IEEE Magnetics Society
NEWSLETTER

Volume 46 No. 4 October 2006

Martha Pardavi-Horvath, Editor

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PRESIDENT'S REPORT TO THE MEMBERSHIP

This will be my last presidential report to the membership as my tenure as Society President comes to an end at the turn of the year. My successor is Carl Patton of Colorado State University who is a well known figure in the field of magnetism and I am sure both he and his work are familiar to many of you. I am sure I am leaving office with the Society in good hands and I wish Carl every success in his role and I hope that his tenure has as few major problems as I have experienced in the last two years.

When taking over as Society President at the beginning of 2005 I, and I suspect a number of others who came into this role, did not really fully appreciate how the Society works and the complexities that result. In one way I was fortunate in that we had just completed a major overhaul of the Society's Constitution and Bylaws which you can find from the link on our home page. This meant that I was familiar with our rules and practices as I had been involved in drafting the revised Constitution when Vice President. However this changeover also presented a challenge in that I had to implement the new organisational structure of the Society. I am pleased to report that the new structure is generally working very well. This is mainly due to the fact that each part of the bylaws, which govern our day to day activities, were was written by the sitting committee chair at that time. In essence this means that the committee chairs wrote out their own job description and were able to define the way in which they thought their committee should operate. Obviously they were the people in the best position to do this and so it is not surprising that the revised structure has worked well.

On becoming President I set myself a number of goals and objectives and I am pleased that we have managed to achieve significant progress in most areas that I prioritised. My primary objective was to increase the involvement of the membership and volunteers in the life of the Society. To this end I established in collaboration with Mel Gomez, who I appointed to chair the Technical committee, a new body of some 40 mainly young people who wished to participate in the life of the Society. Additionally, with the help of Richard Dee, the Chapters activity was rejuvenated with one inactive chapter being closed down and seven new chapters being established, mainly outside the US. We also established a procedure whereby the Technical committee membership and the Chapter chairs are formally consulted about issues such as nominations for the AdCom, selection of Distinguished Lecturers etc. In this way, together with the AdCom membership itself, over 100 people out of a membership of 2,700 are routinely consulted about these matters. I believe this increase in involvement to be extremely healthy.

The other objective was to at least stabilise and hopefully to increase membership. This is a difficult area because of the ongoing consolidation in the magnetic information storage industry but by promoting membership through activities such as student travel grants, the chapters and particularly the Distinguished Lecturer programme we have succeeded in increasing membership by about 150 during my tenure. This represents a modest increase of the order of 5% but should be seen in the context of overall IEEE membership declining by about 3% per year and hence must be regarded as a success for which Richard Dee and all the individual chapter chairs, together with Roy Chantrell, who has reorganised the DL programme to support membership growth, deserve considerable credit.

The other major issue for the Society has been to adapt to the fact that our US membership continues to decline whereas the membership outside the United States and particularly in Asia continues to grow. Our Society is one of very few where the majority of the members now some 51.5% are not US based. This is a

major shift and we have endeavoured to see the organisation and governance of our Society better reflect the membership. It is also the case that historically the number of women working in magnetism has been unhealthily low and their representation even lower. I am pleased to report that the 2006 AdCom now has 5 female members which constitutes 12% and is close to reflecting the balance of the membership. Similarly the non US membership of the AdCom in 2006 stood at 15 out of 40 which still reflects a significant imbalance but a significantly smaller imbalance than was the case in 2004. One reason for this imbalance is the difficulty in finding people who are not US based to take on the role of committee chairs that are appointed by the President. During my tenure all committee chairs were people based in the United States or Canada. Obviously having diversified the membership of the AdCom and increased participation in the Society it takes time for new people to become familiar with the operation of our activities and so to become suitable for appointment in these roles. I hope this trend will continue in the future. I am also pleased to report that of the 8 people elected to the AdCom for next year five are non US based and in particular two new members from Asia were elected. It remains the case that considering the balance of the membership there is still under-representation from Asia. This is clearly an area where we need to continue to pay careful attention but in the last two years excellent progress has been made and I am grateful for the help and support in this endeavour that I have received from Phil Wigen, who chairs our Nomination committee.

All the officers of the Society are volunteers who receive neither remuneration nor benefits in kind such as reduced conference fees for their efforts. It has been both a pleasure and a privilege to work with people who are prepared to commit themselves freely in this way. Certain individuals provide an enormous service to the Society and in particular I would wish to recognise the efforts of the CEC Conference Executive Committee (CEC) Chair, Doug Lavers of the University of Toronto and Ron Goldfarb on of NIST in Bolder Boulder, Colorado, who acts as the Chair of our Publication committee and runs a highly efficient and very thoughtful department that has responsibility for the *Transactions* and all our conference-related publications. The time that these two individuals give to the Society must be worth the membership fees of literally hundreds of members.

During my time I have been fortunate that the Society's finances have been in the most healthy state that I can remember. The financial affairs of the Society are run prudently and I hope that members are aware that we have been able to increase the value of our student travel grants to $750 and indeed for 2007 have increased the number of travel grants available. Similarly we have been able to increase the number of Distinguished Lecturers and provide them with additional budget so that they have the opportunity to visit the new chapters, particularly outside the United States. The budgeting process for the Society has never been smoother because of the increase resources available which largely derive from electronic downloads from of the *Transactions*. Nonetheless budgetary and financial matters are time consuming and highly specialised for volunteers who are in the post for a limited period. Thus I am grateful to our Secretary/Treasurer, Randall Victora and to Laura Henderson Lewis for their service and support. Most of our discretionary spend is in areas like DLs and student travel and again under the new Constitution a major reorganisation of the Awards department under the Chairmanship of Bruce Gurney has been undertaken. I think any members who were at San Diego and previously in Nagoya at the Intermag conference and saw the quality of our awards activity will know that an excellent job has been done.

Members will also be aware that in the last two years our website has been completely revamped into what I hope is now a more usable format. In this regard I must acknowledge the efforts of Can Korman who I believe has done an excellent job. Similarly our Newsletter has been revamped, hopefully to have more meaningful content and you are reading this report at the instigation of Martha Pardavi- Horvath who has worked tirelessly to improve the Newsletter.

Our Education department faces a particular challenge in that previously it had been dominated by US activities and now its role must be redefined to represent the majority of the membership who are non US based. J W Harrell has continued to organise our tutorial sessions and I am aware that they are looking at

proposals to try and organise non-US based activities which will be a challenge for the future. Our Standards activity is relatively modest as the ISO governs standards in magnetics but I am grateful to Bob McMichael for maintaining a watching brief of this area for the last two years.

As you will realise almost all the work and benefits that the membership see from the Society come from the activities of our committee chairs. They of course are assisted on occasions and supported by members of their committees and the elected body of the AdCom. I believe that in the last two years the Society has been on a steady course and has made significant progress in the key areas of member participation, governance and particularly in representation. None of this would have been possible without the support that I have received from my committee chairs and I am sure the membership would want to place on record their gratitude to these people as indeed I do in a personal capacity. I enjoyed my tenure and the interaction with so many able individuals and I am confident that the Society will continue to modernise its activities under the guidance of Carl Patton.

Finally there are two people without whose support I could not have undertaken these duties: The first of these is Diane Melton of Courtesy Associates who as Executive Director of the Society provides administrative and logistical support together with periodic reality checks. The second is my secretary Jenny Barry who retires at the year end. Jenny must have typed hundreds of pages on our behalf. Many thanks to both.

Kevin O'Grady
Magnetics Society President
October 2006

IEEE MAGNETICS SOCIETY OFFICERS
2005-2006

OFFICERS

First Name	Last Name	Position	Company / Institution
Kevin	O'Grady	President	The University of York
Carl	Patton	Vice President	Colorado State University
Randall	Victora	Secretary/Treasurer	University of Minnesota
Ron	Indeck	Past-President	Washington University

APPOINTED CHAIRS

First Name	Last Name	Position	Company / Institution
Richard	Dee	Chapters	Sun Microsystems
Ron	Goldfarb	Publications	NIST
Mel	Gomez	Technical Comm.	University of Maryland
Doug	Lavers	Conference exec. Comm.	University of Toronto
Bruce	Gurney	Awards	Hitachi Global Storage Technologies,
J.W.	Harrell	Education	The University of Alabama
Can	Korman	Publicity	The George Washington University
Laura	Lewis	Finance	Brookhaven National Laboratory
Bob	McMichael	Standards	NIST
Phil	Wigen	Nominations	Ohio State University

NON-VOTING MEMBERS

First Name	Last Name	Position	Company / Institution
Roy	Chantrell	Distinguished Lecturers Coordinator	The University of York
David	Jiles	Editor in Chief of the Transactions	Cardiff University
Diane	Melton	Executive Director	Courtesy Associates
Martha	Pardavi-Horvath	Newsletter Editor	The George Washington U.

ELECTION OF NEW ADCOMM MEMBERS

The election of members to the Magnetic Society Administration Committee has been completed. These members will serve on the AdCom from January 1, 2007 to December 31, 2009.

The following have been elected to the AdCom:

- Ching-Ray Chang, National Taiwan Univ., Taiwan
- Roy Chantrell, Univ. of York, UK
- Bernard Dieny, CEA, Grenoble, France
- Robert Fontana, HGST, San Jose, CA, USA
- Ryusuke Hasagawa, Metglass Inc, Morristown, NJ, USA
- David Jiles, Cardiff University, UK
- Jan-Ulrich Thiele, HGST, San Jose, CA USA
- Shoogo Ueno, Univ. of Tokyo, Japan

Jiles, Thiele and Ueno were elected to a second term on AdCom.

We welcome these new members to the AdCom and look forward to their contributions from the membership in general to the organization and overview of the programs of the Magnetic Society

Philip E. Wigen
Chair
Nominations Committee

CHAPTERS CORNER

If you are the local chapter chairman reading this, please share with us all that's happening in your chapter and local area (e.g. talks, people activity, magnetics news, company or university news etc.). Forward a paragraph (or two), a picture, a reference to an interesting article or something inventive or newsworthy (in your opinion) to me at r.dee@ieee.org so we can include in the next MagSoc newsletter.

Dr. Richard H. Dee
Magnetics Society Chapters and Membership Chair

THE DISTINGUISHED LECTURER PROGRAM OF THE MAGNETICS SOCIETY

The Distinguished Lecturer (DL) program of the IEEE Magnetics Society has been in existence for a number of years. On an annual basis, three DLs are nominated and funded by the Magnetics Society to deliver a lecture by invitation of individual institutions or chapters. At the recent AdCom meeting an outline of the formal aims of the program were discussed and approved.

It is hoped that the adoption and pursuance of these aims will enhance the already significant contribution of the DL program to the vitality of the Magnetics Society and the field of magnetics overall.

1. **The aims of the DL Programme**
    - To celebrate achievements in magnetics and honour the finest researchers and communicators in the field.
    - To provide outreach to the wider community and promote the trans-national aims of the Magnetic Society.
    - To support Chapter activities by providing high profile speakers for local meetings.
    - To inspire and enthuse, especially young researchers entering a career in magnetics.
    - To advertise and promote the IEEE Magnetics Society as the society of choice for magnetics professionals.
    - To act as an engine to recruit new members to the Magnetics Society.
2. **Criteria for Selection**

    Given the aims of the DL programme there are two principal criteria, based on awarding DL's to dynamic individuals with a strong presence in their field. However, the outreach aims of the programme also suggest further secondary criteria.

    Principal Criteria

    - Excellence in some field of magnetics. This is not limited to excellence in research, but should also recognise the important contributions of individuals in developing the applied/technical aspects of magnetics.
    - Excellent communication skills.

    Secondary Criteria

    - Diversity
        - Technical – coverage of as many aspects of magnetics as possible
        - Geographical
        - Gender and Ethnic
    - The DL should also be a member of the Magnetics Society. Under exceptional circumstances a non- member can be considered as long as he/she agrees to become a member.

This year we have an excellent set of DL's giving talks on 3 diverse areas:

- Half-Metals, Spin Torque, and Nanorings (Prof. Chia-Ling Chien, Johns Hopkins),
- Micro Fabrication Techniques for Magnetic Information Storage Devices: From Bubbles to Thin Film Recording Heads to Nano Magnetic Structures (Dr. Robert E. Fontana, Jr. Hitachi Global Storage Technologies), and
- Dynamics in magnetic micro- and nanostructures (Prof. Burkard Hillebrands, Technische Universität Kaiserslautern)

Further details of their talks in addition to brief biographies can be found in the following section. The DL's are currently in the process of finalizing their plans for the second half of the year, so if you are interested in having one (or more) talk in your location, now would be a good time to issue the invitation! Please contact the DL's directly for their availability or contact the DL coordinator (Roy Chantrell, rc502@york.ac.uk) for further information or help with arrangements. Roy would also be happy to receive comments on the aims of the program and any suggestions for its further development. He would also be interested in hearing of innovative use of the program, so as to be able to circulate examples of good practice. As one example, the UK chapter has a record of organizing 'topical meetings' around the visit of a DL, in which the DL presentation is complimented by a further 2-3 invited talks within the same area. These meetings have proven extremely popular and made the magnetics society very attractive to UK magneticians.

Finally, the success of the DL program was founded on the efforts of previous coordinators (Isaak Mayergoyz and Stan Charap). On behalf of the membership, the awards committee chair (Bruce Gurney) and Roy Chantrell would like to record their appreciation of a job well done by Isaak and Stan in creating a lively and effective program with its enormous contribution to the activities of the Magnetics Society.

Roy Chantrell
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IEEE MAGNETICS SOCIETY
DISTINGUISHED LECTURERS FOR 2007

Imaging Magnetic Surfaces with Atomic Resolution

Matthias Bode
University of Hamburg

Fueled by the ever increasing data density in magnetic storage technology and the need for a better understanding of the physical properties of magnetic nanostructures, there exists a strong demand for high resolution, magnetically sensitive microscopy techniques. The technique with the highest available resolution is spin-polarized scanning tunneling microscopy (SP-STM) which combines the atomic resolution capability of conventional STMs with spin sensitivity by making use of the tunneling magnetoresistance effect between a magnetic tip and a magnetic sample surface. Beyond the investigation of ferromagnetic surfaces, thin films, and epitaxial nanostructures with unforeseen precision, it also allows the achievement of a long-standing dream: the real space imaging of atomic spins in antiferromagnetic surfaces.

The lecture addresses a wide variety of phenomena in surface magnetism which in most cases could not be imaged directly before the advent of SP-STM. After starting with a brief introduction of the basics of the contrast mechanism, recent major achievements will be presented, like the direct observation of the atomic spin structure of domain walls in antiferromagnets and the visualization of thermally driven switching events in superparamagnetic particles consisting of a few hundreds atoms only. To conclude the lecture, recently observed complex spin structures containing 15 or more atoms will be presented.

Matthias Bode received the diploma in physics from the Free University of Berlin, Germany, in 1993, and the Ph.D. degree in physics from the University of Hamburg, Germany, in 1996. Based on his works on spin-polarized scanning tunneling microscopy he received the habilitation in experimental physics from the University of Hamburg in 2003.

Since 1996 he is a Research Staff Member at the Institute of Applied Physics at the University of Hamburg. In the past 10 years Dr. Bode developed spin-polarized scanning tunneling microscopy, a magnetic imaging technique with a resolution down to the atomic limit. His research explores correlations between structural, electronic, and magnetic properties of epitaxial nanostructures with a special interest in frustrated antiferromagnetic surfaces, superparamagnetism, and new magnetic phenomena.

Dr. Bode has published more than 80 peer-reviewed papers, three review articles, and three book chapters. In 2003 he was awarded the Philip-Morris Award for research.

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Ferrite Nanoparticles, Films, Single Crystals, and Metamaterials: High Frequency Applications

Vincent G. Harris
Northeastern University

Ferrite materials have long played an important role in power conditioning, conversion, and generation across a wide spectrum of frequencies (up to 10 decades). They remain the preferred magnetic materials, having suitably low losses, for most applications above 1 MHz, and are the only viable materials for nonreciprocal magnetic microwave and millimeter wave devices (including tunable filters, isolators, phase shifters, and circulators). Recently, novel processing techniques have lead to a resurgence of research interest in the design and processing of ferrite materials as nanoparticles, films, single crystals, and metamaterials. These latest developments have set the stage for their use in emerging technologies that include cancer remediation therapies such as magneto-hyperthermia, magnetic targeted drug delivery, and magneto-rheological fluids, as well as enhanced magnetic resonance imaging.

With reduced dimensionality of nanoparticles and films, and the inherent nonequilibrium nature of many processing schemes, changes in local chemistry and structure have profound effects on the functional properties and performance of ferrites. In this lecture, we will explore these effects upon the fundamental magnetic and electronic properties of ferrites. Density functional theory will be applied to predict the properties of these ferrites, with synchrotron radiation techniques used to elucidate the chemical and structural short-range order. This approach will be extended to study the atomic design of ferrites by alternating target laser-ablation deposition. Recently, this approach has been shown to produce ferrites that offer attractive properties not found in conventionally grown ferrites. We will explore the latest research developments involving ferrites as related to microwave and millimeter wave applications and the attempt to integrate these materials with semiconductor materials platforms.

Vincent G. Harris received the B.Sc., M.Sc., and Ph.D. (1990) degrees in engineering from Northeastern University. He has also received the M.Sc. degree in engineering management from the University of Maryland (1995), and the M.Sc. degree in executive technology management from the Wharton School at University of Pennsylvania (2003). He is presently the William Lincoln Smith Chair Professor in the Electrical and Computer Engineering Department at Northeastern University.

Dr. Harris was a member of the technical staff at the Naval Research Laboratory (1990-2003). During his time at NRL he served as the head of the Complex Materials Section and the head of the Materials Physics Branch. In 2001 he established and assumed the position of director of the NRL Synchrotron Radiation Consortium (2001-2003). In 2004 he established the Center for Microwave and Magnetic Materials and Integrated Circuits, and continues to serve as its first director. The mission of this center is to develop high frequency materials and device solutions for next-generation radar and wireless communication electronics.

His research interests include materials design and the study of processing, structure, and magnetism in a wide range of materials. He has pioneered the use of synchrotron radiation techniques to relate the short range chemical and structural properties of materials to magnetism. He has published more than 170 technical articles, including book chapters and review articles on the topical areas of nanotechnology, magnetism, and magnetic materials. In addition, he holds nine patents and patent applications, and has presented more than 150 papers at national and international meetings. Dr. Harris is a Fellow of the American Physical Society and Senior Member of the IEEE.

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Magnetic Nanoparticles: Self-Assembly and Nanoscale Behavior

Sara A. Majetich
Carnegie Mellon University

The magnetic behavior of a monodomain nanoparticle was first described by Stoner and Wohlfarth nearly sixty years ago, yet this simple system is frequently invoked in discussions of high-density magnetic recording media, magnetic refrigeration materials, and a host of biomagnetic applications. Here we will examine two cross-cutting themes of current research on magnetic nanoparticles: self-assembly and nanoscale magnetic behavior.

Different types of superstructure can be self-assembled from the same type of particles. In organic solvents, two-dimensional arrays with long-range order can be formed using Langmuir layer techniques. These monolayers are also used as nanomasks for crystallographically oriented thin films, which provide an alternative approach to preparing nanoparticle arrays for data storage media. Faceted three-dimensional single "grain" nanoparticle crystals are formed by colloidal crystallization methods. Magnetic field gradients can also be used to guide self-assembly. For example, gold-coated iron oxide particles can be used to image self assembly dynamics in aqueous media, in response to patterned magnetic elements, using plasmon scattering and dark-field optical microscopy to track single particles.

The ability to make magnetic nanostructures creates a need for new tools that enable us to visualize their magnetization patterns. Small-angle neutron scattering provides average magnetic correlation lengths within three-dimensional assemblies, where correlations of hundreds on nanometers may be present at low temperature. Electron holography shows real-space magnetization patterns of magnetic monolayers, where vortices and transverse domain walls are present as low energy excitations. Scanning probe techniques have the potential for single-particle-per-bit magnetic information storage.

Sara Majetich received the A.B. degree in chemistry at Princeton University and the M.S. degree in physical chemistry at Columbia University. Her Ph.D. was in solid state physics from the University of Georgia. She did postdoctoral work at Cornell University. Since 1990 she has been a faculty member, and now full professor, in the Physics Department at Carnegie Mellon University. Her awards include the Ashkin Award for excellence in teaching, the Carnegie Mellon University Undergraduate Advising Award, and a National Young Investigator Award from the National Science Foundation. She has three patents and over 100 publications. Her research interests focus on magnetic nanoparticles and nanocomposites and their applications.

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High Magnetic Anisotropy Materials: From Bulk, Through Multilayers, to Nanoscale Particles

Takao Suzuki
Toyota Technological Institute

Magnetic anisotropy is one of the basic properties of magnetic substances. In particular, magneto-crystalline anisotropy is thought to be intrinsic for bulk materials, but the theoretical understanding is not satisfactory, as is often demonstrated. In multilayers and nanoparticles where surface or interfacial magnetic anisotropy plays a key role, magnetic behavior is significantly influenced by extrinsic or induced magnetic anisotropy. Among many alloy systems, ordered alloys are known to exhibit high magnetic anisotropy; in particular the $L1_0$ ordered phase is of great interest because of applications in bit-patterned magnetic data storage.

Nanocomposite particles with a high magnetic anisotropy phase, together with other magnetic anisotropies, are the subject of intensive research since they offer potential for various applications such as hybrid data storage, sensors, and bio-devices.

This tutorial lecture addresses the magnetism and structure of thin films and nanocomposite particles with a high magnetic anisotropy ordered phase. An in-depth review of magnetic anisotropy in representative materials is given. Recent developments in high magnetic anisotropy of novel materials, multilayers, and nanocomposites will be presented. Emphasis is placed on quasi-$L1_2$ structured alloy films with very high magnetic anisotropy and on FePt/FeRh nanocomposites of the first-order transition type, in conjunction with possible applications.

Takao Suzuki received the B.S. and M.S. from Waseda University, Tokyo, in 1962 and 1964, respectively, and the Ph.D. from California Institute of Technology in 1969. He was a postdoctoral fellow at Max-Planck Institute in Stuttgart from 1969 through 1972, and was an associate professor at Tohoku University from 1972 through 1988, where his research interests included magnetic multilayers with high magnetic anisotropy for magneto-optical recording, and magnetic recording applications.

From 1988 through 1995 he worked as a research staff member at IBM Almaden Research Center in San Jose, California, and was involved with high density magneto-optical and magnetic recording materials developments. In 1995 he joined Toyota Technological Institute in Nagoya, Japan, as a principal professor. Dr. Suzuki is now a vice president and a principal professor of the Institute, and also director of the Academic Frontier Center sponsored by the Japanese Ministry of Education, Science, Sports and Culture. His current research interests include the magnetic anisotropy and structure of ordered alloy thin films and nanoparticles, and high density perpendicular magnetic recording media applications. He has published more than 260 scientific papers, has written four books, and has 17 patents.

Professor Suzuki is Fellow of the IEEE. He has been active in many Intermag and Magnetism and Magnetic Materials conferences, including serving as program co-chair of MMM in 1995, and as treasurer co-chair of Intermag in 2005. He has served as a member of the Administrative Committee of the IEEE Magnetics Society for several terms. He is on the Editorial Board of IEEE TRANSACTIONS ON MAGNETICS and is an advisory editor of the Journal of Magnetism and Magnetic Materials.

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SPIN ELECTRONICS

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MASSIVE INFORMATION: EXPLOITATION AND SECURITY

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BEYOND THE LIMITS OF MAGNETIC RECORDING: AN ITINERANT MAGNETICIAN LOOKS AT HYSTERICAL LOOPS

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IEEE NEWS

IEEE Annual Elections

VOTE!

The opportunity to vote in the IEEE Annual Election is a privilege of membership. This year, for the first time, the privilege is extended to graduate student members. All ballots must be received by the election vendor by Wednesday, 1 November 2006 at 12 noon, Central Time USA (18:00 Greenwich Mean Time) in order to be counted.

IEEE Annual Election Web Media

A video session with the two President-Elect candidates answering questions asked by members and a video of the annual President-Elect candidates' debate, hosted by the IEEE Philadelphia Section are available. View videos.

Listed below are the positions and candidates that will appear on the 2006 IEEE Annual Election ballot.

Position	Candidate
IEEE President-Elect, 2007	• Lewis Terman (Nominated by IEEE Board of Directors) • John Vig (Nominated by IEEE Board of Directors)
Division I Delegate-Elect/Director-Elect, 2007	• Giovanni (Nanni) De Micheli (Nominated by Division I) • Richard C. Jaeger (Nominated by Division I)
Division III Delegate-Elect/Director-Elect, 2007	• Roberto Saracco (Nominated by Division III) • Curtis A. Siller, Jr. (Nominated by Division III) • William H. Tranter (Nominated by Division III)
Division V Delegate-Elect/Director-Elect, 2007	• Deborah M. Cooper (Nominated by Division V) • Stephen L. Diamond (Nominated by Division V)
Division VII Delegate-Elect/Director-Elect, 2007	• James M. Howard (Nominated by Division VII) • H. Peter Lips (Nominated by Division VII) • John D. McDonald (Nominated by Division VII)
Division IX Delegate-Elect/Director-	• David G. Goodenough (Nominated by Division

Elect, 2007	IX) • Frederick C. Mintzer (Nominated by Division IX) • Adrianus J. (Han) Vinck (Nominated by Division IX)
Region 2 Delegate-Elect/Director-Elect, 2007-2008	• Amarjeet S. Basra (Nominated by Region 2) • William P. Walsh, Jr. (Nominated by Region 2)
Region 4 Delegate-Elect/Director-Elect, 2007-2008	• Don C. Bramlett (Nominated by Region 4) • S. Hossein Mousavinezhad (Nominated by Region 4)
Region 6 Delegate-Elect/Director-Elect, 2007-2008	• Leonard J. Bond (Nominated by Region 6) • S.K. Ramesh (Nominated by Region 6)
Region 10 Delegate-Elect/Director-Elect, 2007-2008	• Y.W. Liu (Nominated by Region 10) • R. Muralidharan (Nominated by Region 10) • Yong Jin Park (Nominated by Region 10)
Standards Association Board of Governors Member-at-Large, 2007-2008	• H. Landis (Lanny) Floyd, II (Nominated by Standards Association) • Richard H. Hulett (Nominated by Standards Association)
Standards Association Board of Governors Member-at-Large, 2007-2008	• Dennis B. Brophy (Nominated by Standards Association) • Paul Nikolich (Nominated by Standards Association)
Technical Activities Vice President-Elect, 2007	• Jose R. (Roberto) Boisson de Marca (Nominated by Technical Activities) • Harold L. Flescher (Nominated by Technical Activities) • Robert (Bob) C. Rassa (Nominated by Technical Activities)
IEEE-USA President-Elect, 2007	• Russell J. Lefevre (Nominated by IEEE-USA) • Joseph V. Lillie (Nominated by IEEE-USA)
IEEE-USA Member-at-Large, 2007-2008	• Gary L. Blank (Nominated by IEEE-USA) • Gregg L. Vaughn (Nominated by IEEE-USA)

http://www.ieee.org/portal/pages/corporate/elections/index.html

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SENIOR MEMBERSHIP

Elevate your membership!

Requirements for elevation to IEEE Senior Member

IEEE Bylaw I-105.3 sets forth the criteria for elevation to Senior Member Grade, as follows:

> "… a candidate shall be an engineer, scientist, educator, technical executive or originator in IEEE-designated fields. The candidate shall have been in **professional practice for at least ten years** and shall have shown **significant performance over a period of at least five** of those years."

There is no cost to convert to a Senior Member. "Senior" refers to professional experience, not age, and you do not need to be a "senior citizen" to be a Senior Member.

For full information visit the IEEE Senior Member Web pages

Once you determine that you fulfill the **requirements** for Senior Member (SM) grade, identify your three references who must be IEEE Senior Members or Fellows.

If you have difficulty in locating individuals to serve as your references, contact your local Section or Chapter for assistance. For help in contacting your Section/Chapter Chair, email Denise Howard at senior-member@ieee.org.

If you have been notified by a Section officer that he or she intends to nominate you for Senior Member grade, the nominator serves as one reference as long as he/she is a Senior Member or Fellow. Otherwise, the required number of references is still three in addition to the nomination.

Alternatively, contact your Section Chair and ask if he or she can nominate you. This will help your Section earn a rebate at the end of the year through the **Nominate a Senior Member Initiative**.

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CALL FOR NOMINATIONS

IEEE MAGNETICS SOCIETY 2007 ACHIEVEMENT AWARD

Deadline: November 15, 2006

IEEE TEACHING AWARDS

IEEE Leon K. Kirchmayer Graduate Teaching Award:

http://www.ieee.org/awards/sums/gradtch.xml

Nomination Deadline - 31 January

The IEEE Graduate Teaching Award is a Technical Field Award established by the Board of Directors in 1990 and renamed in honor of Leon K. Kirchmayer in 2002. Dr. Kirchmayer was well known and revered throughout the world for his commitment to students and education.

This award honors teachers of electrical and electronics engineering and the related disciplines, 'for inspirational teaching of graduate students in the IEEE fields of interest.'

IEEE Undergraduate Teaching Award:

http://www.ieee.org/awards/sums/ungrad.xml

Nomination Deadline – 31 January

The IEEE Undergraduate Teaching Award is a Technical Field Award of the Institute established by the Board of Directors in 1990 to honor teachers of electrical and electronics engineering and the related disciplines, 'for inspirational teaching of undergraduate students in the fields of interest of the IEEE.'

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IEEE Fellow Nominating Process Revisions - with Application Engineer / Practitioner category added

The purpose of this article is to remind all IEEE members of the changes in the IEEE Fellow nomination process that have taken place over the past several years, mainly in the effort to generate more Fellow nominations from industry

Changes were initiated in 2003 - to the Fellow process – and to the appropriate IEEE By-Laws - to assure equal opportunity for election to IEEE Fellow grade of members with careers involving the application of technology. The changes actually took effect for the Fellow class of 2005.

The IEEE Bylaws were amended to clarify the eligibility of Application engineers and Practitioners, and to establish the realization of the significant value to society standard for evaluating nominations. Fellow candidates are now classified as – Application Engineer / Practitioner, Research Engineer / Scientist, Technical Leader, or Educator.

Another important step in modernizing the Fellow nomination process is that the nomination forms and instructions are available on the IEEE Web site – and that the nomination forms can now be submitted electronically. See the IEEE Web site at (www.ieee.org/fellow).

Although electronic submittal of Fellow nominations is highly recommended, and is the preferred method of submittal, the forms and instructions are also available in hard copy (via E mail to "fellow@ieee.org"). Nomination forms are able to be submitted in either "hard copy", or electronically via the WEB. The Class of 2007 Fellow nomination cycle ends March 1st, 2007.

All questions on the Fellow nomination process - or general Fellow questions should be referred to the IEEE Fellow staff – E mail – "fellows@ieee.org".

IEEE Fellow grade membership is bestowed by the Board of Directors on IEEE Senior Members with an extraordinary record of accomplishment in any IEEE field of interest. The accomplishments honored shall have contributed significantly to the advancement of engineering, science and technology, bringing the realization of significant value to society.

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The INSTITUTE online

The most current version of **The Institute** can always be found at http://www.ieee.org/theinstitute

Here's your report on news around the IEEE, from the editors of The Institute. The most current version of The Institute can always be found at <http://www.ieee.org/theinstitute>

In the latest issue:

- IEEE.tv: New Broadcaster Hits Town
- Life Fellow Donates Royalties to the IEEE
- VHS Named History Milestone
- Marketplace of Ideas: Questioning the Retirement Age
- Sign up for Test and Measurement Webinar
- Environmental Classes Just a Click Away
- Last Chance to Register for the Next Career Accelerator Forum
- Students From Turkey Win Robotic Firefighting Contest
- EE Times Seeks Nominations for Awards
- Digital Library Offers Subscription Incentives

October 2006

No Pilots, No Problem: Students Build Autonomous Aircraft

Many people may remember the scene at the beginning of Star Wars: The Empire Strikes Back. A small, flying droid hovers in the air and tracks Han Solo across an arctic wilderness. Then it attacks.

October 2006

IEEE.tv: New Broadcaster Hits Town

After more than 100 years of publishing magazines, the IEEE might think broadcasting is outside its scope. Studios, lights, cameras, microphones—the complexity of it all seemed too daunting to consider seriously. But IEEE felt it had a role to play and released its Internet broadcasting network in August.

October 2006 - History

VHS Named History Milestone

Although one would be hard pressed now to find new movies released in the VHS format, it stood as the video recording standard for almost three decades

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IEEE-USA Today's Engineer

Here's your monthly report from IEEE-USA on building careers and shaping public policy, from the editors of IEEE-USA Today's Engineer.

The current version of Today's Engineer Online can always be found at:
http://bmsmail3.ieee.org:80/u/3998/123649

IN THE LATEST ISSUE:

1. TE Online: EWeek 2007 Sets Sights on “Tweens” to Discover Engineering
2. Free IEEE-USA e-Book for Membership Renewal
3. New IEEE-USA e-Book on Strategic Thinking for Non-Strategists in High-Tech Companies
4. TE Online: Update on Comprehensive Healthcare Plan
5. Seeking Engineering Faculty Member to Mentor Summer 2007 Public Policy Interns
6. Georgetown Study Reveals Flaws in Immigration Bill
7. New Edition of the IEEE Financial Advantage Program’s “FYI” Newsletter Available
8. Seeking Nominations: 2007 EWeek “New Faces of Engineering”
9. NCEES Online Poll: Calling All Licensed Members -- Especially Computer Engineers
10. IEEE-USA Unveils New Capabilities Brochure
11. Lemelson-MIT Awards Revises Age Criterion for Candidates, Extends Deadline
12. Learning and Physical Challenges Education Program at SC06

Math... What Good Is It?

by Donald Christiansen

This seems to be the question that many elementary school kids are asking. A teaching system that cannot answer them is often blamed for losing future engineers and scientists who, at this youthful stage, may be mathematically adept but uninterested in pursuing math studies because they cannot imagine any useful way to apply what they might learn…. *read more*
http://www.todaysengineer.org/2006/Oct/backscatter.asp

An Engineer's Guide to Résumé Writing

By Elizabeth Lions

A Google search for "résumé writing" will return thousands of links to articles on how to construct a résumé, each promising a fulfilling and rewarding new job. In fact, the Web holds so many articles about résumé writing it’s hard not to become overwhelmed by the sheer volume. The purpose of this article is to help a technical person construct a résumé with a marketing slant… *read more*
http://www.todaysengineer.org/2006/Oct/resume_writing

MAGNEWS

The Hard Drive Turns 50
A look back at where hard drives have been--and where they're going.

Melissa J. Perenson, PC World
Wednesday, September 13, 2006 12:00 AM PDT

Today, the hard drive is found everywhere--from the PCs we use daily to MP3 players and memory keys so small you can toss them in your pocket and forget you're carrying around a hard drive. But when the hard drive was first introduced on September 13, 1956, it required a humongous housing and 50 24-inch platters to store 1/2400 as much data as can be fit on today's largest capacity 1-inch hard drives.

Back then, the small team at IBM's San Jose-based lab was seeking a way to replace tape with a storage mechanism that allowed for more-efficient random access to data. The question was, how to bring random-access storage to business computing?

Enter the RAMAC, 1956

IBM's answer to this quandary was the Random Access Method of Accounting and Control, dubbed the RAMAC for expediency. The device's name is a direct reflection of the need for such capabilities in the enterprise. Led by project leader Rey Johnson, IBM's San Jose lab brought the RAMAC 305 system to market.

Recalls Al Shugart, who worked as a field engineer at IBM before joining the RAMAC project and went on to later found Seagate Technology: "They were starting from scratch in the lab. The RAMAC was not just a disk drive, it was a whole system. Nobody had made disk drives before."

The approach IBM's engineers came up with represented a clean approach to random data access, notes Shugart: "The concept of the whole disk drive was random access." To achieve random access, the device would have to move its read/write heads around to different data tracks. "The easiest way to do that," he says, "was a stack of disks."

The integrated RAMAC 305 system was about two refrigerators in width and not quite as tall, and it literally weighed a ton. Its hard drive, the RAMAC 350, had 50 24-inch platters in a stack inside the unit, in an assembly that spun at 1200 revolutions per minute. The unit used two magnetic recording heads. The RAMAC 350 could hold 5MB--about the storage that today is needed for one 5-minute MP3 encoded at 128 kilobits per second.

In order to read and write the data, the RAMAC heads moved across a series of circular tracks on each disk surface. Albert Hoagland, who helped build the first drive and is working to preserve the history of magnetic disk technology as executive director of the Magnetic Disk Heritage Center, elaborates: "A shaft ran the length of the disk stack, with a horizontal head and arm

assembly that moved in and out to locate the selected track; that arm, which weighed three pounds, had to get from the innermost track on the top disk to the innermost track on the bottom disk in less than a second."

"The disks' surfaces were covered with a paint that had magnetic properties--very similar to the paint used on the Golden Gate Bridge," says Bill Healy, senior vice president at Hitachi (which bought IBM's storage division in 2003). "They needed a disk with magnetic properties, so it would be magnetically susceptible to recording 1s and 0s; and they needed a read element, such as a disk head, to detect, read, and write that data," he explains.

Shugart recalls12 initial prototypes. "From there on, we would design a system for production, including a disk drive. The production [version] was a vacuum tube machine, and I was in charge of designing the computer system for the vacuum tube machine."

Although the RAMAC shares only some characteristics with today's hard drives, they are important ones, says Hoagland. "The characteristics of all disk drives that still use ideas initiated on the RAMAC include: closely spaced disks or platters with magnetic film surfaces; positioning of read/write heads to service a large number of tracks; and and the use of head assemblies that create a small but finite separation between head and disk to avoid wear or damage to either one."

"The [technology] industry reinvented itself as the applications for the hard drive changed," adds Healy. "In the fifties and sixties, these devices were made for large corporations, government--the enterprise. The 24-inch diameter platter reduced in size in time. As the devices got smaller over that time, they were mainly aimed at the enterprise environment," he continues. Disk capacity doubled every two years, a 40 percent compound growth rate.

Adds storage industry analyst Tom Coughlin of Coughlin Associates: "Many companies started to make hard drives for computers, because it was a relatively inexpensive, high-performance way to make mass storage."

From the late fifties to the early seventies, hard drives were largely used in mainframe computer systems, the kinds found in large corporations and government. The rise of personal computers in the late seventies and early eighties opened the door of opportunity for hard drives--and in turn dramatically influenced where computer technology could go. "With the introduction of hard disk drives," notes Coughlin, "you had large amounts of storage that were always attached to the computer, and that enabled personal computers to achieve the levels of success they had. A hard drive allowed you to create higher-performance computers with more features because you could have a richer operating system running off the hard drive."

http://www.pcworld.com/article/id,127104/article.html?tk=nl_wbxnws

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CELEBRATE RAMAC!

Commemorate your contributions !!

Store Your Name and a Short Bio on the
IEEE Magnetics Society Commemorative Disk Site !
$1/Character !!
Funds to be used by the Chapter to help commemorate Disk Storage*

Data will be added to the Chapter Commemorative File to a LIMITED TOTAL FIXED 'RAMAC' CAPACITY of
5 Million Characters
When complete, file will then be posted for public viewing

Instructions:

1. Fill out your name and other details on grid below. One Character or space per cell. Please add additional cells as desired.

2. Send page with check for $1/cell, made out to 'SCV Chapter, IEEE Magnetics Society', and send to:

Roger F. Hoyt, Program Chair
6613 Tam OShanter Drive
San Jose, CA 95120-4022

***Endorsed by IEEE Santa Clara Valley Section**

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Solicitation for Contributions

MAGNETIC DISK HERITAGE CENTER

Mission

To preserve the history and legacy of magnetic disk storage at 99 Notre Dame, San Jose, California where it all began

Description

The Magnetic Disk Heritage Center (MDHC) is a recently formed non-profit California organization created to carry on the program under the same name initially started at Santa Clara University in 2001. Headquartered in Saratoga, California with an office as well as a laboratory for the RAMAC restoration project at the Computer History Museum located at 1401 Shoreline Blvd, Mountain View, CA 94303.

Some accomplishments and Current Activities

- Led the successful effort to have the site, 99 Notre Dame Avenue, San Jose where the RAMAC (the first magnetic disk storage device) was created, made a San Jose City Landmark. The building is currently under lease by the Superior Court pending their relocation to permanent quarters.
- Prepared displays on the early years of magnetic disk storage at 99 Notre Dame and secured approval to place them in the main lobby of the still existing original building.
- Nominated and succeeded in making the RAMAC an IEEE Milestone in 2005.
- In 2006 obtained agreements and placed the ASME RAMAC International Landmark plaque on the building and the IEEE RAMAC Milestone plaque in lobby.

A major activity at this time is our RAMAC Restoration Project with the goal of restoring an original RAMAC disk drive (on loan from IBM) to an operational state to be an interactive public exhibit on disk drive history. The purpose of this effort is to increase the awareness and recognition of this historic technical innovation in data storage to the local community in Silicon Valley where magnetic disk storage began.

Our website can be reached through sjmdhc.org

Tax deductible monetary contributions for MDHC as well as magnetic disk artifacts for museum displays are now being solicited.

Send contributions to the **Magnetic Disk Heritage Center** at:

Magnetic Disk Heritage Center
C/O Computer History Museum
1401 Shoreline Blvd, Mountain View, CA 94043

Albert S Hoagland, Executive Director

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How to destroy a hard drive in five seconds

When 'Format C:' just isn't good enough.

By Ryan DeBeasi, *NetworkWorld.com, 06/27/06*

You are on a U.S. military aircraft, transporting hard drives with important, classified information, when you collide withanother plane and are forced to land near an enemy intelligence agency. There is no time to delete the files, and the drivesare in heavy-duty steel cases so that they are difficult to destroy. You have a few minutes before someone finds you, grabsthe drives, and searches them for even the smallest trace of useful data. What would you do?

Michael Knotts, a senior research scientist at the Georgia Tech Research Institute, dealt with this question after a U.S.plane collided with a Chinese fighter jet and was forced to land near what he called "China's premier signals intelligencedepartment" four years ago. At the request of defense contractor L3 Communications, he and other researchers developed a methodfor quickly erasing hard drives by cranking them through a mechanism with a powerful magnet inside.

Read the entire article at http://www.networkworld.com/news/2006/062706-guard-dog.html

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How It Works: Hard Drives

If a computer's CPU is the thinking portion of your PC, the hard drive is its long-term memory--the nonvolatile place where data is stored.

The complete story can be found here:
http://www.pcworld.com/article/id,18693/article.html

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PAY-PER-USE licenses for micromagnetic design software products Magsimus Deluxe and Spin-valve Bench

Dear Colleague,

I am pleased to inform you of the formal innaugration of our exclusive pay-per-use online store for purchasing short-duration licenses (in weekly increments) of our micromagnetic design software products Magsimus Deluxe and Spin-valve Bench. The store URL is:

http://www.magoasis.com/catalog/index.php

This launch is just one way we strive to live up to a commitment to always deliver flexible and affordable product pricing options to our customers. The store offers you the convenience of subscribing to our products only as your need for them arises. Pay-per-use licenses are effective from the day you activate them on your computer. All major credit cards are accepted at
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http://www.magoasis.com/buyingsoftware.htm.

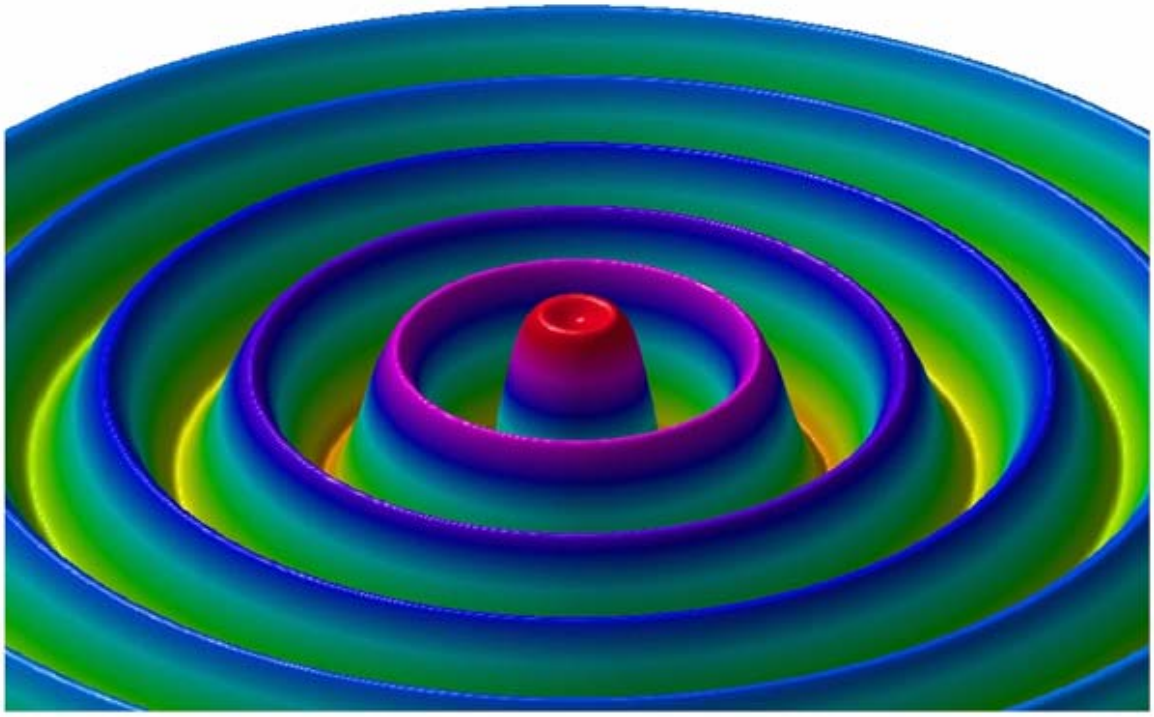
Please feel free to contact me directly if you need additional information regarding our online store, and please do pass on this information to other colleagues of yours for whom it may be of interest.

Best regards

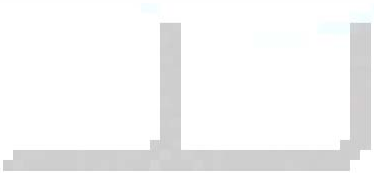
John Oti, D.Sc.
President
MagOasis LLC, http://www.magoasis.com/
Tel/Fax: 724-776-9076
email: joti@magoasis.com or johnoti@msn.com

VISUAL MAGNETICS - QUIZ

What has this to do with magnetism?



Solution:



go to the **END**

CONFERENCE ANNOUNCEMENT

STUDENT TRAVEL AWARD APPLICATION FOR THE JOINT CONFERENCE

BALTIMORE, JANUARY 2007

Dear Joint Conference participant:

This is a reminder that the IEEE Magnetics Society is sponsoring student travel awards for the upcoming Joint Conference in Baltimore. Students whose advisors are members of the IEEE Magnetics Society are eligible for $750 towards reimbursing travel costs to attend the Joint Conference. Details and other requirements, as well as application forms are available at http://www.magnetism.org/ieeegrant.html.

Applications and forms must be received by November 3, 2006.

Bruce A. Gurney, Ph.D.
Manager, Advanced Recording Head Concepts
San Jose Research Center, Hitachi Global Storage Technologies
phone 408-717-6039, fax 408-717-9073
email: Bruce.Gurney@HitachiGST.com

CONFERENCE ANNOUNCEMENT 1

The 10th Joint Magnetism and Magnetic Materials (MMM)/Intermag Conference will be held at the Baltimore Marriott Waterfront Hotel in Baltimore, Maryland from Sunday, January 7 through Thursday, January 11, 2007. Members of the international scientific and engineering communities interested in recent developments in magnetism and associated technologies are invited to attend the Conference and contribute to its technical sessions.

SCOPE OF THE CONFERENCE: This Conference will include all basic and applied science and technology related to the field of magnetism. The technical subject categories for the Conference are located at the end of this Call.

PROGRAM: The program will consist of invited and contributed papers falling broadly within the scope of the categories listed at the end of this Call.

PUBLICATION: The Proceedings of the Conference will be published in June 2007 as special issues of the *Journal of Applied Physics* and *IEEE Transactions on Magnetics*. Entire sessions will be assigned to one or the other of these publications by the Program Committee.
All manuscripts must be received by October 31, 2006.

EXHIBITS: An exhibition of related services, equipment, materials, software, technical journals and books will be held as a part of the 2007 Joint MMM/Intermag Conference. Individuals and organizations who are interested in purchasing booth space should contact **Roseann Kuryla,** Exhibits Coordinator at Courtesy Associates at: email:2007joint @courtesyassoc.com;
Fax: 202-973-8722.

REGISTRATION: Advance Conference Registration will be available starting **October 1, 2006**.

VISA REQUIREMENTS FOR ENTRY INTO THE USA: Citizens of other countries must carry a valid passport and visa to enter the USA. Foreign participants should contact the United States Embassy, Consulate, or Office of Tourism in their home country AS SOON AS OSSIBLE to determine their particular visa requirements. Participants requiring visas must initiate the application process many months in advance of their departure date. More details at:
http://www.magnetism.org

TECHNICAL SUBJECT CATEGORIES

I. Fundamental Properties and Cooperative Phenomena
II. Magnetoelectronic Materials and Applications

III. Computational Magnetics and Imaging
IV. Soft Magnetic Materials and Applications
V. Hard Magnetic Materials and Applications
VI. Structured Materials
VII. Special Magnetic Materials
VIII. Magnetic Recording
IX. Sensors (not magnetic recording), High Frequency and Power Devices
X. Applications and Interdisciplinary Topics

Julie Borchers
Conference Chair
www.magnetism.org

CONFERENCE ANNOUNCEMENT 2

Nano and Giga Challenges in Electronics and Photonics From Atoms to Materials to Devices to System Architecture

Symposium and Spring School (Tutorial Lectures)

Phoenix, Arizona, March 12-16, 2007

Conference Overview

Microelectronics technologies have reached a new stage in their development: the latest miniaturization of electronic devices is approaching atomic dimensions, interconnect bottlenecks are limiting circuit speeds, new materials are being introduced into microelectronics manufacture at an unprecedented rate, and alternative technologies to mainstream CMOS are being considered. As a marriage of today's micro-, tomorrow's nano- and future molecular electronics this series of conferences on Nano and Giga Challenges in Microelectronics (NGCM) is being launched. Following the first successful forums in Moscow, Russia (NGCM2002) and in Krakow, Poland (NGCM2004) the third meeting will be held in Phoenix, Arizona in 2007 hosted by Arizona State University in cooperation with Nano & Giga Solutions and other local, national and international organizations, Universities, research centers, companies and governmental agencies.

GIGAntic challenges for the continuing growth of information technologies beyond the fundamental physical limits in scaling electronic devices to NANO dimension has sparked an unprecedented level of interdisciplinary and international cooperation between industrial and academic researchers, companies - IT market rivals, and countries, including former political and military rivals. The next forum in Phoenix, Arizona, invites academic and industrial researchers to present tutorial, expository and original research papers dedicated to the scientific and advanced technologically problems related to the ultimate merge of micro- and nanoelectronics and photonics in specific areas, such as atomic scale materials design: theory and experiment; bio- and molecular electronics and photonics; high frequency electronics; fabrication of nanodevices; magnetic materials and spintronics; materials and processes for integrated and subwave optoelectronics; nanoCMOS: new materials for FETs and other devices; nanoelectronics system architecture; nano optics and lasers; non-silicon materials and devices; quantum effects in devices.

Co-Chairmen

Herb Goronkin (Advisory Board), Technology Acceleration Associates, Phoenix, Arizona, USA
Stephen Goodnick (Program Committee), Arizona State University, Tempe, Arizona, USA
Anatoli Korkin (Organizing and Program Committee), Nano & Giga Solutions, Gilbert, Arizona, USA

http://www.AtomicScaleDesign.Net/ngc2007
http://ngc2007.asu.edu

CONFERENCE ANNOUNCEMENT 3

2007 MRS Spring Meeting

April 9—13, 2007
Exhibit: April 10—12
Moscone West | San Francisco Marriott, San Francisco, CA, USA

The 2007 MRS Spring Meeting will feature 36 technical symposia in five topical clusters, an international exhibit highlighting products and services of interest to the materials community, and much more.

The symposia are grouped into the following topical clusters:

- **Electronic and Magnetic Materials**
  Symposia A - M
- **Polymers, Hybrids, and Biomaterials**
  Symposia N - W
- **Optical Materials and Phenomena**
  Symposia Y - CC
- **Nanoscale Materials, Properties, and Applications**
  Symposia DD - JJ
- **General**
  Symposium X

Abstract submission is now open. Deadline: November 1

Submit an abstract

View Call for Papers

http://www.mrs.org/s_mrs/sec.asp?CID=6765&DID=175838

CONFERENCE ANNOUNCEMENT 4

INTERMAG 2008
Municipal Conference Center of Madrid
May 4- 8, 2008.

All members of the international scientific community interested in new developments in magnetism and associated technologies are invited to attend. More information can be found in the conference website
http://www.intermagconference.com/intermag2008/

Organizers:
Manuel Vazquez and Ronald Indeck (Conference Chairmen)
Josef Fidler, Bruce Terris and Kevin O'Grady (Program Co-Chairs)
Jaques Miltat and Sara Majetich (Editors in-chief)
Puerto Morales (Local Chair)
Jan-Ulrich Thiele and Oksana Chubykalo-Fesenko (Treasurers)
Marta San Roman (Exhibits)
Luis Lopez Diaz and Petru Andrei (Website, Printing and Publicity)

http://www.intermagconference.com/intermag2008/

FORTHCOMING CONFERENCES

52ND CONFERENCE ON MAGNETISM AND MAGNETIC MATERIALS

November 5-9, 2007; Tampa, Florida

53RD CONFERENCE ON MAGNETISM AND MAGNETIC MATERIALS

November 10-14, 2008; Austin, Texas

IEEE PUBLICATION NEWS

IEEE Transactions on Magnetics Coverage Expanded to Include All Aspects of Magnetic Information Storage

The Transactions is widely regarded as the premier journal for magnetic data storage. Regular Transactions issues include articles on heads, media, giant magnetoresistance, spintronics, servos, systems, channels, and codes.

Now, the Transactions announces that coverage of regular papers is being expanded to include all relevant topics in magnetic disk and tape storage, including tribology, head-disk dynamics, and disk- and tape-drive components. These topics already appear in many conference-related papers published in the Transactions.

The Transactions continues to publish articles in other areas of magnetics, including basic physics of magnetism, magnetic materials, applied magnetics, magnetic devices, and computational magnetics.

Authors may submit articles electronically for consideration for publication in the Transactions at http://transmag-ieee.manuscriptcentral.com/.

Members of the Magnetics Society get free on-line access to the TRANSACTIONS (via IEEE Xplore) and an annual CD-ROM. At membership renewal, members may also subscribe to the print edition for an extra fee.

Members who have difficulty accessing the TRANSACTIONS may go to http://ieeexplore.ieee.org/xpl/techform.jsp (also linked from "SUPPORT" on the IEEE Xplore navigation bar) or may send a message to onlinesupport@ieee.org.

Institutional on-line subscription options to Xplore are described at http://www.ieee.org/products/onlinepubs/info/comparefeatures.html.

Ron Goldfarb
Publications Chair
IEEE Magnetics Society

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BOOKS ON MAGNETISM

Mondo Magnets explains amazing experiments and astounding "magic" tricks

(But don't tell: the secret behind them all is in the magnets!)

CHICAGO: Magnets do much more than hold photos and report cards to the refrigerator door and keep the needles in compasses heading north. In fact, the unique field of magnetism has some exceptional and often bizarre properties to explore.

In ***Mondo Magnets: 40 Attractive (And Repulsive) Devices & Demonstrations*** (Chicago Review Press, March 2007), Fred Jeffers produces surprising and seemingly impossible effects in experiments using magnets.

"Even some magnetic experts have been baffled by the results of my 'magic' experiments," explains Jeffers, "but I tell them, it's not magic, it's magnets!"

The experiments in ***Mondo Magnets*** explore the little understood realm of magnetism, and are simple and safe to conduct. Jeffers offers clear instructions and plentiful illustrations that demonstrate how magnets can lift rocks, suspend spinning tops inches off the ground and cause other magnets to leap into the air.

Mondo Magnets contains some experiments that even function as parlor tricks. A common refrigerator magnet can produce a dazzling three-dimensional image, and the right magnet will turn a pool of black liquid into a raised spiky surface.

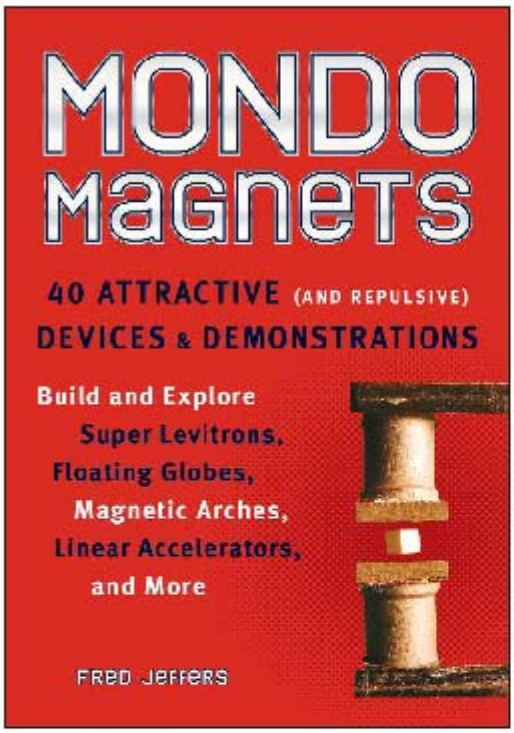
Each experiment includes step-by-step instructions and specific information on where specific types of magnets can be purchased. ***Mondo Magnets*** also contains in-depth explanations of the magnetic physics that underlie each demonstration.

Handy charts and rigorous scientific accounts ensure that ***Mondo Magnets*** appeals to the amateur tinkerer and the science scholar alike.

Fred Jeffers has worked in magnetic product research and development since 1967 and has been awarded 60 U.S. patents, with several more pending. He is an Institute of Electrical and Electronics Engineers (IEEE) Fellow and was an IEEE Distinguished Lecturer for 1999-2000. He lives in Escondido, California.

Book Details:
Title: Mondo Magnets: 40 Attractive (And Repulsive) Devices & Demonstrations
Author: Fred Jeffers
Publisher: Chicago Review Press, Distributed by Independent Publishers Group
Publication: March 2007, $16.95 (CAN $22.95), paper, ISBN: 155652530X
Science, 160 pages, 7 x 10, 110 b&w photos, 20 b&w diagrams

Available at bookstores everywhere and through Independent Publishers Group, 814 N. Franklin St., Chicago, IL 60610. Toll-free number for orders only: 1-800-888-4741. Visit us online at www.ipgbook.com.



Harness the fun and magic of magnets

Mondo Magnets

40 Attractive (and Repulsive) Devices & Demonstrations

Fred Jeffers

• Co-op available

Surprising and seemingly impossible effects result from the 40 experiments included in this fascinating science resource—all based on real magnetic physics. Each experiment—such as using a common refrigerator magnet to create a three-dimensional image or floating a magnet and carbon sheet in mid air—is outlined with step-by-step instructions and diagrams that illustrate the key concepts of magnetism. Even the most experienced science teacher or at-home tinkerer will find dozens of new tricks in this amazing collection.

Fred Jeffers has worked in magnetic product research and development since 1967, and has been awarded 60 U.S. patents, with several more pending. He is an Institute of Electrical and Electronics Engineers (IEEE) Fellow and was an IEEE Distinguished Lecturer for 1999–2000.

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CHICAGO REVIEW PRESS MARCH

Sample experiment:
Magnetic Money, Rocks, Beach Sand, Total Cereal, and Dirt

VISUAL MAGNETICS - QUIZ – SOLUTION

SUNDAY EVENING TUTORIAL ON SPIN TORQUE
AT THE START OF THE BALTIMORE MMM/INTERMAG CONFERENCE

On Sunday evening the 7th of January before the start of the technical program, there will be a tutorial session on Spin Torque in the Harborside Ballroom Salons C-E on the 4th Floor of the hotel.

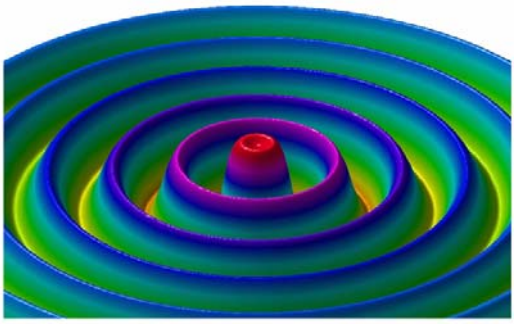
The aim of the tutorial is to provide a broad introduction to the physics of spin torque, geared toward the non-expert. The tutorial begins at 7:00 pm and each talk is alotted 36 minutes.

The speakers are Tom Silva (NIST), Andrei Slavin (Oakland University), and Pieter Visscher (University of Alabama).

The presentations will focus on

- **an introduction to spin torque (Silva),**
- **nonlinear microwave dynamics (Slavin), and**
- **large angle precession dynamics and visualizations (Visscher).**

The tutorial will be chaired by Carl Patton (Colorado State University).



Large amplitude mode solution when a perpendicular applied field is assumed. The mode is oscillating at 32 GHz with a driving dc current of 11 mA. The contact diameter is 40 nm, approximated by the central red region in the figure.

About the Newsletter

The objective of the **IEEE Magnetics Society Newsletter** is to publicize activities, conferences, workshops and other information of interest to the Society membership and technical people in the general area of applied magnetics. Manuscripts are solicited from the Magnetics Society membership, organizers of conferences, officers of the Society, local chapters, and other individuals with relevant material.

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Please send articles, letters and other contributions to the editor:

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