



From the President

By Liesl Folks, President of the Magnetics Society

The year so far has been a blur of Magnetics Society activities! The Distinguished Lecturers have been touring the world delivering their marvelous seminars to record crowds; magnetics conferences on a wide range of topics have been sponsored in many corners of the globe. We are closing fast on the major event that usually closes our annual calendar of meetings, namely the Magnetism and Magnetic Materials (MMM) Conference which will be held in Denver, Colorado, 4-8 November 2013. I hope to see many of you at that event, which has a packed



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AdCom to Vote on Co-Sponsorship of New Journal

By Ron Goldfarb, Magnetics Society Publications Chair

The IEEE Solid-State Circuits Society has obtained IEEE approval for a new, open-access, all-electronic journal, "IEEE Journal on Exploratory Solid-State Computational Devices and Circuits," to be launched in 2014. The Magnetics Society has been invited to be a co-sponsor, and our Administrative Committee (AdCom) will vote on it at its meeting in November.

Pending AdCom approval, members who are interested in serving as the journal editor representing the Magnetics Society should contact Ron Goldfarb, r.goldfarb@ieee.org. The editor would be expected to help promote the new journal to our members. The scope of the journal will be multidisciplinary research in solid-state materials, devices, and circuits for novel, energy-efficient computation beyond standard complementary metal-oxide semiconductor (CMOS) technology.

Its focus will be on the exploration of materials, devices and circuits for computation to enable Moore's Law to continue for computation beyond a 10 to 15 year horizon (beyond the end of

the roadmap for CMOS technologies) with the associated density scaling and improvement in energy efficiency. Examples of appropriate topics are research milestones in materials, devices and circuits for computation based upon: quantum electronics (e.g., tunneling), spintronics and nanomagnetism, straintronics (piezo-electric devices), plasmonics, functional materials, high fan-in/fan-out logic circuits, and reconfigurable and non-volatile computational circuits.

Each paper will have 2 parts: The first part will be a concise 4-8 page paper (following a strict format) that focuses on describing why the work is important, the state of the prior art, the key new accomplishments or results, and what the research directions are going forward. The second part will be a multimedia file containing supplementary material to provide enough details to to enable results to be reproduced.

The Magnetics Society currently does not co-sponsor any journal with another society.

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program that aims to bring you up to date with the latest and greatest in magnetics.

In addition to these regular activities, 2013 marks the Magnetism Society's turn to undergo a thorough review of its operations by the IEEE, a process that occurs once every five years. Our Committee Chairs have been working hard over the past few months to provide written descriptions of their operations and data to support their impacts and successes, as we jointly compile a written summary document to share with the IEEE review panel. The process includes a formal interview session, to be held in the latter half of November. Thereafter the IEEE review panel will issue a set of comments, questions, and recommendations, to which the Magnetism Society will have a chance to respond. A report that contains all these pieces will form the formal record of the review.

The Five Year Review process has highlighted to me once again that, in some ways, our Society is a little different from other IEEE Societies. The global magnetism community is rather small, but remarkably collegial and tight-knit. Because of our small scale it is easier for us to respond to new technical trends and emerging topics quickly, by incorporating them into our

conferences, by naming Distinguished Lecturers to roam the world presenting new material, and so forth. Being nimble and responsive is more important than ever since the rates of scientific and technological advances are accelerating in magnetism just as in most other fields, and our members need to be fully abreast of the landscape around them.

In the midst of all this activity, I am reminded of the ephemeral nature of all that we do, by the passing of my own wonderful PhD supervisor, Professor Robert Street, AO (Officer of the Order of Australia, 1985). Bob was a remarkable teacher and mentor to me, and to a great many others. He set me firmly on the path through life on which I find myself, including by his suggestion that I join the IEEE many years ago. During his long and varied career in magnetism he served two nations, the United Kingdom and Australia, in leadership roles spanning defense, academia, government and industry. He was remarkable for his curiosity, which never waned, his mischievous good humor, and for his great humanity towards all. *Vale!* Professor Robert Street.

Liesl Folks can be reached via: lfolks@buffalo.edu

2014 Summer School Announcement

By Mingzhong Wu, Education Committee Chair

The 7th IEEE Magnetism Society Summer School will be held in Rio de Janeiro, Brazil during August 10-15, 2014.

The school is designed for graduate students studying magnetism. It will consist of lectures by international experts and will include poster presentations by participating graduate students. The program will cover both fundamentals and advanced topics in magnetism.

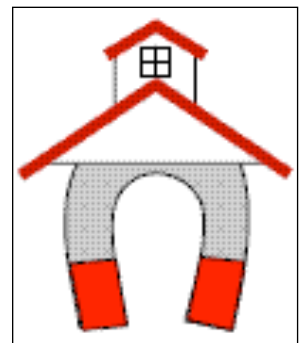
Financial support will be awarded to approximately 88 students from around the world. Awardees will be provided with free room and board and will be reimbursed for most of the cost of economy round-trip airfares or equivalent ground transportation.

The Summer School is open to current MS or PhD students who are members of the IEEE Magnetism Society (at the time of attendance) and have not attended previous summer schools.

The application requires a recommendation from a faculty member. Preference will be given to students who have a recommendation from a current member of IEEE Magnetism Society.

For more information about the school and application, please visit: <http://summerschool.ieemagnetics.org>.

The application deadline is **November 15, 2013**. The award announcement will be made by **January 1, 2014**.



Nominations Committee Report

By Takao Suzuki, Nominations Committee Chair

Following the recent conclusion of this year's election, I thought that it might be appropriate to write about the election process for members of the Society's Administrative Committee (AdCom) members, which might help you think to nominate someone for the next election.

As you might know, the AdCom comprises 24 members who are elected directly by the Society membership. Eight are elected in the fall of each year to serve a three-year term that begins at the start of the next calendar year. Membership in the IEEE, and the Magnetics Society or an Affiliate Society is required.

The AdCom is responsible for managing 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: <http://www.iecemagnetics.org>.

Nominations are accepted from the general membership. Self-nominations are welcomed and encouraged! All nominations are submitted via the web site. To be guaranteed a place on the ballot, candidates may also be nominated by petition. For nominations by petition, a list of at least 66 (equal to 2% or more of the total membership of the Society) petitioners' names, IEEE membership numbers, and original petition signatures must be sent separately to the Nominations Committee Chair (membership stood at 3,293 as of December 2012.)

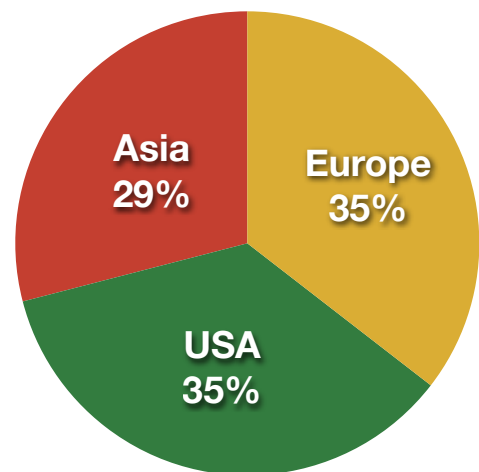
This year, we started the solicitation for nominations at the end of May and closed things on June 22, 2013, after extending past the initial deadline of June 15. The reason for the extension was simply because there were only a few nominations just a few days before June 15, so we decided to extend by one more week. Thanks to those people who worked hard to encourage the members to nominate, finally we received 31 nominations in total. The Nominations Committee members then voted to select 15 finalists out of the 31 for the ballot. After the slate of candidates was finalized, it was sent to the IEEE Office at the beginning of July 2013. Then the election announcement of this general election was sent to all the Society members either by e-mail and/or hard copy together with the ballot sheet, some

time around August 15, 2013. I am pleased to report that the following candidates were elected: Jeff Childress, Marina Díaz Michelena, Peter Fischer, Masaaki Futamoto, Stéphane Mangin, John Moreland, Ludwig Schultz, and Masahiro Yamaguchi.

As I mentioned, we had 31 nominations for this year. It was a very pleasant surprise for me, not only because we had not received such a large number of nominations in recent years, but also because each of the nominees showed an excellent track record in research and participation in the Society. As we have only eight vacancies each year for the AdCom, it is painful to see that most of the nominees will not actually be able to join the AdCom. However, I hope that those who have not been successful in this year's election will give their voices to the Society, and will also be nominated for next year's election as well.

The figure below shows the demographic data for the 31 nominees. I am pleased to see the fact that each of the three regions had roughly the same proportion of nominees, though we need more from other regions such as the South America region in the future.

As I said previously, the AdCom is responsible for all sorts of operations for the Society. Therefore, it is vitally important to bring in new blood for the AdCom ceaselessly. For this reason too, I was very happy to find that there were many new nominees for this year's election. I would love to see that this will be even more so next year!



**Nominee demographic data for the 2013
Magnetics Society AdCom election**

Fraunhofer Project Group Materials Recycling & Resource Strategy IWKS

By Oliver Gutfleisch and Roland Gauss

Raw-material prices have significantly increased over the last ten years. Securing access to critical metals has become a major issue for high-tech-producing countries worldwide. For this reason, the Fraunhofer Gesellschaft, the largest organization for applied science in Europe, founded a research group focusing on Materials Recycling and Resource Strategies (Fraunhofer Project Group IWKS) in 2011. Over a period of 6 years, the group will receive 100 million Euros funding from the federal German States Hesse and Bavaria. Its mission is to establish an institute that conducts research on i) resource strategies, ii) recycling and reuse concepts and iii) substitution of critical materials.

Currently, the IWKS' facilities are located in Alzenau and Hanau, about 30 km east of Frankfurt (Main).

Former IEEE Distinguished Lecturer Prof. Oliver Gutfleisch, Chair of Functional Materials at TU Darmstadt, is a member of the Group's scientific steering committee. Research on magnetic materials is one of the IWKS' centers of activity. A state-of-the-art pilot plant for the synthesis and recycling of high-performance permanent magnets is currently being installed, enabling the group to run experiments beyond lab scales. At the same time, a variety of methods for macro- to micro-scale characterization of magnets is available.

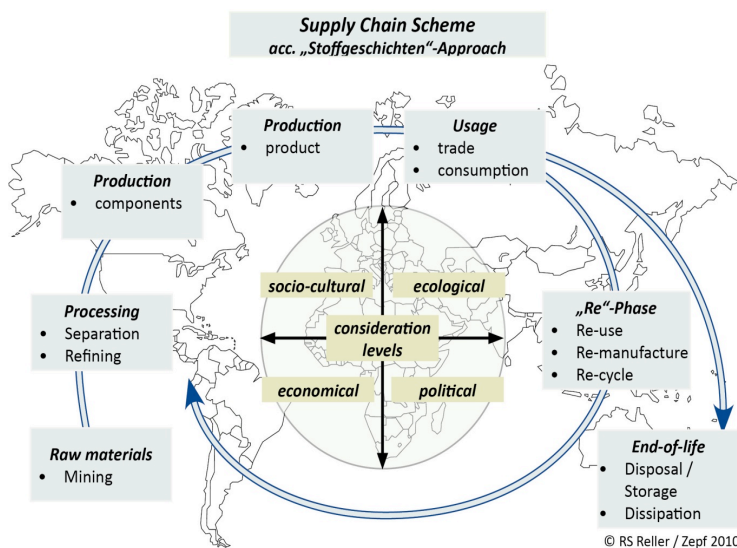
Current projects funded by industry or public bodies aim for instance at the development of highly coercive Nd-Fe-B magnets lean in heavy rare earths; the development of rare earth free permanent magnets; near-net-shape processing; anisotropic bonded magnets; and magnetic and microstructural characterization of magnets. A 3D atom probe will be operational in 2014. Magnetocaloric materials, shape memory alloys and magnetorheological fluids are also in the focus of our activities.

The rare earth crisis has dramatically shown how the price of geologically comparatively widely available elements can explode within few weeks due to a variety of reasons. The IWKS material's development goes hand in hand with research into raw material criticality, that is, a systematic evaluation to what degree a sustainable supply of a certain metal is critical from a global perspective.

The third overarching aspect of the IWKS research is recycling and reuse of materials. Looking at the immensely growing demand for raw materials and skyrocketing prices, humankind needs to preserve natural deposits by keeping materials within technology consumer and production cycles (see figure below); thus avoiding dissipation. Regarding Nd-Fe-B magnets this is a major issue, since at the moment they are not recycled on an industrial scale at all. The Fraunhofer group is engaged in projects that pursue a number of recycling and reuse strategies for permanent magnets. One of them is the hydrogen processing of scrap magnets for the preparation of powders for new bonded or sintered magnets.

Fraunhofer IWKS is actively searching for strategic partners on these and other topics.

Contact emails: oliver.gutfleisch@isc.fraunhofer.de and roland.gauss@isc.fraunhofer.de. The IWKS web site can be found at www.iwks.fraunhofer.de.



The Fraunhofer IWKS research approach: developing new materials and systems needs to go hand in hand with a systematic evaluation to what degree the supply of a certain metal is critical and how technology can be recycled (source: A. Reller, Fraunhofer IWKS).

2013 Summer School

By Mingzhong Wu, Education Committee Chair

The 6th IEEE Magnetics Society Summer School was successfully held in Assisi, a medieval town close to the University of Perugia, Italy, during June 9-14, 2013.

The School program consisted of eight half-day lecture sessions, two evening sessions with talks by the 2013 IEEE Magnetics Society Distinguished Lecturers (DLs), and two evening poster presentation sessions.

The lectures included topics such as fundamentals (Albrecht Jander), permanent magnets (Karl Müller), dynamics (Giorgio Bertotti), spintronics (Daniel Bürgler), magnetic recording (Stella Wu), nanomagnetism (Bethanie Stadler), simulations (Thomas Schrefl), biomagnetism (Fernando Palacio) and molecular magnetism (Roberta Sessoli). The DL talks were

given by Adekunle Adeyeye, Michael McHenry, Rudolf Schäfer, and Koki Takanashi.

86 graduate students from 22 countries and areas attended the School. Each student made poster presentations about their research and the posters were judged for one of six Best Poster Awards. The winners were Juan Alzate (UCLA, USA), Jon Ander Arregi (CIC nanoGUNE Consolider, Spain), Cecile Iss (INAC, France), Angeline Klemm (University of Minnesota, USA), Nynke Vlietstra (University of Groningen, the Netherlands) and Kai Zhang (Fudan University, China).

The Local Organizing Committee, co-chaired by Ermanno Cardelli and Giovanni Carlotti, did an excellent job in hosting the School.



ISAMMA 2013 Review

By Te-ho Wu, Symposium Chair

The 3rd International Symposium on Advanced Magnetic Materials and Applications (ISAMMA 2013) was held during July 21-25, 2013, in Taichung, Taiwan. ISAMMA is the consolidated symposium of the three previously independent symposia held in the Asian region. Of these, the longest running was the ISPMM (International Symposium on Physics of Magnetic Materials) of Japan, which was inaugurated in 1987 Sendai, with six additional events held, the others being in Beijing (1992), Seoul (1995), Sendai (1998), Taipei (2001) and Singapore (2005). The other two major symposia were the ISAMT (International Symposium on Advanced Magnetic Technology) of Taiwan, and SOMMA (International Symposium on Magnetic Materials and Application) of Korea,

both of which began in 1999, and were held four times up to 2005. All three of these independent international symposia worked towards the same objectives in research and applications of magnetic materials. To realize a more efficient organization among these symposia the former ISPMM, SOMMA, and ISAMT meetings were merged, establishing a new, single international symposium to be held triennially in Asia. This is today's ISAMMA.

ISAMMA 2007, which was the first combined symposium, was held on Jeju Island, Korea, during May 28 - June 1, 2007. The symposium was a huge success, drawing approximately 540 participants from 26 countries. ISAMMA 2010, the second

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ISAMMA 2013 Review *continued from page 5*

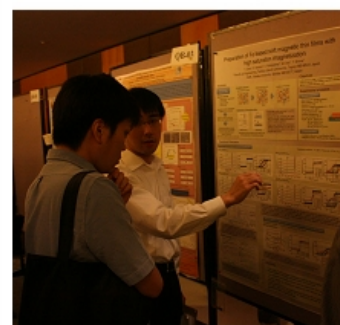
symposium, was held during July 12-16, 2010, in Sendai, Japan. This last symposium was also very successful and 511 participants attended from 23 countries.

In recent years, in every magnetic conference organized by US and European societies, participation from Asian countries has increased steeply and their contribution to real scientific and engineering advances in magnetic research has become increasingly significant.

The steering committee members of ISAMMA 2013 representing the major Asian countries of Japan, Taiwan, Korea, China, Singapore, and Vietnam, had as their goal to preserve and to develop current scientific and engineering expertise through strong, cooperative, scientific activities. This year's symposium received 475 abstracts from 20 different

countries. It also included five plenary speakers and 34 invited speakers. Of the 210 submitted manuscripts, after strictly reviewed, 123 papers are published in a special issue of the IEEE Transactions on Magnetics.

In summary, ISAMMA 2013 was a resounding success, due to the tremendous dedication of all committee members. I would like to extend my deep appreciation to Prof. Jong-Ching Wu, J. C. A. Huang, and Dr. Mean-Jue Tung of the Program Committee, to Prof. Chih-Huang Lai and Prof. Ko-Wei Lin of the Publication Committee, to Prof. Lance Horng of the Treasury Committee, to Dr. Lin-Xiu Ye and Prof. Ching-Ming lee of the Conference Secretariat, and to all other members whose names are not recorded here. Events such as this cannot achieve their goals without the help of such people.



21st Soft Magnetic Materials Conference Review

By Lajos Varga, Conference Chair

The 21st Soft Magnetic Materials Conference (SMM 21) was held during September 1–4, 2013, in Budapest, Hungary.

The Conference was organized by the Institute for Solid State Physics and Optics within the Wigner Research Centre for Physics, under the patronage of the Hungarian Academy of Sciences. This biannual Conference series, first established in 1973, provides a forum for discussion on properties and applications of soft magnets, through a broad range of topics such as electric steels, amorphous and nanocrystalline alloys, low field magneto-caloric and ferromagnetic shape memory alloy, and the like. Soft magnets have become a key component in a large variety of electrical and electronic devices and have also gained significant commercial relevance.

Budapest is the capital of Hungary and is a foremost cultural and technological centre, renowned for its beautiful townscape on both sides of the Danube River; its universities and research institutions, museums, superb wines and cuisine. The venue of the conference, the Main Building of the Hungarian Academy of Sciences, is centrally located and surrounded by the major historical and cultural attractions of the city, with a wide choice of hotels, restaurants and shops within walking distance.

Participation in SMM 21 compared favorably to previous SMM Conferences, despite the widespread global economic downturn. We received 327 abstracts, with 300 accepted for presentation at the Conference. The Conference attracted 307 registered delegates from 37 countries, of which 68 delegates were students.

The large participation and in particular the remarkably high number of students confirm that the area of soft magnetic materials remains vital, with much potential for the future. There were 16 invited talks delivered from participants from

universities and industry; 20 shorter oral contributions and approximately 300 posters were presented. Eight exhibitors presented their products and testing equipments, including three major soft magnetic component producers: Vacuumschmelze (Germany), Magnetec (Hungary) and Aperam Alloys, IMPHY (France).

The Conference papers were published in an issue of the IEEE Transactions on Magnetics, and were accepted for publication after careful review, carried out according to the usual IEEE standards.

On the afternoon of September 3, a special panel discussion was held, revealing open questions concerning induced anisotropy via magnetic and stress annealing. During the closing session on September 4, Ryusuke Hasegawa of Metglas presented a most stimulating general overview of the SMM 21 technical program. After the announcement of the best student poster award, it was announced that the next Soft Magnetic Materials Conference, SMM 22, will be organized in Sao Paulo, Brazil, in 2015. Our best wishes to the organizers of SMM 22 for a most successful Conference.

The success of SMM 21 has been the result of the effort and dedication of the local organizing committee. Without the financial support of our sponsors it would not be possible to host a successful SMM 21 Conference. We are grateful to all of them.

Finally, the Conference organizers are particularly grateful to the Publication Chair, Dr. Oriano Bottauscio, Editor, IEEE Transactions on Magnetics and his Editorial Board, for their timeless efforts to produce an excellent volume of the SMM 21 Conference-related papers.

New Senior Members

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

Jun 2013: Ruhang Ding, Michael Farle and Behzad Forghani.

Jul 2013: Xiufeng Han, Johan Paulides and Li Wang.

Sep 2013: Jiangwei Cao, Yang Ji, Wen Siang Lew, Yong Li and Marco Trapanese.

For further information, visit the IEEE Web site at:

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

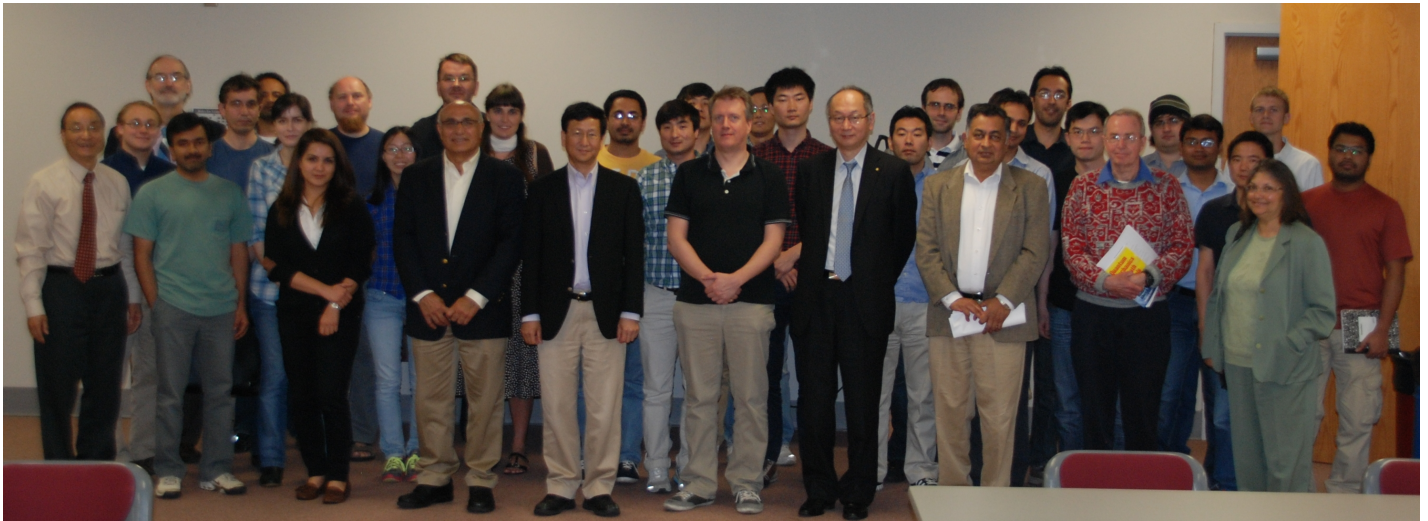
Alabama Chapter News

By Subhadra Gupta, Alabama Chapter Secretary

The Alabama Chapter of the IEEE Magnetics Society and the Center for Materials for Information Technology (MINT) hosted the first international G8 workshop at the University of Alabama, Tuscaloosa, on April 8, 2013.

The major topic of the workshop, led by MINT Director, Dr. Takao Suzuki, Past President of the IEEE Magnetics Society,

who is also the principal investigator of the National Science Foundation G8 grant, was “Rare-Earth Free High Strength Magnets.” Collaborators who participated in the workshop included Dr. George Hadjipanayis (University of Delaware, USA), Dr. Eberhard Goering (Max-Planck Institute, Germany), Dr. Kazuhiro Hono (National Institute of Material Science (NIMS), Japan), and Dr. Shinichiro Ito (TDK, Japan).



Singapore Chapter News

By S.N. Piramanayagam, Singapore Chapter Chair

The Singapore Chapter of the IEEE Magnetics Society organized its 4th one-day Magnetics Symposium on September 26, 2013. The event included invited and contributed talks.

The invited talks ranged from magnetic skyrmions to magnetic nanoparticles. The contributed talks were given by the students and contained a competition element. Mr. Chandrasekhar

Murapaka, Ms. Maria Patricia Rouelli Sabino and Mr. Wu Yang received cash prizes for best presentation awards.

The chapter has organized three Distinguished Lecturer talks, nine technical events and one social event this year. The Chapter thanks the IEEE Magnetics Society for supporting all these activities.



Conference Calendar

Nov 4-8, 2013 58th Conference on Magnetism & Magnetic Materials (MMM 2013)
Denver, CO, USA
Web site: www.magnetism.org

Jan 29-30, 2014 Magnetics 2014
Orlando, FL, USA
Web site: www.magneticsmagazine.com/conferences/

Feb 16-20, 2014 TMS Annual Meeting: Magnetic Materials for Energy Applications IV
San Diego, CA, USA
www.tms.org/TMS2014

Mar 2-5, 2014 International Conference on NdFeB Magnets
Ningbo, China
www.ndfebpm.com

Mar 27-29, 2014 4th International Workshop on Magnetic Particle Imaging (IWMPi 2014)
Berlin, Germany
www.iwmpi.org

Mar 31 - Apr 1, 2014 9th Conference on Computation in Electromagnetics (CEM 2014)
London, UK
conferences.theiet.org/cem/index.cfm?origin=/cem2014

May 4-8, 2014 2014 Intermag Conference
Dresden, Germany
www.intermagconference.com

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:

Gareth Hatch
Technology Metals Research, LLC
180 S. Western Ave #150
Carpentersville, IL 60110 USA

Email: g.p.hatch@ieee.org

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