

From the President

By Manuel Vázquez, President of the Magnetics Society

I am very pleased to address this welcome message to you, as incoming President of the IEEE Magnetics Society for the 2017-2018 term. This is not only a privilege for which I feel much honored, but also a big responsibility, which I expect to accomplish successfully with the help of all of the volunteers on the Administrative Committee (AdCom) and its committees.



Allow me to provide an overview of a few of the general characteristics of our Society, the largest non-profit association for magnetism governed by volunteers, with the widest representation from all over the world. This is a very healthy Society, thanks firstly to its rigorous organization, whose principles are presented in its Constitution and regulated by the Bylaws, which I recommend for reading; and secondly, thanks to the volunteers contributing to its governance.

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Small Topic Conferences: Magnetic Frontiers

Submitted by Olga Kazakova, Magnetic Frontiers Conference Co-Chair

The IEEE Magnetics Society is pleased to announce a new series of Small Topical Conferences: 'Magnetic Frontiers,' which is technically sponsored by the Society and *IEEE Magnetics Letters*. Magnetic Frontiers is designed as a series of premier topical conferences on emerging aspects of fundamental and applied magnetism.

The forum will provide a range of plenary and invited talks delivered by key researchers in the field, as well as oral and poster presentations. As there will be a small number of participants (approx. 80 people), the conference will provide a unique environment for researchers to communicate and discuss the latest developments in magnetism with the leading scientists.

The conferences will be held biennially, with the first to be held in Nancy, France, during September 18-21, 2017. The Conference Co-Chairs are Stéphane Mangin and Olga Kazakova. Conference-related papers will be published in *IEEE Magnetics Letters*.

This first event in the sequence of Small Topical Conferences is related to the emerging topic of topological insulators – unique electronic materials that, in addition to a bulk band gap, as found in ordinary insulators, have protected conducting states on their edge or surface, which are possible due to the combination of spin-orbit interactions and time-reversal symmetry. The conference will cover the following topics:

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In this regard, I would like to thank particularly my most recent predecessors, Bruce Terris and Liesl Folks. I thank Bruce for his wise leadership over the past two years; it will be my pleasure to work further with him in his role as Past-President. My gratitude extends to Liesl, now heavily involved in the organization of the ICM 2018 Conference, to be held in the USA for the first time in a number of years.

I want to welcome Pallavi Dhagat, our President-Elect, with excellent experience in the Society, and to congratulate Masahiro Yamaguchi, our newly elected Secretary/Treasurer and an outstanding volunteer from Asia. I expect to work with them both in the closest way for the benefit of our Society.

The AdCom is the management and decision-making Committee where all primary activities are presented and discussed, and motions for new actions are voted. Besides the officers, the AdCom consists of 24 voting members, elected by the direct vote of all Society members, with a third of the positions renewing each year. In addition, there are 11 Chairs of the various other committees. The dedication of the AdCom members is essential to ensuring the dynamism of the Society.

Here, I express a sincere and deserved appreciation to the outgoing elected AdCom members for their extraordinary services: Jeff Childress, Marina Diaz Michelena, Peter Fischer, Masaaki Futamoto, Stéphane Mangin, John Moreland, Ludwig Schultz and Masahiro Yamaguchi. In parallel, I warmly welcome the new elected AdCom members: Adekunle Adeyeye, Dora Altbir, Yukiko Kubota, Chih-Huang Lai, Stéphane Mangin, Manfred Rührig, Rubem Sommer and Jan Sykulski. I make a particular and grateful mention to Diane Melton, our Executive Director, who has accumulated such a vast experience in the internal organization of the Society.

As stated in the Constitution, the mission of the IEEE Magnetics Society is to promote the advancement of science, technology, applications and training in magnetism with the highest standards of professionalism and technical competency. Its vision is to be the leading international professional organization for magnetism, and for related disciplines, throughout the world. To achieve these goals, the Society is unique in providing numerous activities through the Committees.

The long-term planning of initiatives and reviewing the Constitution and Bylaws are undertaken by the Planning

Committee, which is chaired by Pallavi Dhagat, as President-Elect.

The Conference Executive Committee (CEC) is chaired by Rudi Schäfer (the considerable activity of the outgoing Chair Randy Victora is deeply appreciated). The flagship INTERMAG conference gives the Society its highest visibility, and rotates annually around the world. Every three years, it is combined with the Magnetism and Magnetic Materials (MMM) conference, organized by the American Institute of Physics. These joint MMM/INTERMAG conferences are our second-largest events.

This year, the INTERMAG conference will be held in Dublin, Ireland, during April 24-28, 2017, and is chaired by Nora Dempsey. Please, do not miss this great event, where I look forward to greeting you personally. The MMM conference will be held during November 6-10, 2017 in Pittsburgh, Pennsylvania, USA, chaired by Pallavi Dhagat.

In other news, and as agreed at the last AdCom meeting in New Orleans, I would like to announce the launch of a new series of small, highly-specialized conferences under the banner of Magnetic Frontiers. The objective is the creation of a new forum with the imprint of the Magnetics Society, where advances at the frontier of magnetism are presented. The first event in the series, with the participation of an outstanding team of plenary and invited speakers, focuses on the emergent topic of Topological Insulators. It will take place in Nancy, France, during September 18-21, 2017 and is chaired by Stéphane Mangin and Olga Kazakova, on behalf of the Society.

The Publications Committee (PubCom) is chaired by Petru Andrei, reappointed to oversee the management and coordination of the publications of the Society. The PubCom is also of major relevance to the Society in terms of visibility, as well as a primary source of revenue. The *IEEE Transactions on Magnetics* (Pavel Kabos, Editor-in-Chief) is a well-recognized, established scientific and technical journal, while the relatively new *IEEE Magnetics Letters* (Ron Goldfarb, Chief Editor) is attracting increasing interest among magnetic scientists. Gareth Hatch continues as Newsletter Editor.

Mingzhong Wu has been appointed again as Finance Chair. His experience is certainly most valuable in monitoring the financial data of the Society and to developing proposals for the budgets,

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an essential matter where special coordination with IEEE administrative professionals is additionally needed.

The activities of the Education Committee are at the core of the mission of the Society. Atsufumi Hirohata is the newly appointed Committee Chair, who will follow in the footsteps of the excellent services provided by the previous Chair, Chih-Huang Lai. The main responsibilities of this Committee include the Tutorial Sessions at INTERMAG and MMM Conferences, as well as the organization of the Summer Schools, with an annual regional rotation. These schools, significantly financed by the Society, play an excellent role in disseminating magnetism education to young magneticians around the world and to further increasing the visibility of the Society. This year the Summer School will be held during June 19-23, 2017, in Santander, Spain, and will be chaired by José Manuel Barandiarán.

The new Chair for Distinguished Lecturers (DLs) is Bethanie Stadler. Here I would like to thank Sara Majetich, our previous Chair, for her very careful and efficient service. Beth's responsibility includes the coordination of activities and the selection of DLs – outstanding scientists and brilliant speakers, with the utmost mission to spread advances in knowledge of magnetism around the world, during a specific year, sponsored by our Society. The 2017 DLs are Michael Farle, Eiji Saito, Hendrik Ohldag and Xiaofeng Jin.

The Publicity Chair is Philip Pong, reappointed for the new term to disseminate information on the activities and programs of the Society. Publicity is becoming increasingly relevant with the development of new ways of communication – so-called social media. Philip has deployed a lot of energy in this regard and has established Facebook and Twitter pages and a Group for the Society, for the broadest and fastest dissemination of news on conferences and other events. Tommy McKinnon has also extended his responsibility for the Society web site.

The Technical Committee has the mission of identifying current and future trends in magnetism, magnetic technologies and materials. In addition, it will address the actual needs of industry and the connection with jobs, a matter certainly relevant for professionals, particularly younger ones. This key activity of the Society is coordinated by Laura H. Lewis as the newly appointed Chair of the Committee. I appreciate very much the smooth and rigorous work of Prem (S.N.) Piramanayagam, the outgoing Chair.

Dan Wei is our new Membership Committee Chair, replacing Laura Heyderman, whose excellent services to the Society are deeply acknowledged. Membership of the Society has stabilized in the last few years at approximately 3,000 members, with a balanced distribution in three main regional areas: USA/Canada, Asia/Pacific and Europe. Dan has an important mission to facilities actions to increase that figure, especially in emerging countries.

Many members of the Society are located in area served by Chapters of the Society, currently 38 altogether. Oksana Chubykalo-Fesenko is the newly appointed Chapters Chair. Here I would like to express many thanks for the effective work of June Lau, our outgoing Chair. Oksana will be responsible of monitoring and suggesting new activities within Chapters, as well as to promote the creation of new ones, in apparently less-represented areas within regions such as Latin America, China, Russia and India.

Burkard Hillebrands has been reappointed as Committee Chair for Honors and Awards. Burkard, with significant experience in the Society, is in charge of managing the existing honors and awards programs of the Society and to identify appropriate opportunities for new ones. He coordinates the activities of the different subcommittees: Fellows Evaluation, Achievement Award, Distinguished Service Award, Student Travel and Presentation Awards, as well as the recently created Early Career Award.

Finally, but no less important certainly, the Nominations Committee is chaired by our Past-President, Bruce Terris, with the main charge of assembling slates of nominees for new AdCom positions and of candidates for the election of officers by the AdCom.

I would like to finish my comments by encouraging all of you, members of the IEEE Magnetics Society, with particular emphasis on young professionals and students, to participate in the exciting volunteer activities. In return, this will give you an enriching overview of current magnetism while contributing to its progress, and closer contact with colleagues. Magnetism is an open and exciting field for scientific and technological research that can offer outstanding, sometimes unexpected, reasons of satisfaction. Feel free to contact me with your new ideas or concerns for the betterment of our Society.

Manuel Vázquez can be reached via manuel.v.vazquez@ieee.org.

Magnetics Society and MMM Conference Social Media

By Philip Pong, Publicity Committee Chair

I would like to let you know about the latest status of our social media channels, and to encourage you to "Like" and to "Follow" them. As you may know, the Facebook Page and Facebook Group for the Society have been established. The number of group members for the Society's Facebook Group has reached over 320. The Society's Facebook Page has over 500 followers, with our next goal being to reach 1,000 followers.

We have also conducted a couple of Facebook publicity campaigns for the Summer School, and for INTERMAG Dublin. The advertisements have reached over 20,000 people.

The Twitter account for the Society has now been established as "IEEE MagSoc", with a username of @IEEEMagSoc. The link to the Twitter feed is <https://twitter.com/IEEEMagSoc>. A Twitter icon will be added to the Society's web site home page soon.

We have also established the social-media infrastructure for the MMM Conference. The Conference Facebook Page can be found at: <https://www.facebook.com/MMMConference/>. A Twitter account has also been created, as "MMMConference", with a username of @MMMConf. the link to the Twitter feed is <https://twitter.com/MMMConf>.

We will use hashtags such as #MMM61, #MMM62, #MMM63 and so on, to label and to identify each successive MMM conference. In this way, all of the individual MMM conferences will be are put under the same 'umbrella.'

Being concise is important on Twitter, as each tweet is limited to 140 characters. During the testing phase, we have already uploaded interesting contents (e.g. first conference announcement in 1955) and posted messages there. We will work to create interaction and coordination between the

MMMConference and IEEE MagSoc social-media channels to obtain synergism in our publicity efforts.

So, please "Like" and "Follow" these channels.

I would like to thank Zhuke who is our student helper in IT and social media. He has helped and will continue to serve as our point of contact for for #IEEEMagSoc and #MMM62.



New Senior Members

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

November 2016: Gregory Duncan, Arunava Gupta, Mark Juds, Galina Kurlyandskaya, Gary

Mankey, Cristofaro Pompermaier, R Snyder, Pieter Visscher and Ngai Wong.

For further information, visit the IEEE Web site at:

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

Small Topic Conferences: Magnetic Frontiers *cont. from page 2*

- Materials and interface design
- Characterisation techniques
- Electronic transport in topological materials
- Theory and modelling of topological materials
- Prospects for applications

Plenary Speakers:

- Prof. Albert Fert, Université Paris Sud (Nobel Prize 2007)
- Prof. Ingrid Mertig, Martin Luther Universität Halle-Wittenberg
- Prof. Nitin Samarth, Penn State University
- Prof. Zhi Xun Shen, Stanford University
- Prof. Qi-Kun Xue, Tsinghua University
- Prof. Matthias Bode, Universität Würzburg

Invited Speakers (confirmed):

- Prof. Yoshichika Otani, University of Tokyo
- Prof. Valeria Lauter, Oakridge National Laboratory
- Prof. Jing Shi, University of California, Riverside
- Prof. Yong Chen, Purdue University
- Prof. Thorsten Hesjedal, University of Oxford

- Prof. Saroj Prasad Dash, Chalmers University of Technology

Important Dates:

- January 30, 2017: First call for papers
- May 1, 2017: Second call for papers
- May 1, 2017: Abstract submission open
- June 1 2017: Third call for papers
- June 15, 2017: Abstract submission close
- July 1, 2017: Notification of orals and posters acceptance
- July 15, 2017: Registration opens
- September 1, 2017: Early registration deadline

We would like to cordially invite you to attend the conference, actively participate in its technical sessions, and to contribute to the success of this conference series.

At the heart of the Lorraine region (bordered by three countries: Belgium, Germany and Luxembourg), Nancy and the surrounding area possess an impressive architectural and art heritage. We look forward to seeing you in Nancy and welcome your contribution to an exciting and enjoyable conference.

New Book: *Introduction to Magnetic Random-Access Memory*

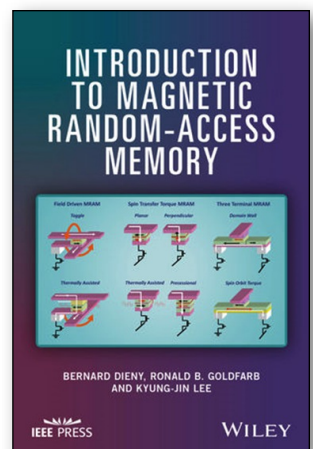
Submitted by Bernard Diény, Co-Editor, *Introduction to Magnetic Random-Access Memory*

A new book on magnetic random-access memory (MRAM) has recently been published by Wiley-IEEE Press. Titled “Introduction to Magnetic Random-Access Memory,” it has been co-edited by Bernard Diény, Ronald B. Goldfarb and Kyung-Jin Lee.

MRAM is poised to replace traditional computer memory based on complementary metal-oxide semiconductors (CMOS). MRAM will surpass all other types of memory devices in terms of nonvolatility, low energy dissipation, fast switching speed, radiation hardness, and durability. Although toggle-MRAM is currently a commercial product, it is clear that future developments in MRAM will be based on spin-transfer torque, which makes use of electrons’ spin angular momentum instead of their charge. MRAM will require an amalgamation of magnetics and microelectronics technologies. However, researchers and developers in magnetics and in microelectronics attend different technical conferences, publish in different journals, use different tools, and have different backgrounds in

condensed-matter physics, electrical engineering, and materials science.

This book is an introduction to MRAM for microelectronics engineers written by specialists in magnetic materials and devices. It presents the basic phenomena involved in MRAM, the materials and film stacks being used, the basic principles of the various types of MRAM (toggle and spin-transfer torque; magnetized in-plane or perpendicular-to-plane), the back-end magnetic technology, and recent developments toward logic-in-memory architectures. It helps bridge the cultural gap between the microelectronics and magnetics communities.



Magnetics Society New IEEE Fellows 2017

Submitted by Hiroaki Muraoka, Fellows Technical Evaluation Subcommittee Chair



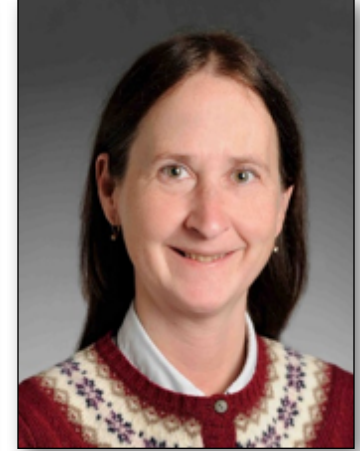
Laura Heyderman



Jordan Katine



David Lowther



Sara Majetich

Four members of the IEEE Magnetics Society were recently elected as 2017 IEEE Fellows:

- Laura Heyderman (ETH Zurich), “for contributions to nanoimprint lithography and nanostructured magnetic systems and devices;”
- Jordan Katine (HGST), “for contributions to nanoscale magnetic device design, fabrication, and characterization;”

- David Lowther (McGill University), “for contributions to and industrial applications of computer aided design in electromagnetics;” and
- Sara Majetich (Carnegie Mellon University) “for contributions to understanding of magnetic nanoparticles.”

Congratulations to each of them.

Special Poster Session on MRAM During IEDM 2016

By Bernard Dieny, Administrative Committee Member

With the rising interest of the microelectronics industry for STT-MRAM and spintronics in general, it is very important to strengthen the links between the IEEE Magnetics Society and the IEEE Electron Devices Society (EDS). The purpose is to assist in reducing the cultural gap which still exists between magnetism and microelectronics communities, and thereby ease the penetration of magnetism-based technology within the microelectronics industry.

The IEDM (International Electron Devices Meeting) is the main annual conference of the EDS. After discussion with the IEDM organizers, it was agreed for the first time to organize a special poster session during IEDM 2016 (San Francisco, December 4-7, 2016) entirely dedicated to MRAM (MRAM materials/phenomena/technology/testing, hybrid CMOS/MTJ technology and circuits and spin-logic.) This session was organized technically by the IEEE Magnetics Society and was embedded in the IEDM conference.

The call for poster submission received more than 50 abstracts, from which 33 were selected for poster presentation. The MRAM session took place in the afternoon of the second day of the conference. It was quite successful and received approx. 300 visitors from the EDS. The session has been an excellent opportunity for bringing together magnetism and microelectronics experts. It was much appreciated by both the EDS and the Magnetics Society. Several articles were published in the microelectronics press, emphasizing the MRAM visibility during IEDM such as this one: <http://semimd.com/blog/2016/12/12/mram-takes-center-stage-at-iedm-2016/>.

The session was also used to advertise our Society and our main conferences: INTERMAG and MMM. It is likely that a similar poster session dedicated to MRAM, and sponsored technically by our Society, will take place again next year at IEDM.

Conference Calendar

April 3-4, 2017 Magnetism 2017
York, UK
<http://magnetism2017.iopconfs.org>

April 24-28, 2017 INTERMAG Europe 2017
Dublin, Ireland
<http://www.intermag2017.com>

June 19-23, 2017 IEEE Magnetics Society Summer School
Santander, Spain
<http://summerschool.ieeemagnetics.org>

June 26-30, 2017 European Conference on Physics of Magnetism (PM'17)
Poznań, Poland
<http://www.ifmpan.poznan.pl/pm17/>

July 3-7, 2017 Introductory Course on Magnetic Random Access Memory
Grenoble, France
<http://www.inmram.com>

September 3-6, 2017 18th. Int. Symposium on Applied Electromagnetics & Mechanics (ISEM2017)
Chamonix, France
<http://www.isem2017.org>

October 9-21, 2017 The European School on Magnetism (ESM 2017)
Cargèse, Corsica, France
<http://www.magnetism.eu/66-esm-2017.htm>

November 6-10., 2017 62nd Annual Conf. on Magnetism and Magnetic Materials (MMM 2017)
Pittsburgh, PA, USA
<http://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.

Contributions are solicited from Magnetics Society members, conference organizers, Society Officers & other volunteers, local chapters, and other individuals with relevant material. The Newsletter is published quarterly on the Magnetics Society webpage at

<http://www.ieeemagnetics.org>.

Please send articles, letters & other contributions via email to the Newsletter Editor, Gareth Hatch, at g.p.hatch@ieee.org.

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