

IEEE International Magnetics Conference

Montréal, Canada

4-8 May, 2020



General Chair

Cindi Dennis

NIST

cindi.dennis@nist.gov

Program Co-Chairs

Johan Paulides

Advanced Electromagnetics Group

johan@ae-grp.nl

Tiffany Santos

Western Digital

tiffany.santos@wdc.com

Kiyonori Suzuki

Monash University

kiyonori.suzuki@monash.edu

Treasurers

Kristen Buchanan

Colorado State University

kristen.buchanan@colostate.edu

Mark Kief

Seagate Technologies

mark.t.kief@seagate.com

Exhibits and Sponsorship Chair

Jean Anne Incorvia

University of Texas at Austin

incorvia@austin.utexas.edu

Publicity Chair

Philip Pong

University of Hong Kong

ppong@eee.hku.hk

Publication Chair

Min-Fu Hsieh

National Cheng Kung University

mfhsieh@mail.ncku.edu.tw

Student Events Chair

Nicola Morley

University of Sheffield

n.a.morley@sheffield.ac.uk

IEEE Representative

Rudolf Schaefer

IFW Dresden

R.Schaefer@ifw-dresden.de

Conference Management

Molly Bartkowski

Conference Manager

molly@intermag2020.com

Regina Mohr

Abstracts/Publications Manager

regina@intermag2020.com

Jennifer Fiske

Exhibits Manager

jennifer@intermag2020.com

Ashley Cesare

Registration Manager

ashley@intermag2020.com



Final Call for Papers

Dear Colleagues,

It is my privilege to invite you to the IEEE International Magnetics Conference, INTERMAG Americas 2020, which will be held in Montréal, Canada, from 4-8 May 2020.

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 2020. Selected papers from the Conference will be published in the *IEEE Transactions on Magnetics*.

On behalf of the Management Committee of INTERMAG 2020, 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.intermag2020.com.

Montréal follows Vancouver (2012) and Sacramento (2009) in hosting the INTERMAG Americas Conference. Montréal is a striking union of the Old and New Worlds, a truly “international” city of 120 distinct ethnic communities. The centrally located Palais des congrès de Montréal is within easy walking distance from many hotels and restaurants. For the many things to see and to do in and around Montréal, please visit www.mtl.org/en.

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

Cindi L. Dennis
INTERMAG 2020 General Chair



Conference Topics

1. Spintronics-Fundamentals and Applications

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

2. Life Sciences Applications

- a. Bio-Magnetism
- b. Biomedical Diagnostics and Imaging
- c. Biomedical Therapies and Nanomedicine

3. Electrical Machines, Drives and Control

- a. Advances in (Semi)-Analytical and Numerical Techniques for Design
- b. Permanent Magnet Electrical Rotating Machines
- c. Reluctance, Inductance and Special Rotating Electrical Motors
- d. Linear Motor, Short and Long Stroke Actuators and Applications
- e. Generators, Electrical Energy Storage and Energy Harvesting
- f. Power Electronics Topologies and Modulation (Theoretical and Practical)
- g. Testing of Electrical Machines, Drives and Control Systems

4. Electric Drive Applications, Monitoring, and Transformers

- a. Maintenance, Condition Monitoring and Diagnosis of Electrical Machines and Drives
- b. Transportation Electrification, Smart Grids, Renewable and Utility Applications
- c. Thermal Electric Drive Management, Advanced Cooling Technologies
- d. Control of Electric Machines, Converters and Systems
- e. EMI, EMC, and Shielding of Electrical Drives, and Identification Methods
- f. Transformers, Inductors, Magnetic Levitation

5. Magnetic Recording

- a. Recording Heads and Media
- b. Energy-Assisted Recording
- c. All-Optical Recording and Other New Recording
- d. Recording Physics, Modeling, Theory and Testing
- e. Recording Systems, Coding, Servo, Actuators and Channels
- f. Head-Disk Interface and Tribology

6. Sensors and High-Frequency Devices

- a. Magnetic Field Sensors (Non-Recording)
- b. Sensors (Not of Magnetic Fields)
- c. Microwave and Millimeter Wave Materials and Devices





Conference Topics *(Continued)*

7. Multi-Functional Magnetic Materials and Applications

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

8. Magnetoelectronic Materials and Phenomena

- a. Multiferroics and Magnetoelectric Phenomena
- b. Complex Oxides
- c. Half-Metallic Materials
- d. Magnetic Semiconductors
- e. Magnetoresistance, Magnetoimpedance, and Hall Effect (homogeneous materials)

9. 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

10. Fundamental Properties and Cooperative Phenomena

- a. Electronic Structure
- b. Critical Phenomena
- c. Spin Glass and Frustrated Magnets, and Heavy Fermion Systems
- d. Quantum Materials and Cooperative States: Superconductivity, Spin Liquids, etc.
- e. Heavy Fermions and f-Electron Magnetism
- f. Low Dimensional Systems, Molecular and Organic Magnets

11. Soft Magnetic Materials

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

12. Hard Magnetic Materials

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

13. 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

14. Microscopy, Imaging and Characterization

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

15. Interdisciplinary and Emerging Topics

- a. Geomagnetism
- b. Magnetic Fluids and Separation
- c. New Approaches in Computational Magnetism
- d. Applications to "Internet of Things" (IoT)
- e. Other Interdisciplinary and Emerging Topics



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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. Invited talks will be 25 minutes long, followed by a 5-minute discussion period.

2. Digest Submission

The deadline for digest submission is 13 January 2020 and will be strictly observed. All digests must be submitted online at the Conference website at www.intermag2020.com. Digests sent via e-mail or regular mail will not be processed or acknowledged. Digests should be in the form of a two page summary. 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 14 February 2020.

3. Presentation

Contributed papers accepted for the Conference will be presented either orally or by poster. 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 conventional format of a 12-minute talk by a registered author using an LCD projector, followed by a 3-minute discussion period. Authors are expected to bring their presentation on their own laptop computers along with a backup copy on a USB drive.

Poster presentations will consist of well-prepared visual materials about the work posted on an assigned board, with the author available to present details and answer questions during the designated poster session. Simply posting a hard copy of the paper is inappropriate and will be marked as a NO SHOW. For further instructions, including poster board size, please refer to the Conference website.

4. Publication

If your digest is accepted for presentation (both oral and poster) at INTERMAG, you may contribute a paper for publication in the special INTERMAG issue of *IEEE Transactions on Magnetics*. The minimum paper length is 4 journal pages for contributed papers and 7 journal pages for invited papers. The deadline for manuscript submission is 24 March 2020. Post-deadline manuscripts will not be accepted or forwarded for review. The review standards will mirror those used for regular articles to be published in *IEEE Transactions on Magnetics*. Note that participation in the Conference does not guarantee that a paper will be accepted for publication. Additionally, at least one of the paper's co-authors must present the paper at the Conference in order for it to be considered for publication. Due to time constraints, there will be no second round of reviews for papers that are rejected at the initial stage. All the papers will have two peer reviews, and the final decision on the publication of the manuscripts will be made by the INTERMAG editors.

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 \$1500 USD and certificate for the winner, and a \$250 USD prize and certificate for the remaining finalists.

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6. Best Poster Awards

All posters will be eligible for nomination for this award provided they meet the above requirements for presenting a 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. This award consists of a \$50 USD cash award, a certificate, and a Best Poster ribbon. The awards will be given during the last hour of each poster session. Winning posters will be prominently displayed throughout the remainder of the Conference.

7. Registration

The advance online registration at reduced rates will open on 15 January 2020 and be available until 6 April 2020. Online registrations after 6 April 2020 and on-site registrations are accepted only at the higher rates. Please note that the Conference registration fees do not include any meals during the Conference week.

8. Hotels

Rooms have been reserved at four hotels close to the conference center for INTERMAG 2020 participants. Special Conference rates are available until 6 April 2020. A list of these hotels as well as the link to the online booking can be found at the Conference website. We recommend booking well in advance, so that your desired hotel is available.

9. Travel Information

Montréal is easily accessible from the UK, Continental Europe, USA, and Asia. For more information, please visit www.admtl.com/en and the Conference website.

10. Student Travel

Travel grants of up to \$1000 USD each will be awarded to a limited number of students in the areas of basic and applied magnetism. These grants, which will be sponsored by the IEEE Magnetics Society, are intended to partially offset travel and local costs related to participation in INTERMAG 2020. Support is for current graduate students only. Postdoctoral fellows, undergraduates, or non-students are not eligible. To be eligible for the IEEE Magnetics Society award, the student's advisor must be a member of the IEEE Magnetics Society. Preference for these grants will be given to those applicants who are student members of the IEEE Magnetics Society, nearing completion of their graduate studies and presenting Conference papers. Students who have previously received travel support

from the IEEE Magnetics Society for any other Conference are not eligible. The deadline for submitting applications and letters of endorsement is 21 February 2020. Incomplete or late applications and endorsement letters will not be considered. Applicants will be notified of the committee's decision in early April 2020.

11. Child Care Grants

There are a limited number of child care grants for INTERMAG 2020 Conference participants who are bringing young children to the meeting or who incur extra expenses in leaving their children at home. The grant is one per participant and can be up to \$400 USD for children over 5 years of age and up to \$800 USD for children under 5 years of age. Details about allowable expenses and the application process are available at the Conference website at www.intermag2020.com. The deadline for submitting applications is 21 February 2020. Recipients will be notified upon approval of their application in early April 2020.

12. Exhibits

Exhibits of related services, equipment, materials, software, technical journals and books will be held as a part of the INTERMAG 2020 Conference. Individuals and organizations interested in purchasing booth space should contact Jennifer Fiske, Exhibits Manager, at jennifer@intermag2020.com.

13. Conference Sponsorship and Support

We welcome your support in making the Conference a success! There are three levels at which Conference Partners can provide support: Platinum, Gold, and Silver. Partners will be acknowledged on the inside cover of the program booklet, as well as on the Conference website and on signage throughout the conference. In addition, there are other specific conference items or events available for support. Individuals and organizations interested in conference sponsorship/support should contact Jennifer Fiske, Exhibits Manager, at jennifer@intermag2020.com.

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14. Magnetism as Art Showcase

The INTERMAG 2020 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 Facebook page. Popular vote will determine the submissions selected for display at the Conference. Prizes will be awarded by a panel of judges.

Detailed information on the Showcase rules and submission requirements are available at the Conference website at www.intermag2020.com. The submission site will close on

31 March 2020. Submissions must be made by a registered Conference attendee. If a submission is selected for display at the Conference, the submitter will be responsible for printing and transporting the entry to the Conference venue.

15. Visa

To determine if you need a visa, please visit: www.cic.gc.ca/english/visit/visas.asp. To request an invitation letter, please use the form provided on the Conference website. Please note that invitation letters can only be issued to authors or registered attendees of the Conference.

16. Important Dates

Digest Submission Deadline	13 January 2020
Best Student Oral Presentation Award Application Deadline	13 January 2020
Acceptance/Rejection Notices	14 February 2020
Student Travel Award and Child Care Grant Application Deadlines	21 February 2020
Manuscript Submission Opens	2 March 2020
Manuscript Submission Deadline	24 March 2020
Magnetism as Art Submission Deadline	31 March 2020
Advance Registration Deadline	6 April 2020
Hotel Reservation Deadline	6 April 2020
Intermag 2020 Conference	4-8 May 2020
IEEE Transactions on Magnetics Publication	November 2020

