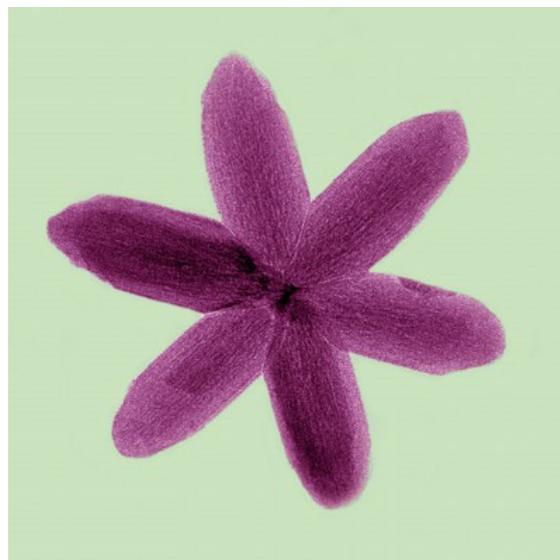
Information on Conference registration fees and a registration link will be available on the Conference website on 1 February 2021.

8. Exhibitor and Supporter Opportunities

A virtual exhibition of related services, equipment, materials, software, and technical journals and books will be held as a part of the INTERMAG 2021 Conference. Individuals and organizations interested in exhibiting or supporting Conference events should contact Jennifer Fiske, Exhibits Manager, at jennifer@intermag.org. The Exhibitor Prospectus will be available soon at www.intermag.org under "Supporters".

9. Magnetism as Art Showcase

The INTERMAG 2021 Conference will host a Magnetism as Art Showcase to highlight the beauty of magnetism and magnetic materials. All submissions will be posted to the Conference website. Popular vote will determine the submissions selected for display at the Conference. Prizes will be awarded by a panel of judges.



▲ 2019 Magnetism as Art Showcase Winner:
Flower-shaped iron oxide nanoparticle

Detailed information on the Showcase rules and submission requirements are available at the Conference website at www.intermag.org. The submission site will close on 13 April 2021. Submissions must be made by a registered Conference attendee.

10. Important Dates

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| Invited Speaker & Symposia Nominations Site Opens | 23 October 2020 |
| Invited Speaker and Symposia Nominations Deadline | 15 November 2020 |
| Digest Submission Site Opens | 20 November 2020 |
| Digest Submission Deadline..... | 8 January 2021 |
| Best Student Oral Presentation Award Application Deadline | 8 January 2021 |
| Conference Registration Opens..... | 1 February 2021 |
| Magnetism as Art Submission Site Opens..... | 1 February 2021 |
| Acceptance/Rejection Notices | 12 February 2021 |
| Manuscript Submission Opens | 1 March 2021 |
| Manuscript Submission Deadline | 16 March 2021 |
| Presentation Upload Deadline | 25 March 2021 |
| Magnetism as Art Submission Deadline..... | 13 April 2021 |
| On-Demand Content Available for Viewing | 19 April 2021 |
| Intermag 2021 Conference | 26-30 April 2021 |
| IEEE Transactions on Magnetics Publication..... | Fall 2021 |