IEEE Magnetics Society
NEWSLETTER

Gareth Hatch, Editor

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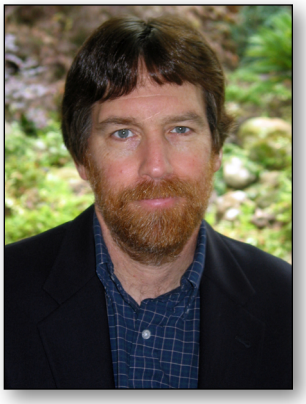
From the President

By Bruce Terris, President of the Magnetics Society



I began my second year as President of the Society this past January, at the Joint MMM / INTERMAG conference in San Diego. Congratulations to Conference Chair Bruce Gurney and his management team for a very successful conference. The conference continues to thrive, and received over 3,000 abstract submissions, accepted over 1,800 oral and poster papers, and had over 1,700 paid registrants. Each conference continues to innovate and bring new events and features, and this year was no exception. Among the special events this year were a Young Professionals Networking Event, two evening sessions on new magnetic technologies and devices, and 'meet the expert' and 'meet the speakers' lunches for students. Please join me in extending congratulations to Bruce and his team, and to the MMM conference on celebrating its 60th anniversary.

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INSIDE THIS ISSUE...

David Jiles Appointed NAS Jefferson Science Fellow

By Gareth Hatch, Newsletter Editor

David Jiles, Palmer Endowed Chair of the Department of Electrical and Computer Engineering at Iowa State University, has been selected as a Jefferson Science Fellow by the US National Academies of Sciences, Engineering, and Medicine.

An IEEE Fellow and past Editor-in-Chief of the *IEEE Transactions on Magnetics*, Dr. Jiles will spend 12 months in Washington, DC, with the US Agency for International Development (USAID) as a scientific advisor. Following his fellowship year, Dr. Jiles will return to Iowa State as a Distinguished Professor.

The Fellowship program was established in 2003 to further build capacity for science, technology and engineering expertise within the US Department of State and USAID.

More details on the Fellowship program can be found at

http://sites.nationalacademies.org/PGA/Jefferson/

From The President

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As is customary, the Magnetics Society held its biannual AdCom meeting at conference. There were a number of highlights from the meeting.

Petru Andrei has succeeded Ron Goldfarb as Publications Chair. Petru has been serving as Associate Chair, and I thank him for accepting the position as Chair. Ron will become Associate Chair and will continue to support Petru and the rest of the Publications team. We all thank Ron for his many years of service as Publications Chair.

A new award has been approved by AdCom, the Early Career Award. This award will be given to an individual, nominated not more than five years after completion of his or her PhD degree, and who has shown outstanding scientific or technical achievements, which are significantly beyond the average performance of a person at that career level.

On the topic of awards, please consider nominating your colleagues for this new award, as well as the other Magnetics Society Awards. Our awards program relies on continuing to receive high-quality nominations, and the best nominations come from nominating your peers and colleagues. Do not assume someone else will do it – do it yourself. Instructions on the simple process can be found on the Society web site, **http://www.ieeemagnetcs.org**.

The Conference Executive Committee has decided to return INTERMAG to North America. Since 2012, INTERMAG has been alternating between Asia and Europe, and only the Joint MMM/INTERMAG conference is currently held in North America. INTERMAG 2020 will be planned for North America, at a location yet to be determined.

We had two IEEE guests attend our AdCom meeting: Bill Moses, Division IV Director, and Tom Coughlin, Region 6 Director. They were both very impressed with the vibrancy of the conference and of our Society, and Bill in particular commented on the amazing success of our Distinguished Lecturers program.

Lastly, as I wrote in the last edition of the Newsletter, there is a proposed change to the IEEE constitution that may be placed on the IEEE election ballot this fall. Briefly, the proposal is to restucture the IEEE governance process to better enable strategic thinking. This is a complicated and intensely debated issue, with strong views on both sides. The proposal has been made by the Board of Directors, and was the topic of 3-4 hours of heated questioning at the February Technical Activities Board (TAB) meeting, with more discussion scheduled for the June meeting (TAB meetings are only 1.5 days long.)

All changes to the constitution need to be approved by a vote of the IEEE members. I encourage all members to read about the proposed changes and to vote this Fall. You can learn more at the IEEE web site:

http://www.ieee.org/about/corporate/election/2016_constitutional_amendment.html.

The opposition web site can be found at:

http://bit.ly/Save-IEEE-Constitution

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

Laura Heyderman Presents APS Beller Lecture

By Gareth Hatch, Newsletter Editor

At the 2016 American Physical Society (APS) March Meeting in Baltimore, Laura Heyderman was invited to present a lecture as part of the Beller Lectureship program, titled 'Artificial Ferroic Systems.' This program provides funding and support to bring distinguished physicists from abroad to present invited talks at APS meetings.

Dr. Heyderman is Professor of Mesoscopic Systems at the Department of Materials, ETH Zurich, and Magnetics Society Membership Committee Chair. Her Lectureship was sponsored by the APS Topical Group on Magnetism and Its Applications (GMAG.)

Dr. Heyderman was presented with a certificate acknowledging her Lectureship, by Suzanne te Velthuis, Chair of GMAG (photograph by Ken Cole / American Physical Society.)

Special MRAM Poster Session at IEDM 2016

By Bernard Dieny, Administrative Committee Member, and Bruce Terris, Magnetics Society President

With the rising interest of the microelectronics industry in STT-MRAM and spintronics in general, it is vital to strengthen the links between the IEEE Magnetics Society and the IEEE Electron Devices Society (EDS). Such links contribute to reducing the cultural gap that still exists between the magnetism and microelectronics communities, thereby easing the penetration of magnetism-based technology into the microelectronics industry.

The International Electron Devices Meeting (IEDM) is the main annual conference of the EDS. After intense discussion with IEDM organizers, it has been agreed for the first time to organize a special poster session during this year's IEDM (San Francisco, December 4-7, 2016), to be entirely dedicated to MRAM, including MRAM materials, phenomena, technology and testing, hybrid CMOS/MTJ technology and circuits, and spin logic.

This session will be organized technically by the IEEE Magnetics Society and embedded in the IEDM conference. It will appear as a special memory session in the conference program and will be a great opportunity for us to meet colleagues from microelectronics community. We strongly encourage teams from our community working on MRAM to send attendees to IEDM and to present posters related to MRAM, spintronics circuits or spin logic, during this special poster session.

The posters will be selected by a small program committee formed by members of the IEEE Magnetics Society. There will be no papers associated with these posters published in the Proceedings of the IEDM. Of course, any presenting author can also submit regular digests for oral presentations following the usual procedure of IEDM organization (see **http://ieee-iedm.org/**).

For this special poster session, it would be great to gather at least 30 posters. The session will also be used to advertise our Society and our main conferences, INTERMAG and MMM, within the microelectronics community. More details will be sent later via the IEEE Magnetic Society email list, but please mark the event on your calendar.

Advances in Magnetics AIM 2016 Conference Review

By Ermanno Cardelli, AIM 2016 General Conference Chair

The Advances in Magnetics (AIM) conference was held in Bormio, Italy, during March 14-16, 2016, in front of stunning Alpine scenery.

The event was jointly organized by the IEEE Italy Section, Associazione Italiana di Magnetismo, the Italy Chapters of the IEEE Magnetics Society, the Instrumentation and Measurements and the Electromagnetic Compatibility Societies, and the Department of Engineering of the University of Perugia, Italy.

AIM is a forum for presentation and discussion of the most recent advancements in all fields of magnetics: theory, numerical modeling, experiments and applications. The event gave an opportunity to scientific experts from a range of different backgrounds (including engineers, physicists, mathematicians, material scientists, chemists and biologists) to present, discuss, and exchange ideas, methods and results.

The main topics of AIM included fundamental properties, modeling and numerical computation, motors, generators, transformers and other power devices, electromagnetic compatibility, magnetic levitation and propulsion, sensors, measurement techniques and instrumentation, materials, nondestructive evaluation, magnetic recording, micro- and nano-structures, spin electronics, bio- and chemical magnetism, and other applications.

The three-day event included invited and contributed talks, organized in different sessions, each coordinated by an appointed chair.

A total of 226 short papers were submitted and 196 of these were accepted for presentation at the conference, after a blind peer-review process.

The Magnetics Society on Facebook

By Philip Pong, Publicity Committee Chair

The Publicity Committee has established a Facebook Group and Page for the Society in order to promote interaction among the magnetism community (via the Facebook Group) and with the general public (via the Facebook Page). We have uploaded photos of past INTERMAG conferences and videos of Distinguished Lectures onto the Facebook Page to enrich their content.

Please join our Facebook Group via:

https://www.facebook.com/groups/531470343668591/

Please like our Facebook Page via:

https://www.facebook.com/ieeemagsoc

The Society Facebook Group provides a casual and relaxing platform for the magnetism community to share information and to interact with each other. Everyone interested in magnetism is encouraged to join this Group. Some examples of how members (engineers, academics and students) can use the Group to achieve different purposes:

- Announcements for magnetism-related events: e.g., conferences, workshops, symposiums, summer schools;
- Sharing of important magnetism news, papers and achievements: e.g., news articles, journal publications, outstanding research awards, best paper awards, etc.;
- Seeking / announcement of various opportunities, e.g. PhD openings, postdoc openings, visitorship openings, job openings, etc.;
- New magnetic products or services;
- To form lunch or dinner groups during INTERMAG conferences;

and many more!

Facebook can provide an additional means for members to have interactions in a casual way, and members can use it just like a traditional online forum, but with more features and functions inherent to Facebook.

We hope that you will enjoy the Society Facebook Group and Page and find it useful. Feel free to use it. See you on Facebook!

13th Joint MMM-INTERMAG 2016 Plenary Session

By Burkard Hillebrands, Honors & Awards Committee Chair

The plenary session of the 13th Joint MMM-INTERMAG 2016 Conference took place on January 13, 2016, in the Hilton Bayfront hotel in San Diego, California. It was the central event of the conference, giving the participants opportunity to gather together to participate in Magnetics Society activities such as the award ceremony and the plenary lecture, and to meet afterwards at the reception.

The plenary session was opened by the Conference Chair, Dr. Bruce Gurney. In his opening address he first described the venue, the landmarks and the history of San Diego. Next he introduced the conference committee and the many volunteers who made the conference such a success. The conference committee comprised Atsufumi Hirohata and Katayun Barmak (Program Chairs), Mark Kief (Treasurer), Cindi Dennis and Petru Andrei (Publication Chairs), Tiffany Santos (Exhibition Chair), Brian Maranville (Publicity Chair), Barry Zink and Chih-Huang Lai (student awards), Matt Carey and Barry Zink (student travel), and Bill Burke and Randy Victora (sponsor representatives). Conference editors were Laura Henderson Lewis and Vincent Crespi and Conference managers were Diane Melton and Molly Bartkowski. Exhibits were handled by Jennifer Fiske, abstracts and publications by Regina Mohr, and registration by Ashley Cesare. Dr. Gurney also thanked all members of the Program Committee and the publication editors. In all, 177 session chairs including co-chairs ensured a smooth operation. The audience thanked them all for their hard work with a big round of applause.

Fully 3,013 abstracts from 50 countries around the world were submitted and reviewed. In total, the conference comprised 8 symposia and 151 sessions, with 96 invited presentations and 1,813 contributed presentations.

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Obituary: Stanley Charap

By Roger Wood, Administrative Committee Member, and Burkard Hillebrands, Honors & Awards Committee Chair

Stanley H. Charap was born on April 21, 1932, in Brooklyn, New York. He received the bachelor's degree in physics from Brooklyn College in 1953 and the PhD degree in physics from Rutgers University in 1959.

Dr. Charap was a research staff member at the IBM Research Laboratory in New York from 1958 to 1964. He was at the American-Standard Research Laboratory in Piscataway, New Jersey, until 1968, when he joined the Electrical Engineering Department of Carnegie Mellon University (CMU) in Pittsburgh, Pennsylvania. He was Associate Head of the department from 1980 to 1985 and Acting Head from 1981 to 1982.

Dr. Charap worked in industry as a consultant to the Westinghouse Research Center and DuPont, spending a summer working at Bell Labs and another at Control Data Corporation. He was a founding member and the Associate Director of the Data Storage Systems Center at CMU from its formation in 1990 until his retirement as Professor Emeritus in 2006. He was also active in the Faculty Senate at CMU.

Dr. Charap made numerous contributions to magnetics and magnetics education. He carried out theoretical research in magnetism in solids, ranging from low-temperature behavior to Preisach models and magnetic viscosity. His early research included fundamental work on spin wave theory in ferromagnetic metals and domain wall dynamics. Dr. Charap's work on magnetic bubbles in garnets and on current sheet drive for bubbles anticipated developments at Bell Labs in these areas. The results of measurements of Bloch's $T^{3/2}$ law in nickel and iron were included in Kittel's popular text.

Perhaps most significantly, Dr. Charap's work on magnetic viscosity in high-density recording media, highlighted in an invited paper at the 1996 Magnetic Recording Conference (TMRC), presaged the key factor of thermal decay, which has come to limit the areal densities of magnetic recording found in today's hard disk-drives.

Dr. Charap published more than 60 papers in technical journals and co-edited the first English edition of Soshin Chikazumi's text, *Physics of Magnetism*, which has been widely used in the education of a generation of researchers in magnetics.

Dr. Charap was an IEEE Fellow and served as an Editor and as Editor-in-Chief of the *IEEE Transactions on Magnetics*. He was Chairman of the 1986 Conference on Magnetism and Magnetic Materials (MMM) and of the joint MMM-INTERMAG conference in 1994. He held a number of offices within the Magnetics Society, including that of President for 1991-1992.

Dr. Charap served as a Magnetics Society Distinguished Lecturer and was the recipient of several awards, including the Outstanding Research Award of the CMU Engineering College, the IEEE Millennium Medal, the Achievement Award of the National Storage Industry Consortium, and the IEEE Magnetics Society Achievement Award (the highest award given by the IEEE Magnetics Society). In 2008, he received the prestigious IEEE Reynold B. Johnson Award for "quantitative prediction of the superparamagnetic limit for magnetic recording."

Stan passed away on May 8, 2013, and is survived by his wife, Marilyn, two sons, Joshua and Lawrence, and two grand children.

Back Issues Wanted

The Magnetics Society would like to post back issues of the Magnetics Society Newsletter on its Web site.

We have a number of documents ready for scanning but are still missing a significant number of back issues. If you have old print copies of the Newsletter that you could scan or loan to us for scanning, please contact Newsletter Editor Gareth Hatch via g.p.hatch@ieee.org.

Thanks!

Obituary: John Mallinson

By Roger Wood, Administrative Committee Member, and Burkard Hillebrands, Honors & Awards Committee Chair

John Mallinson was born on January 30, 1932, in Bradford, Yorkshire, in the UK. He received the BA and MA degrees from University College, Oxford, in 1953 and, subsequently, an honorary doctorate in 1997. After Oxford, he spent three years as a pilot in the Royal Air Force where he developed a love of flying that remained with him throughout his life.

In 1956, Dr. Mallinson emigrated to the United States and worked at AMP Inc., Harrisburg, Pennsylvania, where he studied the magnetic properties of ferrites. In 1962, he joined Ampex Corporation in Redwood City, California, where he headed the Research Division, looking at all aspects of magnetic-tape and hard-disk-drive systems. At Ampex, Dr. Mallinson received the Alexander M. Poniatoff Gold Achievement Award "for Leadership in the Theory and Practice of Magnetic Recording."

In 1984, Dr. Mallinson became the founding director of the Center for Magnetic Recording Research (CMRR) at the University of California, San Diego. He was able to quickly attract world-class faculty to join the Center and, during his tenure, was able to double the number of industrial sponsors.

Dr. Mallinson had a long list of publications and awards. He authored four textbooks, *The Foundations of Magnetic Recording* (1987 and 1994), *Magneto-Resistive Heads, Fundamentals and Applications* (1996) and *Spin Valves and Magneto-Resistive Heads* (2002). These were printed in English by Academic Press and in Japanese by Maruzen Publishing. He published over 80 peer-reviewed papers, four review articles and six contributed book chapters. In later years, Dr. Mallinson became a popular lecturer, teaching an intensive short-course on magnetism and magnetic recording at the key companies in the data-storage business. He also spent time as a visiting professor at universities and research institutions around the world, including Sweden, Japan, Holland, and the UK.

Dr. Mallinson contributed in many ways to the Magnetics Society, as an Editor of the *IEEE Transactions on Magnetics*, organizing international conferences, and chairing the San Diego Chapter. He was elevated to IEEE Fellow in 1982 and was a Distinguished Lecturer for 1984. In 2007, he received the IEEE Magnetics Society Achievement Award (the highest award given by the IEEE Magnetics Society.)

For lay people, Dr. Mallinson's most recognizable achievement relates to his 1973 paper expounding on "One-sided Fluxes – a Magnetic Curiosity". This is now also known as the Halbach geometry: magnetization can be arranged such that the magnetic flux appears outside of only one side of the structure. This proved to be much more than a curiosity, as attested to by their ubiquitous use in sealing refrigerator doors and as decorative refrigerator magnets.

Aside from magnetism and magnetic recording, Dr. Mallinson's diverse hobbies included rock climbing, bee keeping, bird watching, and, in particular, all things aeronautical. He was an avid pilot who would fly out over Half Moon Bay to practice his aerobatics. Dr. Mallinson's house overlooked the runway at San Francisco airport, and he was a volunteer for many years at the Hiller Air Museum at San Carlos airport.

Dr. Mallinson passed away on December 24, 2016, and is survived by his wife, Phebe, his two daughters, Caroline and Elizabeth, by 5 grandchildren and 2 great-grandchildren.

New Senior Members

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

February 2016: Dingsheng Lin, Patrick McGary and Peter Metaxas.

March 2016: Christian Kunusch.

For further information, visit the IEEE Web site at:

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

MMM-INTERMAG 2016 Plenary Session *continued from page 4*

This joint conference was also the 60th Magnetism and Magnetic Materials Conference. Bruce Gurney illustrated this anniversary with a collection of all 60 abstract booklet covers and a few anecdotes from the early conferences.

Before the presentation of awards began, two long-time contributors to the Magnetics Society who recently passed away were remembered: Stanley H. Charap (1932–2013) and John C. Mallinson (1932–2015). The Honors & Awards Committee Chair, Dr. Burkard Hillebrands, recalled the many ways in which Dr. Charap contributed to the Magnetics Society. He served as an Editor and as Editor-in-Chief of the *IEEE Transactions on Magnetics*, as chairman of the 1986 Conference on Magnetism and Magnetic Materials (MMM) and of the joint MMM-Intermag conference 1994 and held a number of offices in the Magnetics Society, including that of President in 1991-1992. Among his many honors were the IEEE Millennium Medal, the Achievement Awards of the National Storage Industry Consortium and of the IEEE Magnetics Society, and the 2008 IEEE Reynold B. Johnson Award. John Mallinson was the founding director of the Center for Magnetic Recording Research (CMRR) at the University of California. Among his many honors was the 2007 Achievement Award. More detailed obituaries for these gentlemen can be found elsewhere in this edition of the Newsletter.

Dr. Hillebrands led the audience through the awards part of the session. The IEEE Magnetics Society Achievement Award is awarded every year to a Society member who has made extraordinary contributions to the field of magnetism. Previous recipients have included such distinguished scientists, engineers and managers as Floyd Humphry, Emerson Pugh, Bill Doyle, H. Neal Bertram, Isaak Mayergoyz, John Slonczewski, Michael L. Mallary, Randall Victora and Takao Suzuki. This award is the highest honor bestowed by the Magnetics Society. The recipient at this conference was Prof. Luc Berger "for contributions to theoretical studies on metallic ferromagnets crucial to data storage, nanotechnology and magnetism, including SWASER, current-induced switching, spin-transfer torque, relaxation, and domain wall resistance." The award, consisting of a certificate, a $3,000 cash award, a travel allowance and life membership in the Magnetics Society, was presented by Magnetics Society President Bruce Terris.

In 2015 the IEEE Magnetics Society Distinguished Service Award was established to honor outstanding service to the Magnetics Society. Recipients are characterized by sustained voluntary service significantly beyond the typical activities. This award was presented at this conference for the first time. The inaugural recipient was Ron Goldfarb of the National Institute of Standards and Technology (NIST) in Boulder, Colorado. He received the 2016 Distinguished Service Award "for two decades of leadership in advancing the quality and operational excellence of Magnetics Society and IEEE publications." The award consists of a certificate, a $2,000 cash award, a travel allowance and life membership in the Magnetics Society. The award was presented by Dr. Terris.

This year an important IEEE award has been received by a member of the Magnetics Society. The recipient of the 2015 IEEE Daniel E. Noble Award for Emerging Technologies is Mark G. Allen, Alfred Fitler Moore Professor at the Department of Electrical and Systems Engineering, Singh Center for Nanotechnology, University of Pennsylvania in Philadelphia.

In 2016 a total of seven members of the Magnetics Society have been elevated to the grade of IEEE Fellow. They were presented next. The IEEE Grade of Fellow is conferred by the Board of Directors of the IEEE upon a person with an extraordinary record of accomplishments in any of the IEEE fields of interest. The total number selected in any one year does not exceed one-tenth of one percent of the total voting institute membership. The new Follows are Claudia Felser, Mohammad Islam, Sheldon Kennedy, Zhiwu Li, Kai Liu, Thomas Silva and Ping Zhou.

Next, the Honors and Awards Chair thanked the 2015 Distinguished Lecturers for their work they have done in the past year, giving lectures all around the world, and, jointly with the Distinguished Lectures Chair, Prof. Sara Majetich, he presented them with Certificates of Appreciation. They were Russell Cowburn, Ivan K. Schuller, Ludwig Schultz, and Bethanie Stadler.

The new 2016 Distinguished Lecturers were introduced: Greg Carman (UCLA), Josep Fontcuberta (ICMAB-CSIC, Barcelona), Kazuhiro Hono (NIMS, Tsukuba) and Teruo Ono (Kyoto University).

Dr. Hillebrands thanked Jinliang He and Kaizhong Gao, Chairs of the 2015 INTERMAG conference in Beijing, China, for organizing an exciting and very successful conference.

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MMM-INTERMAG 2016 Plenary Session *continued from page 7*

It is a good tradition to thank those chairs and members of the Society´s Administrative Committee (AdCom) who are rotating off. They were called on the stage, where they were presented with Certificates of Appreciation. They were Oksana Chubykalo-Fesenko, Nora Dempsey, David G. Dorrell, Claudia Felser, Pavel Kabos, Bo Liu, Kai Liu and Jan Sykulski.

Each year the Magnetics Society sponsors a summer workshop for students, where some 50 students attend a five-day workshop given by some of the best scientists working in magnetism. This program is run by the Education Committee. Dr. Hillebrands presented a Certificate of Appreciation to thank the Chairs of the Student Workshop in 2015, Beth Stadler and Randy Victora. They very successfully organized the 2015 summer school in Minneapolis, Minnesota.

Next, Dr. Hillebrands introduced the 2016 Best Student Presentation Award winner and the other finalists. Five students were selected as finalists, following the submission of abstracts to the conference and a review of their applications, based on the likely quality and impact of their work. The winner was Afshin Houshang (University of Gothenburg, Sweden) with his presentation "Toggling synchronization in nano-contact spin torque oscillators." He received a certificate and a $1,500 cash award. The other finalists were Yan Ni (Iowa State University), Noriyuki Sato (Stanford University), David Ellsworth (Colorado State University) and Sergiu Ruta (University of York, UK). They all received a certificate and a $250 cash award.

Since this was a joint conference, the American Physical Society's Topical Group on Magnetism and Its Applications (GMAG) also identified five Best Student Paper Award finalists. They were Jizhai Cui (UCLA), Natalia Rinaldi-Montes (University of Oviedo, Spain), Xufeng Zhang (Yale University), Safeer Chenattukuzhiyil (SPINTEC/Néel Institute), Du Ye (Tsukuba University), and Anil Rajapitamahuni (University of Nebraska, Lincoln). The winner was Natalia Rinaldi-Montes with her presentation "Breakdown of the antiferromagnetic order in transition metal oxide nanoparticles: A matter of size."

As part of its commitment to keeping the field of magnetism vibrant, the Magnetics Society provides travel grants for students to attend Society-sponsored conferences. Generally, these are students in masters or PhD programs within a year or so of graduating. Their vitality and enthusiasm brings a fresh perspective to the conference, and the students have a chance to learn more about how conferences and publications feature into being a professional scientist or engineer.

The highlight of each Plenary Session is the Plenary Lecture. Professor Ali Hajimiri from Caltech gave an exciting lecture on "Magnetic solutions for diagnostics and therapeutics."

Following the Awards Ceremony, the conference attendees met at the reception and used the opportunity for discussions and exchange.

MMM-INTERMAG 2016 Student Travel Grant Reports

By Burkard Hillebrands, Honors & Awards Committee Chair

Each recipient of a student travel grant award from the Magnetics Society is asked to write a brief summary of their conference experience. The following are extracts from the summaries written after the 2016 Joint MMM-INTERMAG Conference in San Diego.

* * *

"I am very appreciative to have been able to attend MMM-INTERMAG 2016 in San Diego. Being able to present my work and improve my presentation skills at such a conference was invaluable. Additionally, the interaction with fellow researchers has given me new insight, and ideas to further my own research interests."

-- Frank Abel, University of Delaware, USA

"I participated in many interesting oral and poster presentations. This helped me broaden my scope and knowledge. In addition, I met a few scientists and was able to talk to them about some interesting research topics and additional collaboration in the future. It was a privilege and I am already looking forward to next year's conference."

-- Amir Aslani, George Washington University, USA

"I would like to thank the Magnetics Society for the opportunity to attend this prestigious conference in such a beautiful city. It ignited new ideas for me on research in magnetics, gave me valuable feedback on my ongoing project, and enriched my professional network. It was an excellent event!"

-- Jing Bao, Eindhoven University of Technology, The Netherlands

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MMM-INTERMAG Student Travel Reports *continued from page 8*

"The 2016 Joint MMM-INTERMAG Conference was truly impactful! I had the opportunity to present my work, meet world-renowned experts and broaden my knowledge through exposure to the latest scientific developments and engineering feats in magnetics. My sincerest thanks for the tremendous exposure to such a fantastic conference!"

-- Garrett Clay, Oregon State University, USA

"Apart from finding interesting papers, presentations as well as poster sessions in my field, I have had a great chance to interact with people from different backgrounds and to learn new, exciting things, especially in the poster session, where I could interact directly with authors."

-- Mitrofan Curti, Eindhoven University of Technology, The Netherlands

"The variety of topics promoted a brainstorm of ideas and it was a good update on the actual scientific scenario and tendencies on magnetism. It also gave me the chance to grow my network and greet some old colleagues and friends. I am very thankful to the Awards Committee for this opportunity."

-- André Dias, CNRS Grenoble, France

"The 2016 Joint MMM-INTERMAG conference in San Diego gave me a precious opportunity to meet with colleagues and experts in magnetism. The fabulous presentations inspired me a lot. A nice experience in my PhD life. Thank you Magnetics Society for offering this travel grant!"

-- Min Fan, North Carolina State University, USA

"The sessions on magnetic refrigeration were extremely interesting to me and I could have discussions with many different experts on the field. The presentations outside of my own area were also really fascinating."

-- Tino Gottschall, Technical University of Darmstadt, Germany

"MMM-INTERMAG 2016 was an experience unlike any previous event I have attended. The conference was invaluable not only in the learning experience but in understanding the place of my own research in the field as a whole. Special thanks to two Santa Cruz PhD students who invited me to visit their lab directly after the conference. A brilliant networking event."

-- Raymond Lamb, University of Glasgow, UK

"Thanks to the generosity of the IEEE Magnetics Society, I was able to witness first-hand the advancement of science and technology in my chosen field of research. While I learned a lot many critical details by attending the presentations and the poster sessions, I found great value in meeting the authors of numerous articles I have been reading in the past several years."

-- Steven Louis, Oakland University, USA

"I went to the Woman In Magnetism Networking Event which allowed me to communicate with successful senior women engineers and professors in magnetics and to share their experience. The whole conference experience brought me new insights in the development of magnetics, and encouraged me to study and devote myself as a female magnetics researcher."

-- Yan Ni, Iowa State University, USA

"Being able to present my work and directly interact with the scientific and industrial community made me realise how my work integrates with their needs. The conference covers a large number of topics, giving an overview of the current research, which is valuable for my future career."

-- Sergiu Ruta, University of York, UK

"Interacting with scientific groups from all over the world, meeting colleagues, attending interesting sessions on topics you are currently working on or on new related fields, divulging the results you have been working on the last months. These are good ingredients for experiencing a fruitful conference and that's what I found at MMM-INTERMAG 2016."

-- Enric Stern-Taulats, University of Barcelona, Spain

"I had great discussions with researchers from different fields of magnetism at my poster and after my talk. I would like to thank the organizers of the conference for running a great event, which provided me with the possibility to make new connections all over the world. I'm looking forward to attend this conference again."

-- Alexandra Terwey, Universität Duisburg-Essen, Germany

"I'd like to thank the IEEE Magnetics Society for the travel grant, giving me the opportunity to attend MMM-INTERMAG. I got valuable feedback for my talk via discussions with experts in my field. Furthermore, it was a great opportunity to enhance my network and to boost collaborations in the near future."

-- Pelin Tozman, Trinity College Dublin, Ireland

"MMM-INTERMAG 2016 provided me a good opportunity to make acquaintances of young professionals from all over the

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MMM-INTERMAG Student Travel Reports *continued from page 9*

world. We talked about the latest advancements and trends for the future development of electrical machines and drives. Also, the scenery is so beautiful! We all experienced a distinguished conference!"

-- Yu Wang, Nanjing University of Aeronautics and Astronautics, China

"This conference was really helpful, and I got the chance to meet experts, researchers and students in this area, which expanded my horizon. I am grateful for this chance as I believe my experience from this conference will have a long-term impact on my future career."

-- Shuo Wang, University of Technology Sidney, Australia

"The 2016 MMM-INTERMAG conference was a great experience for me. It was the first conference that I attended. The Student Travel Grant gave me an opportunity to learn about the new and groundbreaking work currently being undertaken in the magnetism and spintronics field. The conference gave me a very valuable opportunity to present my results and learn from fellow researchers."

-- Jie Zhang, IBM Almaden Research Center, USA

MMM-INTERMAG 2016 Best Student Presentations

By Burkard Hillebrands, Honors & Awards Committee Chair

The winner of the Best Student Presentation Award was selected at the 13th Joint MMM-INTERMAG Conference 2016 in San Diego. All presentations were excellent, and the finalists contributed papers of great interest to the conference attendees. Congratulations to the winner and other finalists!

Winner: Afshin Houshang, University of Gothenburg

Title: Toggling synchronization in nano-contact spin torque oscillators.

Finalist: Yan Ni, Iowa State University

Title: Ultrahigh sensitivity of anomalous Hall-effect sensor based on Cr-doped Bi_2Te_3 topological insulator thin films.

Finalist: Noriyuki Sato, Stanford University

Title: Fine-tuning of Rashba and spin-Hall-induced torques in perpendicular Ta/CoFeB/MgO multilayer through oxidation degree control.

Finalist: David Ellsworth, Colorado State University,

Title: Photo-spin-voltaic effect.

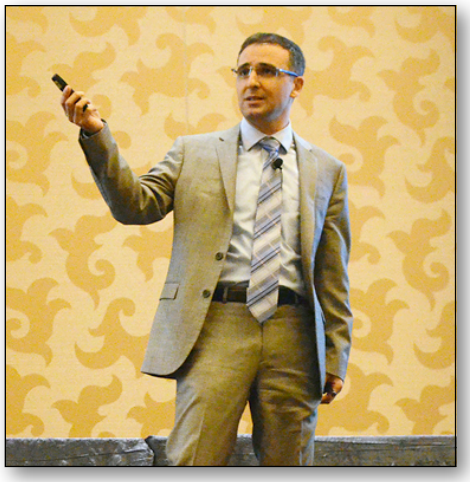
Finalist: Sergiu Ruta, University of York

Title: Unified model of hyperthermia via hysteresis heating in systems of interacting magnetic nanoparticles.

MMM-INTERMAG 2016 Plenary Session: In Pictures

Submitted by Burkard Hillebrands, Honors & Awards Committee Chair

Conference Chair Bruce Gurney, giving the opening address



Ali Hajimiri delivering the Plenary Lecture

At the reception

At the reception

At the reception

At the reception

Conference Calendar

April 11-15, 2016	20th Conference on Solid Compounds of Transition Elements SCTE 2016 Zaragoza, Spain http://scte2016.unizar.es
June 5-8, 2016	IEEE International Conference on Microwave Magnetics 2016 Tuscaloosa, AL, USA http://icmm2016.ua.edu
June 26-30, 2016	Magnetic North V Conference Colorado Springs, CO, USA http://www.magneticnorth.mun.ca/MagNorthV/
July 4-7, 2016	12th Int. Workshop on Magnetism and Superconductivity at the Nanoscale Coma-ruga, Spain http://www.ub.edu/gmag/comaruga/
August 17-19, 2016	The Magnetic Recording Conference TMRC 2016 Stanford, CA, USA http://nanomag.stanford.edu/tmrc-2016
August 21-26, 2016	8th Joint European Magnetics Symposium (JEMS 2016) Glasgow, UK http://jems2016.iopconfs.org
August 28 - September 1, 2016	24th Int. Workshop on Rare-Earth & Future Permanent Magnets (REPM 2016) Darmstadt, Germany http://www.repm2016.org
January 18-19, 2017	Magnetics 2017 Orlando, FL, UA http://www.magneticsmagazine.com/conferences/

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.

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