

From the President

By Bruce Terris, President of the Magnetics Society

The publication of this edition of the Newsletter coincides with INTERMAG Asia 2015. This year promises to be yet another achievement for our flagship conference, with a record number of digest submissions and an increase in the number of parallel oral sessions from eight to nine. The interest in magnetism, magnetic devices, and magnetic materials continues to grow worldwide, and this is evidenced by the growth in size and in quality of INTERMAG. Congratulations to the conference management team, led by Conference Chairs Kaizhong Gao and Jinliang He and Program Chairs Xiufeng Han, Olga Kazakova, Jing Shi, and Jianping Wang for what promises to be the largest and most exciting Interomag ever.



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Publications News

By Ron Goldfarb, Publications Committee Chair

IEEE Magnetics Letters Wins ScholarOne Award

IEEE Magnetics Letters was selected as the second place winner of the 2015 ScholarONEVision Award competition conducted by ScholarOne, a division of Thomson Reuters. ScholarOne Manuscripts is the on-line system for article submission and peer review used by most IEEE journals and by many other publishers. Contest entries had to describe innovative solutions for disseminating research that reflect a shared vision with ScholarOne. *Magnetics Letters*, the Magnetics Society's rapid-publication journal, submitted an entry on the role of an editorial review board in rapid publication.

In announcing the award, ScholarOne said, "Not only does the work done by the editorial [review] board and IEEE solve a major problem in decreasing time from submission to

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publication, but it also sets an example for other journals" The criteria used by the judges were the impact and applicability of the solution and the novelty of the submission.

Editors

Beginning this year, Petru Andrei has graciously agreed to serve as the Magnetics Society's Associate Publications Chair.

Pavel Kabos continues to serve as Editor-in-Chief of *IEEE Transactions on Magnetics*. *Transactions* Editors are Amr Adly, Antonio Azevedo, C. Singh Bhatia, Daniel Bürgler, Zbigniew Celinski, J. R. Cruz, Kent Davey, David Dorrell, Luc Dupré, Silvio Dutz, Juan Fernandez-de-Castro, Mangui Han, Min-Fu Hsieh, Leszek Malkinski, Mani Mina, S. N. Piramanayagam, Martin J. Sablik, Andrei Slavin, Nian Sun, Jan K. Sykulski,

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Thanks to the hard work of the Publicity Committee of Philip Pong and Tommy Mckinnon, for the first time we are making videos of Distinguished Lecturer (DL) lectures available on line. The DL talks from 2014 will be available by links to IEEE-tv from the Magnetics Society web page. These will be available for a limited time to Magnetics Society members only, and then become more widely available. This is a new membership benefit, and we would like your feedback on what you think of these videos. If you like them, let us know and we will try to do this again this year. We are considering expanding this to recording a limited number of invited talks/symposia at INTERMAG? We need your feedback, so let us know your thoughts.

In addition to INTERMAG, spring also brings election time for the Administrative Committee (AdCom), the body of 39 people that oversees the operations of the Magnetics Society, of which 24 are directly elected. Do you enjoy the networking receptions at MMM and INTERMAG? How about the wireless cafes and

Women's Networking Event? Did you or your students receive travel support for a conference or attend a Magnetics Society Summer School? Maybe you have attend some of the outstanding DL lectures in the past year or two? Do you know where ideas for these come from?

Well, the ideas and funding for all these and more all originate from the volunteers on AdCom. So, how about volunteering and helping to support these programs and propose new and exciting ideas of your own? We particularly seek more members from the Asian-Pacific nations and Latin America (Regions 9 & 10, in IEEE-speak), to ensure that we have a committee that is broadly representative of our members, and to support our plans to grow in these regions. More details can be found elsewhere in this edition of the Newsletter, and via recent email. Please consider nominating yourself to stand for election. Volunteer today! We need your ideas.

Bruce Terris can be reached via: bruce.terris@ieee.org.

Introductory Course on MRAM (InMRAM 2015)

By Bernard Dieny, Organizing Committee Chair

Registration for the Introductory Course on Magnetic Random Access Memories (InMRAM 2015) at Grenoble Minatoc, is now open until May 31, 2015.

This introductory course, which takes place during July 1-3, 2015, aims at helping students, researchers and engineers having little or no background in magnetism to better understand the physics and working principles of this new class of magnetic memories called MRAM (Magnetic Random Access Memory) based on magnetic tunnel junctions.

MRAM and particularly STT-MRAM (Spin-Transfer-Torque RAM) are attracting increasing interest in the microelectronics industry. In a report published by the International Roadmap on Semiconductors (ITRS) in 2010, MRAM has been identified (alongside Resistive RAM) as one of the two most promising technologies of emerging non-volatile memory allowing scalability to and beyond the 16 nm technology node.

The courses will take place over two and a half days. They will cover various aspects of MRAM technology: the basic spintronics phenomena involved in MRAM, the magnetic tunnel junctions, the various categories of MRAM (pros/cons,

performances, degree of maturity), comparison with other technologies of non-volatile memories in terms of working principle, performances, foreseen applications (Phase Change RAM and Resistive RAM), the fabrication process, and the perspectives of low-power electronic circuits based on this hybrid CMOS/magnetic technology.

This will be the third edition of InMRAM. This year, each attendee will have the choice between two introductory tutorials (morning of July 1): one on magnetism and one on microelectronics for those attendees having respectively a background in microelectronics or in magnetism. A poster session will be organized the first evening to allow PhD students and post-docs to present their work. In the afternoon of the 3rd day (July 3), each attendee will have the opportunity to either visit SPINTEC or to attend training on tools for the design of hybrid CMOS/magnetic circuits.

The course language will be English.

More information can be found at www.InMRAM.com.

Publications News

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Satish S. Udpa, Maciej Zborowski, and Julia Zhang. Albrecht Jander is the *Advances in Magnetism* Editor and Laura H. Lewis is the Conference Editor for the *Transactions*.

I continue to serve as Editor of *IEEE Magnetism Letters*, with the support of Associate Editors Mingzhong Wu, Alexandru Stancu, and Arcady Zhukov, and a dedicated Editorial Review Board (the members of which are all listed on the *Magnetism Letters* Xplore site, ieeexplore.ieee.org/xpl/aboutJournal.jsp?punumber=5165412).

The Magnetism Society is one of the sponsors of the new *IEEE Journal on Exploratory Solid-State Computational Devices and Circuits*. Its scope is multidisciplinary research in solid-state materials, devices, and circuits for novel, energy-efficient computation beyond standard complementary metal-oxide semiconductor (CMOS) technology. Randy Victora is our representative on the Steering Committee.

Liesl Folks is our new IEEE Press and Publications Liaison. Gareth Hatch continues as our Newsletter Editor. Many thanks to all for doing their share and more.

Conference Publishing

At its meeting in November 2014, the Magnetism Society Administrative Committee endorsed a new policy regarding the publication of conference-related articles in *IEEE Transactions on Magnetism*. It applies only to “new conferences,” those with fewer than two cycles of Magnetism Society sponsorship or fewer than two cycles of publishing conference-related papers in the *Transactions*.

The guidelines are these:

1. A new conference must be approved for technical or financial sponsorship by the Magnetism Society’s Conference Executive Committee (contact: Randy Victora, University of Minnesota).
2. The proposed conference publications chair must have experience as a conference editor or as a journal editor and be approved by the *Transactions* Conference Editor (contact: Laura H. Lewis, Northeastern University).
3. The conference must target a manuscript rejection rate of at least 50%. (For reference, the rejection rate for regular *Transactions* articles is about 70%).
4. A conference organizer or committee member may be an author on no more than two manuscripts accepted for publication.
5. An assessment of the conference’s peer review process will be carried out by the *Transactions* editors.

The *Transactions* Conference Editor may modify these requirements for individual conferences based on additional considerations.

These guidelines do not apply to small conferences publishing conference-related articles in *IEEE Magnetism Letters*, where the regular journal editors handle the reviews.

New Senior Members

The following members of the IEEE Magnetism Society were recently elevated to the grade of Senior Member.

February 2015: Paulo J P Freitas, Joo-Von Kim, Simone Pisana, Yoichiro Tanaka and Parag Upadhyay.

March 2015: Todd Abrahamson, Oriano Bottauscio, Salah Falk, Ioannis Gonos and Riccardo Tediosi.

April 2015: Olivier Fruchart, Francois Montaigne, Herve Saint-Jalmes and Shiyou Yang.

For further information, visit the IEEE Web site at:

www.ieee.org/membership_services/membership/grade_elevation.html

Call For Administrative Committee Nominations

By Liesl Folks, Nominations Committee Chair

The Administrative Committee (AdCom) of the IEEE Magnetics Society includes 24 members who are elected directly by the Society membership. Eight of these members are elected in the fall of each year to serve a three-year term that begins at the start of the following calendar year. Membership in the IEEE and in the Magnetics Society or in an Affiliate Society is required.

The responsibility of AdCom is to manage the operations and functions of the Society. These include the publications of the Society, the conferences sponsored by the Society, the various Society awards, and the promotion of the general interests of the Society members. More details on AdCom functions may be found in the Constitution and Bylaws of the Society posted on the Society web site: www.ieeemagnetics.org.

The IEEE Magnetics Society Nominations Committee seeks nominations of outstanding members of the Society to be considered for inclusion on the ballot for election to the AdCom. These nominees will be considered for inclusion on the August 2015 ballot for AdCom for the 2016-2018 term.

1. Nominations will be accepted from the general membership.

Self-nominations are welcome and encouraged! **The deadline for the receipt of nominations is June 1, 2015.** All nominations are to be submitted online as described at the end of this document. To be guaranteed a place on the ballot, candidates may also be nominated by petition. For nominations by petition, a list of 62 (or more) petitioners' names, IEEE membership numbers, and original petition signatures must be sent separately to the Nominations Committee Chair. See further information below.

2. For nominations other than self-nominations, the nominator **MUST** verify that the prospective nominee is willing to stand for election if selected and work closely with the nominee to obtain the required information in the proper format.

3. The required nominee data are (a) family (last) and (b) given (first) names, (c) IEEE membership number, (d) e-mail address, (e) telephone number, (f) affiliation, (g) country, (h) Biographical Statement (written in the third person), and (i) Statement of Candidacy (written in the first person). Each statement must be in English and be 1200 or fewer characters in length.

4. Required nominator data (except for self-nominations) are: (a) full name, (b) IEEE number, (c) e-mail address, (d) affiliation, and (e) an optional list of names, IEEE membership numbers and affiliations for additional endorsements of the nomination (limited to 400 characters). For self-nominations, please enter "SELF NOMINATION" in the nominator name block.

5. Both the nominee and the nominator **MUST** be current members of the IEEE and of the Magnetics Society or be a Society Affiliate as defined in the IEEE rules. The provided IEEE member number of the nominee will be taken as his/her agreement to stand for election if selected by the Nominations Committee and to serve if elected.

6. The Nominations Committee makes no guarantee that a nominated person will be included on the ballot. The Committee will select a minimum of 12 names (as required by the Bylaws) and likely no more than 16 names to assemble a ballot that reflect the global nature of the Society. Criteria will include factors such as technical accomplishment, professional honors, leadership, and past service to the Society. The 8 individuals with the largest number of votes will become the elected AdCom members for the 2015-2017 term. The election will be administered by the IEEE and will be held from mid-August to mid-October 2015.

7. IEEE rules also allow for nomination by petition by 2% of the membership of the Society for automatic inclusion on the ballot. Based on the current membership (around 3000, as of Nov. 2015), 60 valid signatures are required for a nomination by petition. The nomination process is the same, except that the list of petitioner names, IEEE membership numbers, and original signatures must be submitted in hard copy to the Chair of the Nominations Committee on or before June 1, 2015. **FOR NOMINATION BY PETITION SIGNATURE LISTS ONLY, SEND MATERIALS TO:** Liesl Folks, IEEE Magnetics Society Nom. Com. Chair, School of Engineering and Applied Sciences, 208 Davis Hall, The University at Buffalo-SUNY, Buffalo, NY 14260, USA.

8. **All nominations shall be submitted on or before June 1, 2015** via the web link: www.ieeemagnetics.org/nominations.php.

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9. Nominators are urged to collect and check the required materials BEFORE going to the online nomination form, and to carefully proofread the entered fields BEFORE final submission. Once submitted, there is no provision for edits or corrections. For those nominations selected for the ballot, the Biographical Statement and Statement of Candidacy will be included on the ballot as submitted.

10. The members of the Nominations Committee are listed below. These individuals may also be contacted for additional information:

Bernard Dieny (bernard.dieny@cea.fr)

Koki Takanashi (koki@imr.tohoku.ac.jp)

Laura Lewis (lhlewis@neu.edu)

S. N. Piramanayagam (prem@ntu.edu.sg)

Laura Heyderman (laura.heyderman@psi.ch)

Te-Ho Wu (wuteho@gmail.com)

Tom Thomson

(thomas.thomson@manchester.ac.uk)

Thank you for your support of the Society through your membership and your participation in this process. Questions should be sent by e-mail to: liesl@ieee.org.

Spain Chapter News

By Victorino Franco, Spain Chapter Secretary / Treasurer

The annual meeting of the Spain Chapter took place at the facilities of IMDEA-Nanociencia, Madrid, during 20-21 November, 2014. As in previous years, the meeting was organized in collaboration with the Sister Society "Spain Magnetic Club" (CEMAG), with the additional sponsorship of IEEE Spain Section. Although it is usually a one-day event, in commemoration of the 50th anniversary of the foundation of the IEEE Magnetic Society, the program was extended to last for two days.

Scientific talks included: Prof. Hans-Benjamin Braun (University College Dublin and Distinguished Lecturer of IEEE Magnetics Society 2014) "Topological Effects in Nanomagnetism: From Perpendicular Recording to Monopoles," Prof. Rodolfo Miranda (Director of IMDEA

Nanociencia) "Tailoring magnetic functionalities in epitaxial graphene," Dr. Miriam Varón (Technical University of Denmark) "Dipolar Magnetism in Ordered and Disordered Low-Dimensional Nanoparticle Assemblies" and Prof. Albert Fert (Université Paris-Sud + Unité Mixte de Physique CNRS/THALES) "Spin-orbitronics, a new direction in spintronics."

The appealing scientific program attracted a large audience, which left no empty seat in the auditorium, and favored lively discussions between participants throughout the two days.

During this event, Prof. Juan Bartolomé (Aragón Materials Science Institute) received from CEMAG the Salvador Velayos Award, in recognition of the scientific achievements during his career.

Singapore Chapter News

By S.N. (Prem) Piramanayagam, Singapore Chapter Chair

The Singapore Chapter regularly organizes a Magnetics Symposium which grows bigger each year. Last year, it saw 50 speakers including two from overseas, with the Symposium papers submitted to the *IEEE Transactions on Magnetics*. This year, the event is planned for September or October and we are keen to have reputable international speakers to deliver invited talks. The digests will be targeted for publication in IEEE eXplore and the manuscripts in *IEEE Magnetics Letters*.

If interested, please contact me via prem@ntu.edu.sg.



Prof. Mitsuteru Inoue, after delivering the Plenary Lecture during the 2014 Magnetics Symposium.

Central Iowa Chapter News

By Ravi Hadimani, Central Iowa Chapter Chair

Chapter-Funded Undergraduate Paper Wins APS Best Poster Presentation Award

Erik Lee is a Junior at the Department of Electrical and Computer Engineering at Iowa State University, who recently won the "Undergraduate Presentation Award" at the American Physical Society's March (APS) Meeting. He is supervised by Dr. Ravi Hadimani and Dr. David Jiles and is an Undergraduate Research Assistant in the Magnetics Research Group.

Thanks to a grant from the Central Iowa Chapter to travel and present the accepted abstract. Erik was able to spend four days in San Antonio, Texas where he presented his work, met other undergraduate researchers, and heard presentations from three of the 2014 Nobel Prize winners.

At this meeting, Erik had the opportunity to give a poster presentation on his computational research of Transcranial Magnetic Stimulation (TMS), a noninvasive neuromodulation technique that uses pulses of magnetic fields to induce an electric field inside brain tissues. This technique allows researchers to better understand the nervous system by giving them the ability to turn on or off specific regions of the brain for an instance. Further, TMS can also be used to treat neurological disorders such as depression by inducing long term changes in brain activity.

Erik's poster titled "Determination of stimulation focality in heterogeneous head models", outlined a proposed measure for quantifying the focality of the electric field induced by TMS and showed how this focality differs with four common coil designs used in TMS therapy. He hopes to expand on this work to show how the electric field that TMS creates in the brain varies from person to person and use modeling insights to increase the efficacy of the treatment of neurological diseases with TMS.



Erik Lee receives the APS Best Poster Presentation Award.

United Kingdom & Republic of Ireland Chapter News

By Robert Stamps, UKRI Chapter Chair and Nicola Morley, UKRI Chapter Treasurer

The Magnetism 2015 conference was held in Leeds, UK during March 30-31, 2015. Student participation was supported by the Society's UKRI Chapter. The conference was the second in a series designed to provide a forum for researchers in magnetism and magnetic materials from across the United Kingdom and the Republic of Ireland to present their work and encourage networking both in the UK & RoI and further afield.

Of the 230 registrants, 105 were students and of these, 33 contributed talks and 59 presented posters. Three students earned recognition through awards from a Poster Competition (prizes of £50 provided by Nature Physics in addition to each receiving a one-year journal subscription). Latest advances across a broad range of topics were presented by a healthy representation by UK researchers. In addition, the conference

was delighted to welcome presentations from participants based in China, Finland, France, Germany, Japan, Romania, Russia, Saudi Arabia, Switzerland, Turkey, and the USA.

Distinguished Lecturer Ivan Schuller, started the conference with his 2015 lecture "35 Years of Magnetic Heterostructures." Stuart Parkin provided the conference's Plenary Lecture on "Racetrack Memory." On the second day, Laura Heyderman delivered the 2015 IOP/IEEE Wohlfarth Lecture (in memory of Peter Wohlfarth's seminal contribution to the field of magnetism), entitled "Shedding Light on Artificial Ferromagnetic Systems", and Distinguished Lecturer Russell Cowburn presented "Perpendicular magnetic anisotropy." A total of six invited talks were given out of a total of 73, and there were focussed sessions on spin ice, domain walls and vortices,

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skyrmions, spin currents, and bio-magnetism. James Dracott from EPSRC also gave a perspective on Research Council funding and outcomes. Such was the level of interest that the conference ran with two parallel sessions for all but the plenary and Wohlfarth lectures.

The conference reception provided a congenial setting for discussions on the physics of magnetism, renewing old acquaintances and developing new collaborations and

friendships. With reports of new advances by leading groups from around the world, in areas as diverse as helical magnetism to vortices in superconductors, the conference closed with a sense of excitement and anticipation of new developments just coming over the horizon. The lively discussions during question times and poster sessions indicated that this sense of discovery was also shared by members of the large student contingent. We look forward to the next in this new series of conferences.



Poster and exhibition session



A question from the audience



Laura Heyderman receiving the certificate having given the Wohlfarth lecture



IEEE Distinguished Lecturer Ivan Schuller answering audience questions

2016 Joint MMM-INTERMAG Conference

By Katy Barmak and Atsufumi Hirohata, 2015 Joint Conference Program Co-Chairs

The submission site for Invited Speakers and Symposia nominations for the 2016 Joint MMM-INTERMAG Conference is now open, and we would like to encourage you to begin thinking of and approaching candidates now.

The 2016 Joint Conference will be held in San Diego, California during January 11-15, 2016. Invited Talks and Symposia are among the most important aspects of this Conference. As in recent Conferences, the Call for Papers will be open to the community at large. Besides thematic diversity, we also strive for broad international participation and thus we

especially encourage our colleagues abroad to consider submitting nominations. The sorting categories (e.g., the general topics of interest) and additional Conference information can be found at: www.magnetism.org.

In addition, if you have general suggestions and ideas regarding the program (including Tutorials and Evening Symposia), please feel free to contact us:

Katy Barmak: katayun.barmak@columbia.edu

Atsufumi Hirohata: atsufumi.hirohata@york.ac.uk

Conference Calendar

- May 11-15, 2015 INTERMAG
Beijing, China
www.intermagconference.com
- June 1-4, 2015 9th International Conference on Power Electronics ECCE Asia (ICPE 2015)
Seoul, Korea
www.icpe2015.org
- June 5-6, 2015 PELS Workshop on Emerging Technologies: Wireless Power (2015 WOW)
Seoul, Korea
- June 23-25, 2015 Frontiers in Biomagnetic Particles IV
Telluride, Colorado, USA
<http://magneticnanoparticle.com>
- July 5-10, 2015 20th International Conference on Magnetism (ICM2015)
Barcelona, Spain
<http://www.icm2015.org>
- July 12-17, 2015 22nd International Colloquium on Magnetic Films and Surfaces
Krakow, Poland
<http://icmfs2015.agh.edu.pl/>
- September 6-10, 2015 European Conference on Molecular Magnetism (ECMM 2015)
Zaragoza, Spain
<http://ecmm2015.unizar.es>
- January 11-15, 2016 Joint MMM-INTERMAG Conference
San Diego, California, USA
www.magnetism.org

To list your conference in the Newsletter Conference Calendar, please contact the Editor

About the Newsletter

The purpose of the IEEE Magnetics Society Newsletter is to publicize activities, conferences, workshops and other information of interest to the Society's members and other technical people in the general area of applied magnetics. Manuscripts are solicited from Magnetics Society members, conference organizers, Society Officers & other volunteers, local chapters, and other individuals with relevant material.

The Newsletter is published in January, April, July and October electronically on the Magnetics Society webpage at www.ieeemagnetics.org. Submission deadlines are January 1, April 1, July 1, and October 1 respectively.

Please send articles, letters & other contributions to the Newsletter Editor:

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