

10th Joint MMM/Intermag Conference

January 7-11, 2007 • Baltimore, Maryland



CHAIRMAN

Julie Borchers
NIST
Ph/Fax 301-975-6597/921-9847
julie.borchers@nist.gov

TREASURER

Jeffrey Childress
Hitachi San Jose Research
Ph/Fax 408-323-7220/7010
Jeff.childress@hitachigst.com

PROGRAM CO-CHAIRS

Olle Heinonen
Seagate Technology
Ph/Fax 952-402-7865/8349
olle.g.heinonen@seagate.com

Peter Schiffer
Pennsylvania State University
Ph/FAX 814-865-5982/3604
schiffer@phys.psu.edu

PUBLICATIONS CO-CHAIRS

Axel Hoffmann (IEEE)
Argonne National Lab.
Ph/Fax 630-252-5469/9595
Hoffmann@anl.gov

Michael McHenry (JAP)
Carnegie Mellon University
Ph/Fax 412-268-2703/3113
Mm7g@andrew.cmu.edu

EXHIBITS

Laura Henderson Lewis
Brookhaven National Lab.
Ph/Fax 631-344-2861/4071
lhlewis@bnl.gov

PUBLICITY AND AWARDS

Yumi Ijiri
Oberlin College
Ph/Fax 440-775-6484/6379
yumi.ijiri@oberlin.edu

STUDENT SUPPORT

James C. Eckert (AIP)
Harvey Mudd College
Ph/Fax 909 607-2726/621-8887
James_Eckert@hmc.edu

Matthew J. Carey (IEEE)
Hitachi Global Storage Technologies
Ph/Fax 408-323-7218/7010
Matthew.carey@hitachigst.com

CONFERENCE COORDINATORS

Diane Melton
Courtesy Associates
Ph/Fax 202-367-2456/973-8722
2007joint@courtesyassoc.com

AIP COORDINATOR

Janis Bennett
American Institute of Physics
Ph/Fax 516-576-2403/2223
magnet@aip.org

www.magnetism.org

FIRST CALL FOR PAPERS

Abstract Deadline: August 9, 2006

The 10th Joint Magnetism and Magnetic Materials (MMM)/Intermag Conference will be held at the Baltimore Marriott Waterfront Hotel in Baltimore, Maryland from Sunday, January 7 through Thursday, January 11, 2007. 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 all basic and applied science and technology related to the field of magnetism. The technical subject categories for the Conference are located at the end of this Call.

ABSTRACT GUIDELINES: Because of the need to convey information effectively with colleagues as well as a continued increase in the number of submitted abstracts in recent years, authors should make an effort to present their work in the best possible light. To maximize your chances of acceptance, please strictly follow the guidelines and keep in mind the following abstract acceptance criteria used by the Program Committee:

- The research must be about magnetism, magnetic materials, or magnetism-related technology.
- The work must be original and significant. Abstracts that describe incremental advances over previously presented work will be rejected.
- The work must be substantially complete. Abstracts that do not specifically refer to new results or are largely conceptual will be rejected. Sufficient context and detail must be included to allow the program committee to readily make an assessment of the work.
- In the interest of allowing as many groups as possible to present their work, groups or individuals considering the submission of several related abstracts should, whenever possible, combine them into a single submission.
- The abstract must be in understandable English. If necessary, have a native English speaker edit your abstract before submission.



Jointly sponsored by the American Institute of Physics and Magnetics Society of the Institute of Electrical and Electronics Engineers in cooperation with the Minerals, Metals and Materials Society, The Office of Naval Research, The American Society for Testing and Materials, The American Physical Society, and the American Ceramic Society.



ABSTRACT SUBMISSION REQUIREMENTS:

- The presenting author *must* be a paid registrant. The Conference does not provide support for any contributed papers.
- Abstracts must be submitted prior to the **August 9, 2006 deadline**. This deadline will be strictly observed.
- **All abstracts must be submitted via the WEB submission system ONLY.** Abstracts sent via e-mail, fax, or regular mail, will not be processed or acknowledged.
- Submit all abstracts electronically, using the link found at the MMM HomePage (<http://www.magnetism.org>). The link will be **available** starting **July 19, 2006**.
- Abstracts should be **300 words** or less, and are limited by the submission system. Two figures/tables are permitted. However, note that this significantly reduces the text permitted. Make your determination about whether you prefer text or figures and work within the limit. Titles, authors, addresses, and references will not count in the 300 word limit.
- Read and follow submission procedures, which will be available at each step of the process. If you have questions about this procedure, please contact the AIP Coordinator at the e-mail address: magnet@aip.org or use the help icon on the web page.
- Follow instructions on the allowed file formats for the abstract submission. Only formats described in the instructions will be accepted. There are many to choose from.
- Submit your abstract only once.
- **Draft mode** will be available until the deadline date. This permits authors to 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 on line. The Draft mode will be eliminated, along with anything left in it, on August 10, 2006.
- *Be sure to provide a clear and correct e-mail address for the corresponding author* and provide all other information requested on the electronic form. Use upper and lower case characters. (DO NOT simply use all upper case). This information will be used to notify you of acceptance and the location of informational materials. Acronyms of institution names are acceptable. Be sure to type your first and last names in the proper boxes. If your name is transposed we will be unable to locate you.
- The web submission system will automatically produce your abstract in the proper format for publication in the Abstracts Book. You may cut and paste your abstract (without formatting or TeX characters) into the space provided at the website. Figures need to be uploaded. The version you view and edit on the screen is a facsimile.
- **Acknowledgment** of your submission will be **via e-mail**. If you do not receive this e-mail confirmation, your abstract is NOT submitted.
- Following construction of the Program, the accepted abstracts will appear online at the Conference website in a fully searchable format. If, for some reason, you do not wish your abstract to appear online, you must check the box provided on the submission form. If this is done, only the title, authors, and affiliations will appear.
- Abstract acceptance will be announced via e-mail. Authors will be advised as to the status of their submission by mid September 2006.

PROGRAM: The program will consist of invited and contributed papers falling broadly within the scope of the categories listed at the end of this Call. Some of the invited papers will be tutorial in nature, while others will review recent work in specialized fields. The Program Committee is chaired by Olle Heinonen and Peter Schiffer.

PRESENTATION OF CONTRIBUTED PAPERS: Contributed papers accepted for the Conference will be presented either orally or by poster. Oral presentations will be in the conventional format of a 10-minute talk by the registered author using an LCD projector, followed by a 2-minute discussion period. **NOTE: ONLY LCD** projectors will be provided. Authors are expected to bring their presentation on their own laptop computers along with a backup copy on flash memory or CD in case of laptop failure. All

Oral talks will be presented in this manner. **NO OTHER PRESENTATION FORMAT IS AVAILABLE.** Poster presentations will consist of well-prepared visual materials about the work posted on a designated board, with the author available to present details and answer questions during the selected poster session times. Simply posting a copy of the paper is NOT appropriate and will be treated as a NO SHOW. Authors are requested to indicate their preference for oral or poster presentations in the spot provided on the electronic form. The Program Committee will make the final decision on the assignment of papers to sessions and the presentation format for each session. In the e-mail notice of acceptance, authors will be notified of the type of session for their presentation and the journal the article will appear in. They will also receive a URL for detailed rules and instructions for effective presentation.

PUBLICATION: The Proceedings of the Conference will be published in June 2007 as special issues of the *Journal of Applied Physics* and *IEEE Transactions on Magnetics*. Entire sessions will be assigned to one or the other of these publications by the Program Committee. Detailed instructions on the preparation of manuscripts for submission to either journal will be available on the Conference home page for authors whose papers are accepted for presentation at the Conference. The maximum paper length is six journal pages for invited papers and three journal pages for contributed papers. **All manuscripts must be received by October 31, 2006.** This deadline will be strictly observed. Post-deadline manuscripts will not be accepted and not forwarded for review. Authors are reminded that review standards will mirror those used for regular articles submitted to *Journal of Applied Physics* and *IEEE Transactions on Magnetics*, and that, because of time constraints, a second review may not be possible for resubmitted papers that were originally rejected. Papers must be presented at the Conference by an author registered at the Conference in order to be published in the Proceedings.

All manuscripts assigned to the *Journal of Applied Physics* must be submitted to the AIP web submission system, PeerX-Press (PXP). Instructions for submission and accepted formats for the journal will be available at the submission site (<http://mmm.peerx-press.org/>).

All manuscripts assigned to the *IEEE Transactions on Magnetics* will be submitted to the new IEEE web submission system, Manuscript Central.

Detailed instructions on the preparation of papers are available for download at <http://www.ieee.org/organizations/pubs/transactions/stylesheets.htm>. All papers must be submitted electronically at Manuscript Central (<http://transmag-ieee.manuscriptcentral.com/>).

Instructions for submission and accepted formats for each journal will be available at the appropriate site, and links to each site will be available on the Conference website. Each site will be available for submission beginning **October 2, 2006. All papers to appear in the proceedings MUST be submitted in this way.** No paper or e-mailed manuscripts will be accepted. Reviewing and revisions will all be handled exclusively through these online systems.

EXHIBITS: An exhibition of related services, equipment, materials, software, technical journals and books will be held as a part of the 2007 Joint MMM/Intermag Conference. Individuals and organizations who are interested in purchasing booth space should contact Roseann Kuryla, Exhibits Coordinator at Courtesy Associates at: e-mail: 2007joint@courtesyassoc.com; Fax: 202-973-8722. The Exhibitor Prospectus will be available in print and on the web site in the Summer of 2006.

HOTEL: Baltimore has been a vibrant port city throughout U.S history. The Baltimore Marriott Waterfront Hotel is located at the center of the city's dining, shopping and sightseeing district, overlooking Baltimore's Inner Harbor. All guestrooms offer a water view. The special hotel room rates for 2007 Joint Conference attendees will be \$143/single or double plus applicable taxes. In addition, there are a limited number of government-rated rooms available for which a government I.D. must be presented upon check-in. The Hotel Room Reservation link will be available on the Conference web site by September 15th.

REGISTRATION: Advance Conference Registration will be available starting **October 1, 2006.** Use the link and instructions that will be posted on the MMM, Intermag, and Magnetics Society Homepages and announced in the Advance Program. Advance Registration via the web is the most convenient way to register and is highly recommended. Only advance registrants will receive a mailed copy of the Program Booklet prior to the meeting. The registration fees for the 2007 Joint MMM/Intermag Conference will be published in the Program Book and on the website, when available, during the Summer of 2006.

VISA REQUIREMENTS FOR ENTRY INTO

THE USA: Citizens of other countries must carry a valid passport and visa to enter the USA. Foreign participants should contact the United States Embassy, Consulate, or Office of Tourism in their home country **AS SOON AS POSSIBLE** to determine their particular visa requirements. Participants requiring visas must initiate the application process many months in advance of their departure date. If you need a personal letter of invitation to attend the Conference, contact 2007 Joint MMM/Intermag Conference, c/o Courtesy Associates, 2025 M Street, NW, Suite 800, Washington, DC, 20036; E-mail: 2007joint@courtesyassoc.com; Fax: 202-973-8722. **Be sure to provide your complete mailing address so that a signed letter of invitation can then be mailed to you via standard mail service** since only an original copy (not faxed or e-mail version) will be accepted with your visa application. **NOTE:** The Joint MMM/Intermag Conference **CANNOT** contact or intervene with any U.S. Embassy or Consulate office abroad on your behalf.

FURTHER INFORMATION: To receive additional information about 2007 Joint MMM/Intermag, to be added to the Conference Mailing List, or to update your mailing address, please contact Janis Bennett, e-mail: magnet@aip.org; Telephone: 516-576-2403; Fax: 516-576-2223. The latest information on 2007 MMM/Intermag can be found on the World Wide Web at the Conference homepage:

<http://www.magnetism.org>

FUTURE CONFERENCES:

52nd Conference on Magnetism and Magnetic Materials

November 5–9, 2007, Tampa, Florida

INTERMAG Conference

May 4-8, 2008, Madrid, Spain

53rd Conference on Magnetism and Magnetic Materials

November 10-14, 2008, Austin, Texas

BEST STUDENT PRESENTATION AWARD:

This year, there is a competition for the best student presentation at the 10th Joint MMM/Intermag Conference in Baltimore to recognize and to encourage excellence in graduate studies in the field of magnetism.

Best 50TH MMM Student Presentation Winner

Clarina dela Cruz

for her presentation:

"Evidence for strong spin-lattice coupling in multiferroic RMn_2O_5 ($R=\text{Tb}, \text{Dy}, \text{Ho}$) via thermal expansion anomalies."

CONGRATULATIONS!

Eligibility: The nominee must be a full time graduate student expecting to graduate within one year of the 10th Joint MMM/Intermag. 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 10th Joint MMM/Intermag. The student's regularly submitted abstract must have been accepted for presentation through the normal abstract review process by the 10th Joint MMM/Intermag Program Committee as either an oral or poster presentation.

Nature of Award: This award consists of a one-year fellowship of \$1000 for the winner and a one-year fellowship of \$250 to each of the remaining finalists. The names of all finalists competing for the award will be announced in the 10th Joint MMM/Intermag Abstract and Program Booklets. The name of the winner will be published in the Program Booklet of the following MMM Meeting.

Selection Process: Up to eight finalists will be selected by a Student Award sub-committee of the 10th Joint MMM/Intermag Program Committee. Selections will be made from extended-abstract applications, as described below, based on an overall assessment of the quality of each applicant's extended and regularly submitted abstracts. Notification to the finalists will be made by e-mail in early September 2006. 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 10th Joint MMM/Intermag. The decision of the Student Award sub-committee is final.

STUDENT AWARD APPLICATION PROCEDURE

1. Students must submit an abstract to the 10th Joint MMM/Intermag 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. The 10th Joint MMM/Intermag abstract deadline is **August 9, 2006**.

2. Students must also **submit an extended abstract** of a maximum of three pages of text, equations, and figures. The extended abstract submission **deadline** is **August 9, 2006**. The extended abstract will be used to

select the finalists; and should expand upon the research, describe the applicant's contribution to the work, and show the significance of the work to the field. In addition, the extended abstract should include the abstract number of the regular abstract; the title; the authors, their affiliations, and addresses; any equations; and pertinent bibliography. The following **guidelines** should be followed:

- Minimum 1 inch margins on all sides of all pages.
- Font size of at least 12 points for text; line spacing at least 1.17 times the font size.
- Font size of at least 9 points (after reduction) on figures.

3. Extended abstracts **MUST** be **submitted as e-mail attachments**. FAX or mail submissions will not be considered. The e-mail containing the extended abstract must have a **subject line that reads "EXTENDED ABSTRACT - <APPLICANTS NAME>"**. Extended abstracts are **due** by Tuesday, **August 9, 2006**.

Submit extended abstracts to:

Dr. Olle G. Heinonen, Seagate

To: Olle.G.Heinonen@seagate.com

Subject: **EXTENDED ABSTRACT - <APPLICANTS NAME>**

STUDENT TRAVEL: The Conference and the IEEE Magnetics Society will both offer travel grants to a limited number of students working in magnetism and magnetic materials. The Conference grants will be in the amount of \$500 and the Magnetics Society grants will be in the amount of \$750. The IEEE Magnetics Society grant application process is more involved and the requirements are more extensive than those for the Conference grants. Details will be provided on the web site. Applicants may apply for a travel grant from either the Conference OR the IEEE Magnetics Society but not both. These awards are intended to partially offset travel costs to attend the 10th Joint MMM/Intermag in January 2007. Support is for current graduate students only; postdoctoral fellows or non-students are not eligible. To be eligible for travel support, a student must be presenting a Conference paper and preference will be given to students who are nearing completion of their graduate studies. In addition to the above travel grants for graduate students, there will be a small number of travel grants, in the amount of \$500

each, awarded to undergraduate students who will be presenting their work at the Conference. To apply, forms and instructions will be made available after the announcement of abstract acceptance. At that time, the forms and instructions will be accessible through the MMM Website: www.magnetism.org, under the category tab "Student Travel".

BEST POSTER PRESENTATIONS: This year, there is a competition for the best poster in each poster session at the 10th Joint MMM/Intermag Conference in Baltimore. These awards will be given to recognize excellence in research and presentation. There will be one award for each morning and each afternoon session.

Best 50th MMM Conference Poster Presentation Winners

Claudiu Daniel Stanciu, A. Kimel, F. Hansteen, A. Tsukamoto, A. Itoh, A. Kirilyuk, and T. Rasing
IMM, Radboud Univ. Nijmegen; Nijmegen, Netherlands

Temperature dependence of laser induced magnetization dynamics in a GdFeCo film: the role of angular momentum compensation

Matthew Moneck and J. Zhu
Electrical and Computer Eng., Carnegie Mellon Univ. Pittsburgh, PA

Fabrication and testing of deep submicron ring shape vertical MRAM with enhanced magnetoresistance

Sylvia Florez, C. Krafft, and R. D. Gomez
Electrical and Computer Eng., Univ. of Maryland, College Park, MD

Effects of artificial domain wall traps in pulsed-current induced domain wall motion in a spin valve device

Zhi-pan Li, R. Morales, O. Petracic and I. K. Schuller
Physics Department, UC San Diego, La Jolla, CA
Domain Size Relevance in Exchange Biased Nanostructures

Yosi Bason, L. Klein, C. H. Ahn, X. Hong, and J. T. Yau
Physics, Bar-Ilan Univ., Ramat Gan, Israel; Applied Physics, Yale Univ., New Haven CT, USA
Planar-Hall-Effect MRAM

R. R. Deshmukh, A.J. Moses, and F.J. Anayi
Engineering, Wolfson Centre for Magnetics Technology, Cardiff, Wales, UK
Behaviour of Three-Phase Inducting Motor with Variable in Stator Coil Winding Pitch

CONGRATULATIONS!

Eligibility: All posters will be eligible for nomination for this award providing they meet the requirements and guidelines for MMM/Intermag poster presentations and sessions, as described on the website. 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 certificate. The awards will be made in the last hour of each poster session. A ribbon will also 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 will be made by the individual session chairs which 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.

TECHNICAL SUBJECT CATEGORIES

I. Fundamental Properties and Cooperative Phenomena

- A. Electronic Structure
- B. Itinerant Magnetism
- C. Critical Phenomena
- D. Spin Glasses and Frustration
- E. Spin Dynamics and Relaxation
- F. 4f- 5f-, Heavy Fermions, and Strongly Correlated Systems
- G. Superconductivity
- H. Low-dimensional Systems

II. Magnetoelectronic Materials and Applications

- A. Magnetoresistive Oxides (CMR)
- B. Multiferroic Materials
- C. Other Half-Metallics
- D. Anisotropic Magnetoresistance, Magnetoimpedance, and Hall Effect
- E. Giant Magnetoresistance and Spin Valves
- F. Spin Transport Torques
- G. Magnetic Tunneling Junctions (not spin injection)

H. Magnetic Semiconductors (not spin injection)

I. Spin Injection

J. Devices

III. Computational Magnetism and Imaging

- A. Numerical Methods
- B. Micromagnetic Modeling
- C. Hysteresis Modeling
- D. Magnetic Microscopy and Imaging

IV. Soft Magnetic Materials and Applications

- A. Ferrites, Garnets and Other Microwave Materials
- B. Crystalline Alloys
- C. Amorphous/Nanocrystalline Materials
- D. Domains
- E. Recording Head Materials

V. Hard Magnetic Materials and Applications

- A. Rare-Earth Transition Metal Borides
- B. Intermetallic and Other Hard Magnetic Materials
- C. Nanostructured Hard Magnetic Materials
- D. Hard Magnet Processing and Applications

VI. Structured Materials

- A. Ultra-Thin Films and Surface Effects
- B. Multi-Layer Films and Superlattices
- C. Nanoparticle Arrays
- D. Nanoparticles (not in arrays)
- E. Patterned Films
- F. Exchange Bias

VII. Special Magnetic Materials

- A. Magneto-Optic Materials
- B. Magneto-Elastic Materials
- C. Magneto-Caloric Materials
- D. Molecular Magnets
- E. New Magnetic Materials
- F. Microwave Materials

VIII. Magnetic Recording

- A. Particular Media and ME Tape
- B. Thin Film and Patterned Media
- C. Perpendicular Recording
- D. Longitudinal Recording
- E. Magnetoresistive Heads
- F. Inductive Recording Heads
- G. Magneto-Optic Recording and Alternative Magnetic Storage
- H. Recording Modeling, Systems, and Theory
- I. Head-Media Interface and Tribology
- J. Magnetic Memory and Elements
- K. Magnetic Noise

IX. Sensors (not magnetic recording), High Frequency and Power Devices

- A. Magnetic Sensors (not magnetic recording)
- B. Microwave and Millimeter Wave Devices
- C. Magnetoimpedance and High Frequency Properties
- D. Electromagnetic compatibility
- E. Transformers and Inductors
- F. MEMS
- G. Motors and Actuators
- H. Power and Control Magnetics
- I. Shielding, Levitation, and Propulsion

X. Applications and Interdisciplinary Topics

- A. Biomagnetic Applications
- B. Magnetic Fluids and Separations
- C. Bio/Chemical Magnetism
- D. Instrumentation and Measurement Techniques
- E. New Applications

PLANNED SYMPOSIA Information on planned symposia can be found on the Conference website in August. <http://www.magnetism.org>