IEEE Magnetics Society
NEWSLETTER

Celebrating 125 Years of Engineering the Future

Gareth Hatch, Editor

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From The President

By Randall Victora, Society President

Welcome

As the incoming Magnetics Society President for 2009-2010, I would like to welcome you to this first issue of the Newsletter for 2009. Magnetism and magnetics continues to be a thriving and vibrant field, ranging from exotic new areas such as spin torque transfer effects to the incredible complexity and commercial success of hard disk drives. Future developments are hard to predict, but it is my goal that our society will continue to help foster important advances through our conferences, journal, and other contributions to this field.

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INSIDE THIS ISSUE...

New Society Chapter Established in Hong Kong

By Philip Pong, Hong Kong Chapter Chair

A new chapter of the Society was established in Hong Kong in December 2008. Members are drawn from academic institutions such as the University of Hong Kong and the Hong Kong Polytechnic University, as well as from industry, including companies such as SAE Magnetics.

The chapter was formed with the aim of serving the magnetism community in Hong Kong and surrounding areas such as Shenzhen, Guangzhou, and the rest of the South China region near to Hong Kong. Our first event was organized on 15 December 2008, at the Hong Kong Polytechnic University, when we were honored to host 2008 Distinguished Lecturer, Robert Stamps, to give his lecture.

If you are interested in the activities of this new chapter, please get in touch with Philip Pong via email at **ppong@eee.hku.hk**.

We look forward to more interaction with other chapters in Asia and also to introducing the Magnetics Society further into Hong Kong.

News from the Technical Committee

By Axel Hoffmann, Technical Committee Chair

This is my last report as the chair of the Technical Committee. As of January 2009, Jordan Katine (Hitachi Global Storage) will take over as the new chair and I am sure that he will lead the committee with fresh enthusiasm and new ideas. As in the past, feel free to utilize the Technical Committee as a resource for advice of any kind, and thus continue to contact the Technical Committee with your questions and requests.

During the recent 5 year report of the Magnetics Society to IEEE it was noted that some IEEE regions (in particular 7 and 9) lacked representation, and to alleviate this we added new members to the Technical Committee:

- Dario Arena (Brookhaven National Laboratory)
- Byoung C. Choi (University of Victoria, Canada),
- Alinea Deac (NIST Boulder)
- Jürgen Fassbender (Forschungszentrum Dresden-Rossendorf, Germany)
- Maria-Elena Gomez (Universidad del Valle, Cali, Colombia)
- Ryusuke Hasegawa (Metglas, Inc.)
- Vitali Metlushko (University of Illinois at Chicago)
- Alexandra Mougin (Université Paris-Sud, France),
- Rajasekaran Swaminathan (Intel).

Some of the recent activities of the Technical Committee involved defining for the Magnetics Society new areas of interests that should receive more attention in the future. To this end several members assisted Bernard Dieny and Bruce Gurney in establishing better connections between the magnetics and the microelectronics communities. In particular the goal will be to organize joint symposia at conferences, which are geared towards either of the two communities.

Furthermore, the Technical Committee suggested highlighting the role that magnetism can play for sustainable energy. A first step in this direction will be a dedicated symposium on "Magnetism for Sustainable Energy" at the upcoming INTERMAG conference this year.

Happy New Year and Welcome New Chapters

By Kaizhong Gao, Chapters Chair

January 26 was the first day of the New Year in the lunar calendar. It is the Year of the Ox in many southeast Asian countries. Based on the recent increase in membership enrollment from Asia, we would like to see more chapters being established there.

We would like to welcome two new Magnetics Society chapters: the Germany Chapter and the Hong Kong Chapter. Our thanks and congratulations go to Jürgen Fassbender (Forschungszentrum Dresden-Rossendorf) who will be the founding chapter Chair for Germany and to Philip Pong (University of Hong Kong) who will be the founding chapter Chair for Hong Kong. A special thanks to Robert McMichael who was last year's Chapters Chair and who helped to get these two chapters started.

If no chapter has been formed yet in your Section, consider forming a new chapter to get the most out of your membership. There are three simple requirements to form a new chapter:

1. A petition with 12 signatures of current, regular Magnetics Society members in your section;
2. Approval of the Section Executive Board, and
3. Approval of the Magnetics Society President.

The Magnetics Society is ready to support the activities of its chapters around the globe. Please contact me at **kaizhong.gao@seagate.com** about chapter formation in your area, or visit the IEEE new chapters Web site:

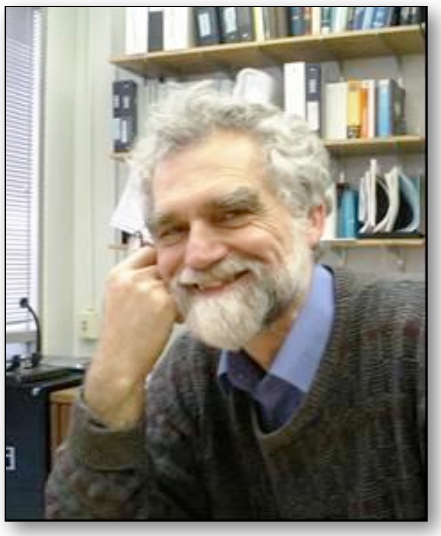
www.ieee.org/portal/pages/tab/cha/newchap.html

In addition, many existing Chapters elect new chairs this year. Please refer to the Magnetics Society web site for their contact information.

Roger Wood Receives 2009 Achievement Award

By Bruce Gurney, Awards Committee Chair

The IEEE Magnetics Society honors one of its outstanding members each year, for his or her lifelong professional achievement. This is the highest award of the Society and is given for scientific, technical and service contributions to the society. The award is presented at INTERMAG each year and consists of a diploma with citation and a cash prize.



Dr. Roger Wood has received the IEEE Magnetics Society 2009 Achievement Award "for contributions to the theory and practice of magnetic recording including read/write electronics, perpendicular recording, and the approach to 1 Terabit/sq.in. densities".

Dr. Wood hails originally from Bradford, Yorkshire, UK. In 1972, he received his B.Sc. degree in Electrical Engineering from University College, London. From 1972 to 1975, he was with British Telecoms working on short-hop digital microwave links.

Dr. Wood's fascination with magnetic recording started in 1975 at the University of British Columbia where his Ph.D. thesis involved recording satellite data onto a helical-scan tape recorder. In that thesis can be found the first reference to the widely-used "extracted dipulse" characterization technique that he subsequently popularized.

In 1979 he moved to Ampex Corporation where he was the inspiration for and driving-force behind the development of Partial-Response Maximum-Likelihood (PRML) detection. In 1985, the DCRS tape recorder became the first product ever shipped with PRML. For many years it was Ampex's most successful product.

In 1986 Dr. Wood joined IBM where he managed groups in advanced channel development, recording systems, and disk drive prototyping. Many of Dr. Wood's innovations have been in the area of signal-processing. These include the post-processor technique and the use of a time-varying trellis in detection. Both of these schemes together with generalized PRML are now ubiquitous in hard disk drives (HDD).

In 1996 Dr. Wood enjoyed a year as Visiting Senior Fellow at the National University of Singapore where he worked closely with the Data Storage Institute on a new detection process called multi-level decision feedback equalization and on an advanced HDD actuator design.

In 2003 Dr. Wood joined the newly formed Hitachi Global Storage Technologies Company, and took an 18-month assignment in Japan, where his activities focused on perpendicular recording. A long-time champion of this technology, he was delighted by its introduction into HDD products in 2007. He was lead engineer for the advanced HDD development efforts in perpendicular recording, resulting in a string of highly successful products.

Dr. Wood is perhaps best known for his controversial prediction in 1999 that conventional magnetic recording could be pushed to a limiting density of approximately 1 Terabit/sq.in., which is now widely accepted. Recently he has been instrumental in proposing an alternative recording architecture called two-dimensional magnetic recording. This approach relies on non-conventional writing techniques and two-dimensional readback and may extend the usefulness of conventional granular media to 10 Terabit/sq.in.

Dr. Wood has been an outstanding contributor to the magnetics community through his technical work in magnetic recording as well as through his activities in support of the IEEE Magnetics Society. Dr. Wood has authored more than 70 journal papers and holds 10 US patents. He is always ready to share his knowledge with students and fellow scientists and is a popular speaker, having given many invited talks at conferences and short-courses. He served as Magnetics Society Distinguished Lecturer in 1994. He has served as Chair of the INTERMAG, TMRC, and APMRC conferences, and in numerous other capacities including several terms on the Magnetics Society's Administrative Committee.

Dr. Wood is also a member of the Magnetics Society of Japan and the American Society of Mechanical Engineers. Dr. Wood received the Technical Leadership Award of the National Storage Industry Consortium in 2008. He is a Fellow of the IEEE.

From The President *continued from page 1*

New / Old Directions

I first joined the Magnetics Society ADCOM in January, 2001. At that time, members were elected by current ADCOM members, there was little international representation, the governance of the MMM conference was in doubt, and, as the dotcom bubble ended and the stock market crashed, the financial situation of the Magnetics Society was becoming perilous. It was easy to find things that needed to be fixed.

Over the next 8 years, strong leadership addressed these issues. Kevin O'Grady (University of York, UK) became our first international president and worked hard to broaden representation. Direct election of ADCOM members was initiated in 2007. A Memorandum of Understanding between the American Institute of Physics (AIP) and IEEE was signed to place the MMM conference on a solid footing. Finally, great improvement in Magnetics Society reserves allowed our most recent president, Carl Patton (Colorado State University), to place ever increasing emphasis on member benefits, including greater support for our Distinguished Lecturers and the introduction of a summer school to help graduate students learn about magnetism from experts in the field.

My goal over the next two years is to maintain the strength and vitality of the Magnetics Society. This is not as easy as it sounds: maintaining a position requires continual change to meet new demands and opportunities. For example, consolidation in magnetic recording stresses our membership in that area; at the same time, emerging fields such as biomagnetism and spintronics offer potential for growth. We need to make these emerging areas feel welcome within the society as we continue to serve the needs of the current membership.

Another focus area is the changing geography of our membership. In recent years, the number of overseas members has grown to exceed those that are based in the United States. We need to make membership in the Society attractive to workers in magnetism and magnetics everywhere. Chapters and our Distinguished Lecturer program form important components in this effort and will received increased emphasis.

Our Volunteers

Implementation of these goals will require the continued and expanded efforts of our dedicated volunteers. As many of you know, the presidency of the Magnetics Society is part of an 8 year rotation beginning with Treasurer, President-Elect, President, and ending with Past President. I am happy to report that, with the election of Liesl Folks (HGST) to Treasurer, we will, in 4 years, have our first female President. Takao Suzuki (Toyota Institute of Technology) has moved from Treasurer to President-Elect and Carl Patton is now Past President.

I have appointed seven new committee chairs. Our previous Newsletter Editors Pallavi Dhagat and Albrecht Jander (both of Oregon State University) will become Publicity Chair and Education Chair respectively. Twin Cities Chapter Chair Kaizhong Gao (Seagate Technology) will become overall Chapters Chair. Jordan Katine (HGST) will be the new Chair of the Technical Committee. Chih-Huang Lai (National Tsing Hua University, China) will be the new Membership Chair. Following IEEE guidelines, Past President Carl Patton will be the Chair of the Nominations Committee. INTERMAG Treasurer Jan-Ulrich Thiele (Seagate Technology) has agreed to be the new Finance Chair.

Three committee chairs have agreed to extend their term. Doug Lavers (University of Toronto, Canada) will continue as Chairman of the Conference Executive Committee. Bruce Gurney (HGST) will continue as Honors and Awards Chair. Ron Goldfarb (NIST) will continue as Publications Chair with Massimo Pasquale (INRIM, Italy) as Associate. I would also like to thank the committee chairs who are finishing their term: Liesl Folks, J.W. Harrell (University of Alabama), Ryusuke Hasegawa (Metglas, Inc), Axel Hoffmann (Argonne National Lab), Ron Indeck (Washington University), Can Korman (The George Washington University), and Bob McMichael (NIST). Their efforts are much appreciated.

Good communication will be important to the continued improvement of the society. Therefore, I conclude this column by inviting readers to send me suggestions about how to make our society better. I can be reached via **victora@umn.edu**.

Reader Survey

Would you mind taking a few moments to drop the Editor a line at **g.p.hatch@ieee.org** to let us know that you are actually reading this Newsletter, what you like about it and what we can do to improve it? Thanks!

Magnetics Society Distinguished Lecturers for 2009

By Roy Chantrell, Distinguished Lecturer Coordinator

As reported in the last issue of the Newsletter, the Society selected four Distinguished Lecturers for 2009. They are:

- Prof. Theo Rasing (Radboud University of Nijmegen);
- Dr. Michael Mallary (Seagate Technology);
- Prof. Kannan Krishnan (University of Washington);
- Prof. Hideo Ohno (Tohoku University).

Each Distinguished Lecturer makes his/her own schedule, so contact them early, via the email addresses below, before their schedules are filled.

For additional assistance and/or further information contact the Distinguished Lecturer Coordinator, Roy Chantrell, via email at **rc502@york.ac.uk**.

IEEE Magnetics Society 2009 Distinguished Lecturer

Controlling Magnetism with Light

Theo Rasing, Radboud University Nijmegen, Nijmegen, The Netherlands

The interaction of light with magnetic matter is well known: the magneto optical Faraday or Kerr effects are frequently used to probe the magnetic state of materials or to manipulate the polarization of light.

The inverse effects are less known but certainly as fascinating: with light one can manipulate magnetic matter, for example orient their spins. Using femtosecond laser pulses we have recently demonstrated that one can generate ultrashort and very strong magnetic field pulses on the order of teslas via the so-called inverse Faraday effect. Such optically induced magnetic field pulses provide unprecedented means for the generation, manipulation and coherent control of magnetic order on very short time scales, including the complete reversal of a magnet with a single 40 femtosecond laser pulse. In principle this opens the way for all-optical recording of magnetic bits at extremely high data rates. The basic ideas, including their limitations, behind these discoveries will be discussed and illustrated with recent results.

Theo Rasing received the bachelor's degree in physics (*cum laude*) in 1976 and the doctorate in 1982 from the Radboud University, Nijmegen, The Netherlands.

After postdoctoral stays at University of California, Berkeley on an IBM fellowship, he became staff scientist and deputy program leader at the Lawrence Berkeley Laboratory, where he developed nonlinear optical techniques for surface and interface studies. In 1988 he was appointed associate and in 1997 full Professor of physics in Nijmegen. He is the founder and director of the Nijmegen Centre for Advanced Spectroscopy (NCAS), member of the board of the Dutch NanoNed and founder of NanoLab Nijmegen, which makes its expertise and infrastructure available to the commercial sector. He is a pioneer in the development of new linear and nonlinear optical techniques for studying and manipulating molecules and materials, with an emphasis on nanometer length and femtosecond time scales. His research is mostly focused on the static and dynamic properties of magnetic nanostructures and multilayers. For this he developed the technique of magnetization induced second harmonic generation and various ultra sensitive pump-probe methods. His most recent and most successful research in the field of spin dynamics is the manipulation of magnetism using light. To date, his research has yielded more than 300 publications in international journals. He is also the initiator and coordinator of various large national and international partnership programs.

In 2007 Prof. Rasing received the Physica Prize from the Netherlands Physical Society and in 2008 he received the Spinoza prize, the highest scientific award from the Netherlands Organisation for Scientific Research (NWO).

Email Prof. Rasing via **th.rasing@science.ru.nl**.

IEEE Magnetics Society 2009 Distinguished Lecturer

Evolution and Revolutions in Disk Drive Recording

Michael Mallary - Seagate Technology, Pittsburgh, Pennsylvania

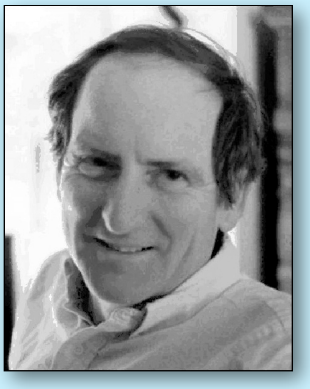
Since 1956 the areal density of hard disk drives (HDDs) has increased by eight orders of magnitude through a process of evolution punctuated by a number of important revolutions. The disk evolved for three decades through many generations of painted gamma ferric oxide particulate media with in-plane orientation. During this time areal density was increased from 2 kilobits per square inch (2kbpsi) for IBM's RAMAC to about 20 megabits per square inch (20Mbpsi).

The technology has seen a number of revolutions. In the mid 1980s the first (non-magnetic!) revolution was a diamond-like carbon overcoat for media, which is key to its durability. The next revolution was the introduction of read sensors based on giant magnetoresistive films with improved sensitivity. HDD proceeded to evolve up to about 100 gigabits per square inch (100 Gbpsi) on this technology base.

By the mid 1990s Prof. Stanley Charap of Carnegie Mellon University (CMU) calculated that longitudinal recording would start to experience thermal decay of the data at densities of about 40 Gbpsi. In response to this impeding crisis, the Ultra-High Density Recording (UHDR) project was initiated by Prof. Mark Kryder of CMU under the National Storage Industry Consortium umbrella. The UHDR team established the reality of the problem and proposed strategies to delay the crisis to about 100 Gbpsi. Key amongst these was to increase tracks per inch faster than bits per inch.

The UHDR theory team also determined that magnetizing the media perpendicular to the disk could extend magnetic recording by almost an order of magnitude beyond the thermal decay limit of longitudinal recording. Perpendicular HDDs are now being shipped at about 300Gbpsi. Important head innovations in achieving this density are the use of the shielded pole writer, invented by the author, and the tunneling magnetoresistive reader with a magnetorestrictive effect approaching 100%.

The 30-40% per year growth in areal density will soon drive perpendicular recording to its thermal decay limit near 1 terabit per square inch (Tbpsi). Two revolutionary technologies are being developed to deal with this. Heat-assisted magnetic recording will allow high anisotropy media to be written at elevated temperatures, thus allowing for finer thermally stable grains to be written. Bit-patterned media will allow the recording of a bit on a single grain as compared to scores of grains with unpatterned media. The promise and problems of these technologies will be discussed in detail.



Michael Mallary received the S.B. degree in physics from the Massachusetts Institute of Technology in 1966 and Ph.D. degree in experimental high energy physics from the California Institute of Technology in 1972.

He was a postdoctoral fellow at the Rutherford Laboratory in 1972-1974 and an Assistant Professor of physics at Northeastern University in 1974-1978. There he participated in an experiment at Fermi National Accelerator Laboratory (Fermilab) that produced early evidence for the fifth quark using a 300 ton, solid iron magnet. From 1978 to 1980 he worked at the Magnetic Corporation of America designing large superconducting magnets for magnetohydrodynamics, magnetic resonance imaging, energy storage and magnetic separation. In 1980 he joined the Digital Equipment Corporation's effort to produce thin-film heads for disk-drive recording as a head modeler and designer. There he invented the shielded pole perpendicular recording head, which has demonstrated superior performance over the conventional monopole head and is now in every disk drive shipped today. He also invented the diamond inductive head, which doubles the effective number of turns. He has contributed to the theory of flux conduction in thin-film heads at high frequency, low bit aspect ratios for high density in the thermal decay limit, and tilted write fields for improved switching. His publications and patents have significantly advanced the field of magnetic recording. He is currently working on heat-assisted magnetic recording, shingle recording, and two-photon recording at the Seagate Technology Research Center, Pittsburgh, PA.

Dr. Mallary has authored or co-authored 67 issued patents and 52 publications, including "Our Improbable Universe" (ISBN 1-56858-301-X). He is a Fellow of the IEEE.

Email Dr. Mallary via **mike.mallary@seagate.com**.

IEEE Magnetics Society 2009 Distinguished Lecturer

Biomedical Nanomagnetics: A Spin Through New Possibilities

Kannan M. Krishnan - University of Washington, Seattle, Washington

Two of the principal challenges in biomedical nanoscience and personalized medicine are (1) the detection of disease at the earliest possible time prior to its ability to cause damage (diagnostics and imaging) and (2) delivering treatment at the right place, at the right time, whilst minimizing unnecessary exposure (targeted therapy with a triggered release). The former is dominated by optical methods, emerging "life on a chip" systems and the versatile magnetic resonance imaging technology. The latter remains an ongoing challenge.

In this context, we have been developing multifunction platforms for therapy, diagnostics and imaging based on functionalized, biocompatible, nanomagnetic molecular probes. Our work encompasses innovations in synthesis and functionalization, controlled self-assembly, advanced characterization, a wide-range of magnetic measurements and modeling to tailor their behavior for high-moment or high-frequency applications and carrying out cytotoxicity and biocompatibility studies. Currently, *in-vitro* applications (magnetic separation and diagnostic relaxometry), *in-vivo* (hyperthermia treatment of cancer, triggered drug delivery) and imaging applications (contrast enhancement in MRI and the development of a novel magnetic particle imaging microscope) are all being pursued.

This first part of the lecture will include an overview of nanotechnology, size-dependent magnetic behavior, and the emerging field of biomedical nanomagnetics. This will be followed by a comprehensive discussion of our current work in these areas, highlighting the fundamental principles behind our research in the context of emerging technological and clinical opportunities.

Kannan M. Krishnan received the B.Tech. degree in mechanical engineering from Indian Institute of Technology, Kanpur, India, in 1978, the M.S. degree in materials science from the State University of New York at Stony Brook in 1980, and the Ph.D. degree in materials science from the University of California, Berkeley in 1984.

He subsequently held various scientific and teaching positions at Lawrence Berkeley National Laboratory, University of California, Berkeley, before joining the University of Washington in 2001 as the Campbell Chair Professor of Materials Science and Adjunct Professor of Physics. He has also held visiting appointments at the Hitachi Central Research Laboratory (Japan), Tohoku University (Japan), Danish Technical University, University of Sao Paolo (Brazil), University of Western Australia and Indian Institute of Science. His inter-disciplinary research interests are in magnetic nanostructures and thin film heterostructures, biomedical nanomagnetics, oxide spin electronics, advanced materials characterization, and structure-property correlations at relevant length scales. All the projects are vertically integrated from the underlying science to their engineering (information storage, micro-electromechanical systems, magnetoelectronic devices) and biomedical (diagnostics, imaging, and therapeutics) applications.

Prof. Krishnan is well recognized for both research and teaching. His many awards include the Guggenheim Fellowship (2004), the Rockefeller Bellagio Residency Fellowship (2008), the Burton Medal of the Microscopy Society of America (1992), Japanese Society for the Promotion of Science Senior Scientist Fellowship (2002), University of Washington, College of Engineering Outstanding Educator Award (2004) and an appointment as the Professor-at-large at the University of Western Australia (2006-2008). He is a Fellow of the American Association for the Advancement of Science and of the Institute of Physics (U.K.), and has served on the editorial boards of the *Journal of Materials Science* and *Journal of Physics D: Applied Physics*.

Email Prof. Krishnan via **kannanmk@u.washington.edu**.

IEEE Magnetics Society 2009 Distinguished Lecturer

Spintronics: Nanoscience and Nanoelectronics

Hideo Ohno - Tohoku University, Sendai, Japan

Spintronics explores the physics of interplay between spin and charge in condensed matter. It is one of the most active areas of magnetism. In particular, electrical manipulation of spin and magnetization in nanostructures allows us not only to study the interplay but can also be utilized to reverse magnetization direction, which is of great importance to nanoelectronics. In my lecture, I describe the nanoelectronics side and the science side of spintronics by discussing two topics that delineate the significance and technological importance of such spin manipulation in condensed matter.

Magnetic memory was once the preferred main memory for modern digital computers. There were reasons it was replaced by semiconductor memories. However, with the advances in spintronics, i.e., the recent development of giant tunnel magnetoresistance and current-induced magnetization switching in magnetic tunnel junctions, it appears that a comeback of magnetic memory may be possible, which now combines the nonvolatile capability of magnetic nanostructure with all the functionalities of current and future complementary metal-oxide-semiconductor (CMOS) integrated circuits. This hybrid magnetic tunnel junction/CMOS integrated circuit approach can solve many of the major challenges currently faced by integrated circuit technology.

On the science side and on out further in the future, I turn to hole-induced ferromagnetism in Mn-doped III-V semiconductors, in particular, GaAs and InAs. This offers a variety of opportunities to explore new and/or unique spintronics physics. Ferromagnetism and magnetization in these materials can be manipulated by various means; by changing its carrier concentration by electric fields and/or by spin-current flowing along with the electric current. In the latter, our latest study on an empirical scaling law found in the creep regime of current-driven domain walls showed that spin-torque driven creep is quite different from magnetic-field driven (and thus energy driven) creep, belonging to a new and different universality class. In the former, electrical control of magnetization direction through manipulating magnetic anisotropy by electric fields was shown to be possible. This opens up a unique opportunity for manipulating magnetization direction solely by electronic means, not resorting to magnetic-field, spin-current, mechanical stress, nor multiferroics.

Hideo Ohno received the B.S., M.S., and Ph.D. degrees from the University of Tokyo, Tokyo, Japan, in 1977, 1979 and 1982, respectively. He spent one year as a visiting graduate student at Cornell University, Ithaca, New York, in 1979-1980.

He joined the Faculty of Engineering of Hokkaido University, Sapporo, Japan in 1982. He was a visiting scientist at IBM T. J. Watson Research Center from 1988 to 1990. He moved to Tohoku University, Sendai, Japan, as Professor in 1994, where he is currently Director of the Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication. He has authored and coauthored more than 300 papers that cover the areas of semiconductor materials and devices to physics and applications of spin-related phenomena in semiconductors and in metal-based nanostructures.

Professor Ohno received the IBM Japan Science Award (1998), the International Union of Pure and Applied Physics (IUPAP) Magnetism Prize (2003), Japan Academy Prize (2005), Presidential Prize for Research Excellence, Tohoku University (2005) and the 2005 Agilent Technologies Europhysics Prize (2005). He has been a Fellow of the Institute of Physics (U.K.) since 2004, an honorary professor of the Institute of Semiconductors, Chinese Academy of Sciences since 2006 and a Fellow of the Japan Society of Applied Physics (JSAP) since 2007. Tohoku University appointed him Distinguished Professor in 2008.

Email Prof. Ohno via **ohno@riec.tohoku.ac.jp**.

Conference Calendar

Mar 2 - 3, 2009	Seminar on Soft Magnetic Composites Hobro, DENMARK Web site: www.danskmagnetiskforening.dk
Mar 29 - Apr 4, 2009	European Workshop on Self-Organized Nanomagnets Aussois, FRANCE Web site: nanomagnets2009.neel.cnrs.fr
Apr 15 - 19, 2009	Magnetics Conference 2009 Chicago, IL, USA Web site: www.magneticsmagazine.com
May 4 - 8, 2009	INTERMAG 2009 Sacramento, CA, USA Web site: www.intermagconference.com
May 11 - 14, 2009	7th International Symposium on Hysteresis Modeling and Micromagnetics Gaithersburg, MD, USA Web site: www.metallurgy.nist.gov/magnet/hmm2009
Jul 20 - 24, 2009	20th International Colloquium on Magnetic Films and Surfaces Berlin, GERMANY Web site: www1.mpi-halle.mpg.de/~theory/dates.html
Jul 26 - 31, 2009	International Conference on Magnetism Karlsruhe, GERMANY Web site: www.icm2009.de
Sep 7 - 9, 2009	19th Soft Magnetic Materials Conference Torino, ITALY Web site: www.smm19.eu
Sep 7 - 10, 2009	EUROMAT 2009 Symposia on Magnetic Materials Glasgow, UK Web site: www.euromat2009.fems.eu
Sep 20 - 25, 2009	11th International Conference on Advanced Materials Symposium on "Magnetic Materials at the Nanoscale" Rio de Janeiro, BRAZIL Web site: www.icam2009.com
Nov 22 - 26, 2009	Compumag 2009 Florianópolis, BRAZIL Web site: www.compumag2009.com

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

INTERMAG 2009 Reminder

The International Magnetics Conference, INTERMAG 2009, will be held at the Convention Center in Sacramento, California, USA. The deadline for digest submissions has now passed, but there are a number of other key dates and deadlines that attendees should bear in mind:

Feb 2, 2009	Advance registration opens
Feb 6, 2009	Acceptance / rejection notices issued
Mar 6, 2009	Deadline for manuscript submission
Mar 13, 2009	Deadline for travel grant applications
Apr 6, 2009	Deadline for hotel reservations
Apr 6, 2009	Advance registration closes
May 4, 2009	INTERMAG 2009 begins

For more information, please visit the INTERMAG 2009 web site at

www.intermagconference.com/intermag2009/

From the New(sletter) Editor

By Gareth Hatch, Newsletter Editor

Hello everyone - I thought that I should introduce myself as the Society's new Newsletter Editor. I take over from the great team of Pallavi Dhagat & Albrecht Jander (both of Oregon State University), who have done an excellent job of managing the Newsletter over the past couple of years, and who made the transition of the editorship as painless as possible.

I first became involved in the world of magnetics while studying for my Ph.D. as part of Professor Rex Harris' research group at the University of Birmingham (UK), focusing on the processing of high energy permanent magnet materials. I then joined the magnetic engineering team at Dexter Magnetic Technologies in Elk Grove Village, Illinois, eventually becoming the Director of Technology, which is my present position.

So, with that said, thank you for reading. In the immortal words of all the Editors who have gone before me, please, think about contributing something to the Newsletter, if you can - email it to me at **g.p.hatch@ieee.org** today!

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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