



# IEEE Magnetics Society NEWSLETTER

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**Martha Pardavi-Horvath, Editor**

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  3. **MML '04** 4<sup>th</sup> International Symposium on Metallic Multilayers, Boulder, CO, *June 7 – 11, 2004*.
  4. **SCM-2004** Second Seeheim Conference on Magnetism, Seeheim, Germany, *June 27-July 1, 2004*.
  5. **EMSA 2004** 5<sup>TH</sup> European Magnetic sensors and Actuators conf., Cardiff, UK, *July 4-7, 2004*.

6. **PASPSIII** 3<sup>rd</sup> Int. Con. Physics and Application of Spin-Related Phenomena in Semiconductors, Santa Barbara, CA, 21-23 *July, 2004*.
  7. GRC ON **MAGNETIC NANOSTRUCTURES**, Big Sky resort, Montana, *USA, August 22-27, 2004*.
  8. **ICF- 9** San Francisco, USA, *August 23-27, 2004*.
  9. **JEMS'04** Joint European Magnetic Symposia, Dresden, Germany, *September 05 – 10, 2004*.
  10. **EIGHTH INTERNATIONAL SYMPOSIUM ON MAGNETIC MATERIALS, PROCESSES AND DEVICES**, Honolulu, Hawaii, *October 3-8, 2004*.
  11. **INTERMAG 2005**, Nagoya, Japan, *April 4-8, 2005*.
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## IEEE MAGNETICS SOCIETY OFFICERS 2003-2004

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## IEEE State of Affairs

*Gentlepeople,*

As the new year dawns, Ken Dawson, the NPS Newsletter Editor (NPS is my society) reminds me that I have been just a tad worse than Peter Staecker, our past Div IV Director, was in communicating with you. Each of us has our strengths and weaknesses, and I guess we now know one of the latter. So, although a bit tardy, let me tell you a little about myself and about what is going on in IEEE.

I come from the Nuclear and Plasma Sciences Society. I am a Fellow of the IEEE for my work in radiation effects on electronics and materials. I retired in 2001 after 35 years with Raytheon Company and now have a small consulting practice that revolves around ensuring success through a team approach for time constrained, large, complex, technical projects. I was NPS President in 1989-1990, and have had a variety of TAB jobs and Chairmanships since then. For 2000-2002 I served as TAB Treasurer. Peter Staecker preceded me as Division IV Director and succeeded me as TAB Treasurer.

Where we are today: Many of the IEEE Directors have more than one job in IEEE. I remain on the TAB FinCom as past Treasurer and I am the Financial Chair of NPS. I also serve on several committees by appointment of our IEEE President, Art Winston. Over the last several years I have been intimately involved in changing the way we work to ensure that we continue to enjoy a fiscally sound IEEE, and one with less of some of the burdening expenses many of you as volunteers have seen in the recent past. I think our restructuring of the past few years has resulted in an IEEE that is today working to sound financial policies. Our budgeting each year is now done with the requirement that we not have deficit budgeting, and investment returns are excluded from consideration in achieving this budget goal. So as happened in 2003, an upswing in the investment market has given us a substantial increase in our reserves. Our reserves are important to us. Certainly they protect us against drops in our investment market, as happened over the last few years. Perhaps more importantly they permit us to borrow money, for both normal business cash flow and long term projects,, at very low rates. Our good fiscal performance has been aided by excellent management of our spending in all of IEEE, producing annual end-of-the-year actuals/budgets for many years for income and expense substantially in the black, in spite of the advertising market being a bit off, our conferences not quite earning what we expected because of the marketplace and higher than expected decreases in our paper publications products income.

On the good side our electronic product, IEL (IEEE Electronic Library) is booming and growing much faster than any loses due to libraries, companies and universities shifting away from paper product. Not only is it more space-friendly, but also the search mechanisms built into the product make it much more functional. Now one can, from one's own PC/Mac, access any product to which you, your company/university has subscribed. No more walking to the library or shuffling through the shelves.

So where we are is that we are members of the largest professional society in the world. We are a worldwide society with 40% of our members from outside of the United States. We provide over 350 technical conferences each year; successful technical conferences open to all, member or not. Our more than 200 technical publications are highly cited in their fields, and are sought by all. We have a fiscal policy that is now conservative in all regards, and will remain so into the future. We are successful and will continue to be so because of our current business policies.

IEEE as a professional society: IEEE membership is a valued resource to all of our members. Those who read these newsletter offerings are part of the only 60% of IEEE members who belong to societies. That means that 40% of all IEEE members don't belong to societies! Why are they too IEEE members? It is because of the professional activities IEEE offers. Please note that I said professional society, not scientific society.

There are scientific societies that offer only involvement in conferences and publications, but a professional society is much more. IEEE has many different kinds of Regional activities, Educational Activities, Award Activities, Standards activities, and the many other things that IEEE does because our members value them. Many of these activities are without sources of income, yet collectively "we" believe they need to be supported. IEEE, the largest professional organization in the world, is so because of the inclusion of such diversity of interests. So 40% of our membership participates in ways that don't directly include societies! IEEE is the whole and must be supported by the parts of the whole that earn money. Like any business or non-profit organization.

[So what are the financial issues we have been hearing about over the last few years?](#) Within IEEE there are 5 sources of income (in good years there are 6 as our investments provide a return but I won't consider that here as these returns are not part of the budgeting process):

IEEE Dues  
 Society Dues  
 Publications income (over 95% are society pubs)  
 Conference income (perhaps 97% are society sponsored conferences)  
 Standards sales

IEEE Dues are pretty well fixed by the marketplace. We are now in a process of raising them annually to keep up with inflation, but even if all 350,000 members paid full dues that's only 20% of our over \$200M budget. Most societies, bless our little hearts, don't even break even on dues. As TAB Treasurer I had a study done to see what the incremental costs of membership were. Almost no society was break-even on dues. We're all changing that now, and next year a good number of societies will break even on dues. Thankfully, this only amounts to a small loss. Our printed society member subscriptions lose a lot more. These cost \$60/sub on-average to deliver, and we're offering them at an average of \$15. Multiply by the number of pubs, times the number of societies, times the number of subscribers. We are generous to our members, but at quite a cost to our budget.

The Standards Association has been earning 3.5M roughly each year, a slowly climbing number, but still small compared to the overall IEEE budget.

That means that society publications sales and conference income provides more than 75% of IEEE income.

So what does this mean to us? IEEE has begun a new era in which we are running a zero deficit (or better) budget each year, without considering investment returns. This is a change of paradigm from when annual double-digit investment returns made us all feel like Superman with enough money for every conceivable idea to be supported. On one end of the budgeting equation, we have been decreasing the costs of operation. On the expense side, over the last few years perhaps \$20M of infrastructure costs have been eliminated, and we have identified future savings of millions more that are in process. Each of the entities, like RAB, TAB, EAB, etc. have had their budgets increasingly scrutinized and cut. On the up side, we are focusing on increasing all of our income sources. Standards Association has shown a steady increase in income due to improving business practices and price increases. IEEE dues are on a steadily increasing schedule. Pub prices, non-member print and electronic pricing have been increasing at a rate that marketing believes is maximized while still under the for-profit pricing schedule. All of the societies are decreasing losses associated with member dues and member pubs by raising prices, unbundling subs from dues and offering electronic-only member subscriptions.

Last let's consider our conferences. Our societies price our conference registration fees based on basically past performance and how much we need to break even. Most of us also add an x% return-to-the-society as a

requirement to let us build our reserves. Perhaps there are also a few other incremental factors like the direction of the late-Dec. 1890 Nebraska snowstorm., but we basically price our conferences based on the expenses we have to recover. I don't think that companies can survive when they price according to what they need to stay in the black rather than to the marketplace. Our IEEE Marketing department has been trying to determine how our conference pricing compares to other similar conferences. People involved in conference planning have already begun getting this information. We hope you will pay heed to the differences and help us close the pricing gap.

We collectively have a professional society to run (IEEE). We do a lot of beneficial things for our members and for society. To do these things we need to earn money, not only enough to equal annual expenses, but enough to build up a reserve so we can weather the contingencies of life, like the market of the last 3 years. Conferences are one of our big two businesses (along with pubs). It has been the last to be addressed because of the number of people involved, ergo the number of opinions involved. We need to increase the income from conferences to continue our good work for all.

***Harold L. Flescher***

Division IV Director

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# Chapters Corner

## NEWS NEWS NEWS...

### Chapter Chair Meeting

There was a chapter chair meeting held during the Anaheim Joint MMM-Intermag Conference in January. Present were chapter chairs or reps from Pittsburgh, Japan, UK, Romania, Denver, St. Louis (Mag. Soc. President Ron Indeck), Santa Clara, and Korea, and some good points were raised about running a chapter.

Topics raised included:

- Filing out L-31 meeting reports to get funds from IEEE sections
- Getting funds directly from the Magnetics Society via the Chapters Chair Richard Dee
- Getting distinguished lecturers to visit
- Knowing the names of members who are in the local chapters' area. I've managed to send that info to all chapters chairs.

Most felt the meeting was very useful and suggested another be held during the next MMM conference in Jacksonville in November.

\*\*\*\*

If you are the local chapter chair reading this, please share with us all what'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 to me at [r.dee@ieee.org](mailto:r.dee@ieee.org) so we can include in the next MagSoc NEWSLETTER.

***Dr. Richard H. Dee***  
**Magnetics Society Chapters Chair**

# Magnetics Society Distinguished Lecturers 2004

## Dynamics, Damping and Defects in Thin Ferromagnetic Films

**Robert D. McMichael**

National Institute of Standards and Technology

Modern disk drives can read and write bits every two nanoseconds, a time scale very similar to the magnetic damping time of the ferromagnetic metals used in the heads. The damping characteristics are also important for thermally-driven magnetic noise in sensors. Furthermore, it seems likely that damping will limit data rates in magnetic random access memory, since the magnetization in a memory cell must be allowed to settle between switching events. For all of these applications, measurements of damping are important, and these measurements are most commonly made by ferromagnetic resonance linewidth. The two problems that complicate measurements of damping by ferromagnetic resonance are: 1) defects contribute to the linewidth, so that the linewidth is the combined effect of defects and damping, and 2) the form of the damping itself is the subject of some debate.

Patterning is perhaps the ultimate form of magnetic inhomogeneity in a thin film. Unlike the spin-wave normal modes of a continuous film, the normal modes of patterned elements are shape and size dependent. The dynamic properties can be addressed using available micromagnetic modeling software to obtain images of the normal mode precession patterns.

In this lecture, I will discuss primarily the role of defects in magnetization dynamics. I will emphasize the competition between interactions, which promotes the collective behavior typified by spin waves, and inhomogeneity, which promotes local behavior. An understanding of these effects allows one to use linewidth data to characterize damping and inhomogeneity separately. I will show examples of line widths and modeling from nominally uniform films, exchange biased films, films with wavy substrates, and films with nonuniform magnetization.



**Robert D. McMichael** (M'92) received the B.S. degree in engineering-physics from Pacific Lutheran University, Tacoma, WA, in 1985 and the M.S. and Ph.D. degrees in physics from The Ohio State University, Columbus, in 1990.

In 1990, he was awarded a National Research Council postdoctoral associateship at the National Institute of Standards and Technology (NIST), and he has continued in the Magnetic Materials Group of the Materials Science and Engineering Laboratory of NIST. His research interests have touched on a diverse set of topics, including: nonlinear magnetization dynamics, ferromagnetic resonance, magnetic refrigeration, hysteresis modeling, giant magnetoresistance, exchange bias, computational micromagnetics, and magnetization dynamics. He currently serves as leader of the Nanomagnetodynamics project in NIST's Metallurgy Division.

Dr. McMichael serves on the editorial board of IEEE TRANSACTIONS ON MAGNETICS and on the advisory committee for the Magnetism and Magnetic Materials (MMM) conference. He created the logos for several recent MMM conferences.

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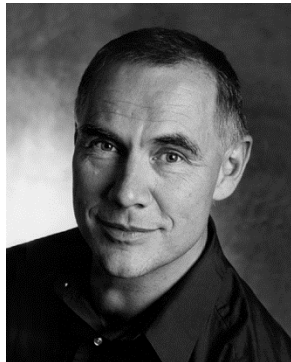
## Assault on Storage Density of 1 Terabit per Square Inch and Beyond

**Dieter Weller**

Seagate Technology

The areal density in magnetic recording has surpassed 50 Gbit/in<sup>2</sup> in products and 100 Gbit/in<sup>2</sup> in laboratory demonstrations. These densities have been achieved with recording media composed of Co-alloy nanostructured materials with horizontal orientation of the magnetization (longitudinal recording). Grain sizes are 8 to 10 nm and grain size distributions are near 20% (standard deviation divided by the mean). Going much beyond 100 Gbit/in<sup>2</sup> requires magnetically harder materials with smaller, thermally stable grains (5 to 8 nm) and tighter distributions (< 15%). Experiments indicate that this may be possible in perpendicular recording, where a soft magnetic imaging layer is used to enhance the write field and enable such grains to be switched. Basic technology demonstrations of about 110 Gbit/in<sup>2</sup> have already been reported, and modeling suggests that extensions to about 1 Tbit/in<sup>2</sup> should be possible using that technology.

Going much beyond Tbit/in<sup>2</sup>, however, will require more drastic changes of heads and media. One of the fundamental limitations relates to the media sputter fabrication process, which may not allow the tight grain size and magnetic dispersions required in models. So-called “self-organized magnetic arrays” (SOMA) of chemically synthesized Fe-Pt nanoparticles are being explored as alternatives. These structures not only show extremely tight size distributions (< 5%) but are also magnetically much harder than current Co alloys. Writing will require temporal heating and cooling in a magnetic field, as in heat-assisted magnetic recording (HAMR). A combination of SOMA and HAMR may eventually lead to recording on a single particle per bit, with ultimate densities near 50 Tbit/in<sup>2</sup> (with 10 years storage time, ambient temperature, and Fe-Pt type anisotropies).



**Dieter Weller** received the Diploma in physics from the University of Marburg, Germany, in 1982 and the Ph.D. degree in physics from the University of Cologne, Germany, in 1985.

From 1985 to 1990 he worked at the Siemens AG Central Research Laboratories in Erlangen, Germany, on the design, fabrication, and characterization of magneto-optic recording materials and disks. From 1990 through 2000 was with the IBM Research Division in San Jose, CA, where he worked on electronic, magnetic, and magneto-optical properties of thin films and multilayers. He joined Seagate Research in Pittsburgh, PA, in April 2000 as Director of Media Research. His current interests include the exploration of extremely high density magnetic recording schemes and the fabrication of novel nanophase magnetic materials. He has published over 200 scientific papers as well as several book articles. He is co-editor of *The Physics of High Density Magnetic Recording* (Springer-Verlag, 2001). He holds eight U.S. patents and has 15 pending patent applications.

Dr. Weller is a Fellow of the American Physical Society (APS) and a member of the American Vacuum Society (AVS). He has served as guest editor for the *Journal of Applied Physics* and IEEE TRANSACTIONS ON MAGNETICS and was program co-chair of the 8th Joint Magnetism and Magnetic Materials/Intermag Conference (2001).

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## Magnetoresistive Random Access Memory: The Path to Competitiveness

**Jian-Gang (Jimmy) Zhu**

Carnegie Mellon University, Pittsburgh, PA

With the first commercial product on the horizon, magnetoresistive random access memory (MRAM) is on a path to replace static random access memory (SRAM), dynamic random access memory (DRAM), and flash memory (and even disk drives in some applications) as the universal solid-state memory. Non-volatility, fast access time, and compatibility with CMOS technology are three of the most important features that make MRAM potentially superior to other existing memory technologies. To fully exploit these potentials, present MRAM designs need to overcome three major obstacles: stringent fabrication tolerances, relatively high power consumption, and response to write addressing disturbances. Although prototype memory devices have been successfully demonstrated, new, innovative designs are still required to make the technology truly competitive.

In the designs employed by today's MRAM manufacturers, the magnetic moment in a memory element is effectively linear, with its orientation representing the memory state "1" or "0." Switching between the two memory states is done by the Ampérian field generated by currents in a pair of orthogonal conducting wires, often referred to as cross-point writing. The cross-point write addressing scheme generates write disturbances because the half-selected memory elements along each of the activated wires experience one of the two field components during a write operation. The result is a stringent requirement for a narrow switching field distribution for all the elements in a memory block, and consequently a stringent fabrication tolerance. The phenomenon is further exacerbated by the possibility of undesired thermally-activated magnetization reversals, especially at small physical dimensions of the memory elements.

The lecture will cover the micromagnetic magnetization reversal processes in various types of MRAM elements. Over the past seven years, extensive micromagnetic analyses and experimental investigations have provided key understanding to obtain robust magnetic switching, and they have become the design principles for today's memory elements. I will present a comprehensive study of thermally-activated magnetization reversal at small physical dimensions for various MRAM designs and will discuss the imposed area storage density limitations due to the write disturbance. I will conclude by introducing a novel design that completely eliminates the write addressing disturbance and substantially lowers power consumption by utilizing the spin transfer effect.



**Jian-Gang (Jimmy) Zhu** (M'89, SM'02) received the B.S. degree in physics from Huazhong University of Science and Technology, Wuhan, China in 1982 and the M.S. and the Ph.D. degrees, both in physics, from the University of California, San Diego in 1983 and 1989, respectively. In 1990 he joined the Department of Electrical Engineering at the University of Minnesota as an Assistant Professor and in 1992 was appointed to the McKnight Land Grant Professorship by the Regents. In 1997 he joined the faculty of Carnegie Mellon University, Pittsburgh, PA, where he is now the ABB Professor of Engineering in the Department of Electrical and Computer Engineering and the Data Storage Systems Center. He has authored or co-authored over 170 technical papers and presented over 40 invited talks at international conferences. He has supervised and graduated 19 Ph.D. students. Currently his research includes MRAM device design, GMR head design, thin film recording media, digital tape recording systems, patterned media, and magnetization noise in magnetic nano-sensors. He is an advisory editor for the *Journal of Magnetism and Magnetic Materials*.

Prof. Zhu was a recipient of a 1993-97 NSF Presidential Young Investigator Award. His patent, "Ultra-High Density Magnetic Sensor," won a "Top 100 Inventions" award given by *R&D Magazine* in 1996.

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## Nominations Requested for the IEEE Reynold B. Johnson Information Storage Award

The IEEE Reynold B. Johnson Information Storage Award was established in 1991 and may be presented annually for outstanding contributions to information storage, with emphasis on computer storage. It is sponsored by IBM.

IEEE Magnetics Society members are encouraged to stimulate nominations or nominate outstanding candidates for the award.

A nomination form is accessible via the IEEE Awards web page and can be completed on-line.

Potential nominee forms are also available on the IEEE Awards web page. The potential nominee form is a vehicle to obtain feedback on whether a candidate meets the award criteria. Potential nominee forms are forwarded to the Information Storage Award selection committee.

To obtain a nomination form, a potential nominee form or to access a list of past recipients, visit "[www.ieee.org/about/awards](http://www.ieee.org/about/awards)" or contact IEEE Awards Activities, 445 Hoes Lane, Piscataway, NJ, USA 08854; telephone +1 732 562 3844; fax +1 732 981 9019; e-mail "[awards@ieee.org](mailto:awards@ieee.org)".

### Past recipients

#### 2003 - H. NEAL BERTRAM

Endowed Chair and Professor, Univ of California-San Diego, La Jolla, CA

"For fundamental and pioneering contributions to magnetic recording physics research, applications and education."

#### 2002 - CHRISTOPHER H. BAJOREK,

KOMAG, Inc., San Jose, CA

"For leadership in the development and manufacturing of magnetoresistive recording heads for data storage devices."

#### 2001 - TU CHEN ,

Komag, Incorporated, San Jose, CA

"For leadership in the advancement of thin-film materials, tools, and processes used for magnetic information disks, and their commercialization as products."

#### 2000 - MARK H. KRYDER,

Carnegie-Mellon University, Pittsburgh, PA

"For leadership in data storage research and education as founding director of the Carnegie-Mellon Magnetics Technology Center and Data Storage Systems Center."

#### 1999 - DAVID A. PATTERSON, University of California, Berkeley, CA

**RANDY A. KATZ**, University of California, Berkeley, CA

**GARTH A. GIBSON**, Carnegie Mellon University, Pittsburgh, PA

"For the development of the Redundant Array of Inexpensive Disks (RAID) systems."

#### 1998 JEAN PIERRE LAZZARI,

SILMAG, St. Egreve, France

"For contributions and key innovations in media and heads for magnetic disk drives."

**1997 ALAN F. SHUGART,**  
SEAGATE Technology, Scotts Valley, CA  
"For leadership in the evolution of disk drive technology."

**1996 NOBUTAKE IMAMURA**  
Tosoh Corporation, Kanagawa ken, Japan  
"For contributions to research, development, and commercialization of magneto optic recording media and drive systems."

**1995 JAMES U. LEMKE,**  
Recording Physics, Inc., San Diego, CA  
"For contributions to advancing the science and technology of high density magnetic data storage."

**1994 DENIS MEE,**  
IBM Corp., San Jose, CA  
"For contributions to the design of optical, magneto optical, and magnetic recording files."

**1993 JOHN M. HARKER ,**  
IBM Labs., San Jose, CA  
"For leadership in the development of information storage devices, including key contributions to the design of many generations of magnetic disk files."

***Gordon Hughes,***  
**IEEE Information Storage Committee Chair**

***Dr. Gordon Hughes***  
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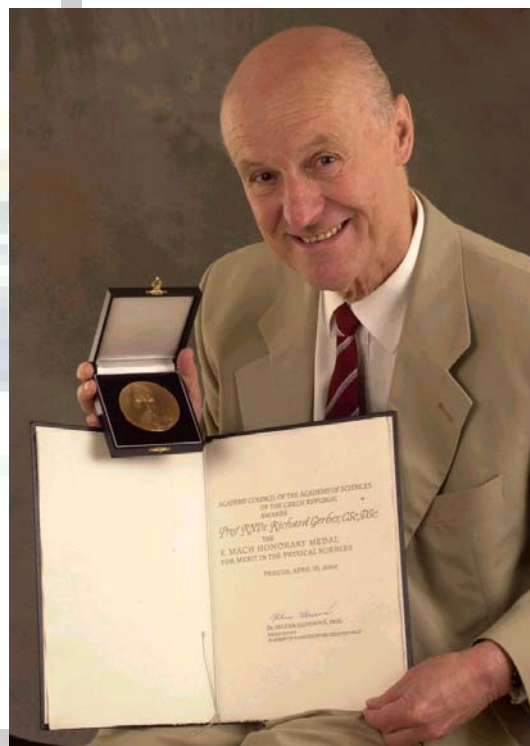
## MagNews

### 1.

## Professor Richard Gerber has been awarded the Ernst Mach Honorary Medal

The *Ernst Mach Honorary Medal for Merit* was established by the Academy of Sciences of the Czech Republic to recognize outstanding scientific results achieved in the field of physics.

Ernst Mach (1838-1916) ranks among the most eminent persons in science at the turn of the 19th and 20th century. He conducted research in physics throughout his career. His interests included primarily experimental research in optics, mechanics and wave dynamics. However, he also made important contributions to the physiology of sensation and perception, the philosophy of nature and science as well as to other areas of science. In 1867 he became a Professor at Charles University in Prague, being the chair of experimental physics there for the next 28 years. He is considered to be one of the founders of modern physics and a major contributor to the philosophical principles of positivism. He was also the first scientist who correctly explained the Doppler Effect and developed optical techniques for the measurement of sound waves and wave propagation. He is the founder of supersonics and the number which characterizes a body in supersonic motion and the associated shock wave are named after E. Mach. His criticism of Newton mechanics prepared the way for Einstein's theory of relativity, hence the Mach Principle in the general theory of relativity.



**Richard Gerber** has had a distinguished career both as a university teacher and researcher. He held, at first junior and then senior, appointments at the Czech Academy of Sciences and later at the Universities of Oxford, Essex and Salford. He also held visiting residential appointments at Moscow University and the German Academy of Sciences in Jena. During his career he was a Royal Society Visiting Research Fellow, a recipient of a NATO Senior Fellowship, a JSPS Fellowship and a European Community Fellowship. He was a Visiting Professor of EE at Purdue University, USA, and a Visiting Research Professor at Nagoya University, Japan. In 1997 he was elected a Fellow of the Institute of Electrical and Electronics Engineers. He is a prominent researcher in the field of magnetism and as such was appointed the Director of NATO ASI International School on Applied Magnetism in Erice, Italy. He has published 2 scientific books, 112 original research papers in refereed international journals and numerous research reports. The Laudatory Address, presented by Dr. V. Roskovec on behalf of the Academy at the Award Ceremony on 14 May 2002, summarized Richard Gerber's scientific work by citing his outstanding research results in the area of solid state and applied magnetism and concluding that his achievements have been recognized worldwide.

The recipients of the Ernst Mach Medal are

- Prof. Milan P. Locher (Switzerland) 1996
- Prof. Dr. Ing. Milos Seidl (USA) 1996
- Prof. Ing. Boris N. Breizman (USA) 1996
- Dr. Frank Plasil (USA) 1998
- Prof. Ing. Miroslav Pírnér (Czech Rep.) 1998
- Prof. Dr. Peter Weinberger (Austria) 1998
- Prof. Dr. Sydney G. Davison (Canada) 1998
- Prof. RNDr Richard Gerber DSc (UK) 2002

Our sincere congratulations to Richard Gerber upon his success.

**Dr. Haydon Sutcliffe,**  
School of Sciences

## 2. IEEE News

### **Message from the IEEE-USA President**

Dear U.S. IEEE Member:

As 2004 president of IEEE-USA, I'm proud to lead a team of volunteers and staff dedicated to addressing professional issues of concern to U.S. IEEE members. IEEE-USA is the part of the IEEE that serves United States members' needs in building careers and shaping public policy. To help ensure that you do not miss valuable news from IEEE-USA, U.S. members of the IEEE who have provided an e-mail address are automatically subscribed to IEEE-USA NEWS & VIEWS E-MAIL ALERT as a member benefit. IEEE-USA NEWS & VIEWS E-MAIL ALERT is a monthly e-mail alert with information on late-breaking news and services from IEEE-USA.

Our first issue of IEEE-USA NEWS & VIEWS E-MAIL ALERT is below. If you choose, you may opt-out of the IEEE-USA NEWS & VIEWS E-MAIL ALERT and manage your subscription at:

<http://www.ieeeusa.org/emailupdates/nv/msignup.asp>.

I hope you will continue to receive the alert, which requires no further action on your part. In addition, I encourage you to stay informed and connected to your professional organization. Visit the IEEE-USA website and read \*IEEE-USA NEWS & VIEWS\*, our print magazine distributed each quarter in the polybag with IEEE SPECTRUM.

Sincerely,

**JOHN W. STEADMAN**  
2004 IEEE-USA President

=====

FROM Washington, DC: \*IEEE-USA NEWS & VIEWS E-MAIL ALERT\* January 2004  
Your Monthly U.S. IEEE MEMBER E-MAIL ALERT on  
"Building Careers & Shaping Public Policy"  
<http://www.ieeeusa.org>  
(Subscribe/unsubscribe information at end of message)

=====

**IN THIS ISSUE:**

1. New IEEE-USA President Greet U.S. Members
2. \*IEEE-USA TODAY'S ENGINEER\* Webzine Covers Overseas Career Assignments, Protecting New Ideas and Inventions, Electric Utility Reliability, Cyber-security
3. Celebrate EWeek 22-28 February: Engineer/Volunteer Kits Available Online
4. Support Engineering: Visit Your Congressional Representative 3-4 March
5. Participate in IEEE-USA Leadership Workshop
6. Symposium Highlights President's FY '05 Request for Engineering R&D
7. IEEE-USA, IEEE Power Engineering Society Offer Electric System Tutorial for Congressional Staff

**IEEE News from THE INSTITUTE**

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 January 2004 ISSUE:**

1. IEEE-USA Forums Focus on **Government's Role** in Globalization
2. **Faraday Lecture** Deals with Technology for Music
3. One-Millionth Document Posted to **Xplore**
4. **New Fellow Category** Targets Nominations from Industry
5. **Discount** Offered for the Intel Developer Forum
6. IEEE **Spectrum** Gets a Facelift at 40
7. Conference Shows How **Nanotechnology** Is Growing
8. Nominate a Colleague for an **Education Award**

**3.**

### **Proceedings of the Seventh International Symposium on Magnetic Materials, Processes and Devices,**

Magnetic Materials, Processes and Devices VII,

The Proceedings of the Seventh International Symposium on Magnetic Materials, Processes and Devices, is now available from *The Electrochemical Society*.

The symposium was held in October 2002 in Salt Lake City, Utah as part of the Fall meeting of The Electrochemical Society and dealt with all aspect of magnetics relevant to applications in data storage, nanostructures, MEMS and other magnetic devices.

The full Table of Contents of the Proceedings volume along with ordering information may be found at the Symposium's website:

<http://researchweb.watson.ibm.com/SymposiumMMPD/>

This site also contains the Call for Papers for the Eighth International Symposium on Magnetic Materials, Processes and Devices, which will take place October 3-8, 2004 at the Fall meeting of the Electrochemical Society in Honolulu, Hawaii.

***Sol Krongelb***  
1-914-945-1266





# Conference Report

## ICM 2003 International Congress on Magnetism Rome, Italy



## Conference Report



# Plenary Session 9<sup>TH</sup> Joint INTERMAG – MMM Conference

### Program:

- Chairman's Remarks  
R. Fontana – General Chair, Joint Conference  
Hitachi Global Storage Technologies
  - IEEE Awards  
**Ronald Indeck** – President IEEE Magnetics Society  
Washington University, St. Louis  
**Stanley Charap** – Distinguished Lecturers Chair, IEEE Magnetics Society  
Carnegie Mellon University
  - Plenary Speaker  
**Dr. Gerrit Verschuur** – University of Memphis  
*"Magnetic Meanderings: From Bacteria to Interstellar Space"*
  - Conference Reception
-

## Chairman's Remarks

**R. Fontana**

General Chair, Joint Conference  
Hitachi Global Storage Technologies

### Conference Statistics

#### Papers

- 2018 Submitted Abstracts
- 1300 Accepted Abstracts
- 940 Published Papers (anticipated)

#### Attendance

- 1047 Full Paid
- 393 Students / Retirees

#### Presentations -- Global

##### Perspective

•United States	485
•Japan	232
•South Korea	101
•Germany	61
•United Kingdom	57
•France	57
•Taiwan	43
•Singapore	43

#### 1300 Papers

### Conference Issues

#### ✱Registration Fee

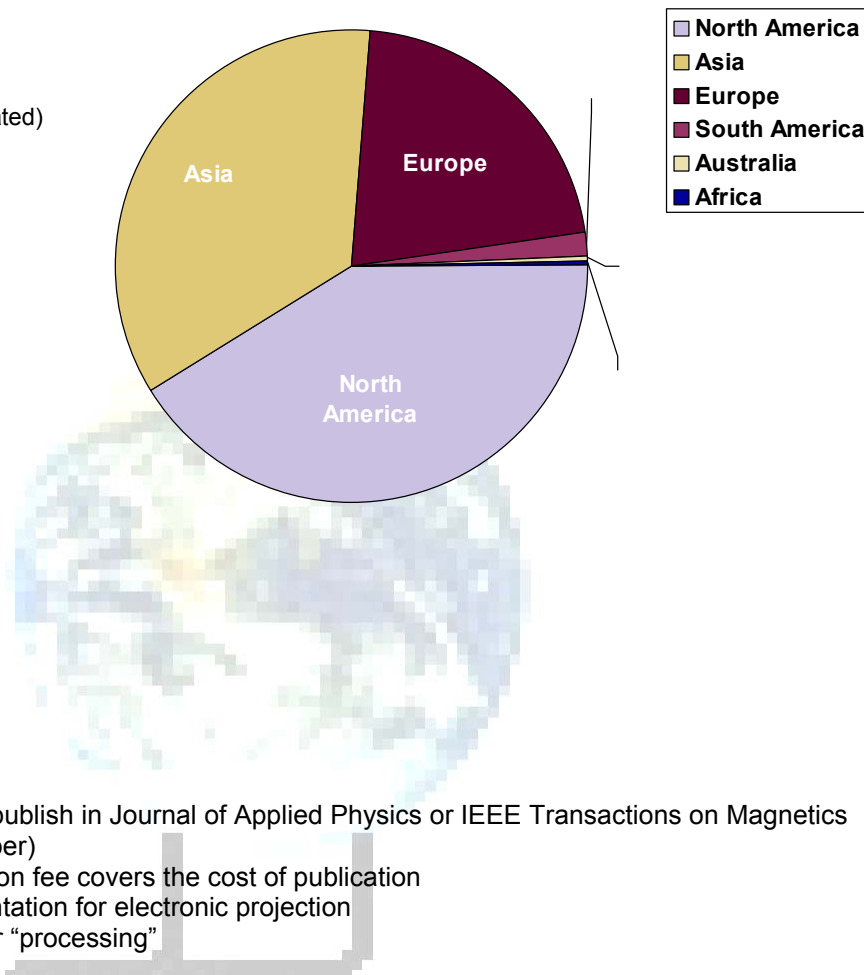
- \$300 / paper to publish in Journal of Applied Physics or IEEE Transactions on Magnetics (a blended number)
- 50% of registration fee covers the cost of publication
- \$60 / oral presentation for electronic projection
- \$30 / abstract for "processing"

#### ✱Conference Size

- 1300 conference papers from 2000 submitted abstracts
- Attendee to Paper Ratio is 1:1

#### ✱Initiatives -- Feedback Requested

- On site conference reception for all participants
- Possible decoupling of registration fee and publication costs



## IEEE Magnetics Society Awards

- **Chairs**

*Ronald Indeck – President, IEEE Magnetics Society*

*Stanley Charap – Distinguished Lecturers Chair, IEEE Magnetics Society*

- **IEEE Reynold B. Johnson Information Storage Award**
  - **IEEE Magnetics Society Achievement Award**
  - **IEEE Magnetics Society 2004 Fellows**
  - **IEEE Magnetics Society Student Travel Awards**
  - **Conference Best Student Paper Finalists**
  - **IEEE Magnetics Society Distinguished Lecturers**
- 

### IEEE Reynold B. Johnson Information Storage Award

The IEEE honors one of its outstanding members each year for his or her contributions to information storage. This is the highest award of the IEEE given for scientific and technical contributions to information storage. IEEE Reynold B. Johnson Information Storage Award



- 1993 John Harker
- 1994 C. Denis Mee
- 1995 James U. Lemke
- 1996 Nobutaka Imamura
- 1997 Alan F. Shugart
- 1998 JeanPierre Lizzari
- 1999 David A. Patterson, Randy M. Katz, Garth A. Gibson
- 2000 Mark H. Kryder
- 2001 Tu Chen
- 2002 Christopher Bajorek
- 2003 H. Neal Bertram
- 2004 Bruce Gurney, Virgil Speriosu

IEEE Representative

- *W. Cleon Anderson, 2004 IEEE President-Elect*

Recipients

- **Bruce Gurney** – Hitachi Global Storage Technologies
- **Virgil Speriosu** – Applied Magnetics (retired)

Citation

- *“For key technical contributions to the development of spin valve recording heads having giant magnetoresistive response, for computer data storage”*

## IEEE Magnetics Society Achievement Award

The Magnetics Society of the IEEE honors one of its outstanding members each year for his or her professional achievement. This is the highest award of the Magnetics Society and is given for scientific, technical, and service contributions to the society.

### Previous Achievement Award Recipients

1981 Fred E. Luborsky	1982 Herbert F. Storm	1983 Harold W. Lord
1985 Joseph J. Suozzi	1986 Fritz J. Friedlaender	1987 Andrew H. Bobeck
1988 Floyd B. Humphrey	1989 Paul P. Biringier	1990 Daniel Gordon
1991 Emerson W. Pugh	1992 Yoshifumi Sakurai	1993 William Doyle
1994 Richard C. Barker	1995 Mark Kryder	1996 Koosuke Harada
1997 Gordon Slemon	1998 Stanley H. Charap	1999 David A. Thompson
2000 C. Denis Mee	2001 Fred B. Hagedorn	2002 Shun-Ichi Iwasaki
2003 Carl E. Patton	<b>2004</b> Yutaka Sugita	

## IEEE Magnetics Society Achievement Award

Recipient

- **Dr. Yutaka Sugita**  
Tohoku Institute of Technology  
Tohoku, Japan

Citation



*“Distinguished technical achievement and distinguished service to the Magnetics community”*

**Dr. Yutaka Sugita** is Professor in the Division of Electronic Devices and Materials, Department of Electronics, Tohoku Institute of Technology, Sendai, Japan. He is a Fellow of the IEEE and has received the Tanahashi Medal from the Electro-chemical Society of Japan, the Okochi Medal from the Okochi Memorial Foundation, and the Society Award of Honor from the Magnetics Society of Japan. He also has received Outstanding Paper Awards from the Institute of Electronics and Communication Engineers of Japan and the Magnetics Society of Japan. Dr. Sugita has his B.S. and Ph.D. degrees in Physics from the University of Tokyo.

Dr. Sugita has contributed very significantly in the field of magnetic thin films, from physics and materials to storage devices, over nearly 40 years at the Central Research Laboratory of Hitachi, Ltd. and more recently at Tohoku University and at Tohoku Institute of Technology.

Dr. Sugita has served the magnetics community in Japan and the world, throughout the years: for the Magnetics Society of Japan, he was Conference Chairman of the 1985 Annual Meeting, Vice-President and President. He has been a member of the organizing committee and vice-chairman of the program committee of the 1987 Intermag in Tokyo, a member of the AdCom of the IEEE Magnetics Society, and currently serves the IEEE Magnetics Society as a member of the Conference Executive Committee, the Nominating Committee, and the Organizing Committee of the 2005 Intermag. He was a member of the Organizing Committee of the 4th International Conference on Magnetic Bubbles (Tokyo 1980), the Program Committee of the ICM in Tokyo 1982, the Board of the Magnetics Society of Japan responsible for technical planning, and the Editorial Board of the Japanese Journal of Applied Physics.

## IEEE Magnetics Society Fellows – 2004

The IEEE Grade of Fellow is conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in any of the IEEE fields of interest. A brief citation is issued to new Fellows describing their accomplishments and the total number selected in any one year cannot exceed one-tenth percent of the total voting Institute membership.

**Prof. Justin Schwartz**

Florida State University

*“for contributions to high temperature superconductors and magnet systems”*

**Mr. Jerry D. Lloyd**

Emerson Electric Co.

*“for leadership in electric machine technologies”*

**Dr. Nathan Ida**

University of Akron

*“for contributions to electromagnetic nondestructive testing, computational electromagnetics and engineering education”*

**Dr. Stuart Parkin**

IBM Almaden Research Center

*“for contributions to the application of material science to devices for magnetic storage and memories”*

**Dr. Ronald Barry Goldfarb**

National Institute of Standards and Technology

*“for contributions to magnetic metrology for the characterization of superconductors”*

**Dr. Daniel Dean Stancil**

Carnegie Mellon University

*“for contributions to the theory and development of microwave and optical devices using magnetic garnet thin films and patterned ferroelectric domains”***Prof. Randall Victora**

University of Minnesota

*“for contributions to the exploration of magnetic and optical properties of materials and devices”***IEEE Magnetics Society Student Travel Awards**

Conference Student Travel Awards – 2004

<b>Louis Kavitha</b>	Lady Doak College, Tamil Nadu, India
<b>Sungjin Cho</b>	University of California, Davis
<b>Manju Lata Rao</b>	Indian Institute of Technology, Kanpur, India
<b>Marcus Steiner</b>	University of Hamburg, Germany
<b>Shika Jain</b>	National University of Singapore
<b>Jerome Faure-Vincent</b>	University H. Poincare – Nancy, France
<b>Mohammad Arbab</b>	Shahid Beheshti University, Iran
<b>Lili Cheng</b>	Columbia University
<b>Felipe Garcia Sanchez</b>	CSIC, Madrid, Spain
<b>Bae Soon Son</b>	Kookmin University, South Korea
<b>Yair Noam</b>	Ben-Gurion University of the Negev, Israel
<b>Nimitkumar Sheth</b>	Indian Institute of Technology, Delhi, India
<b>Mustafa Kaynak</b>	Arizona State University
<b>Xuhong Li</b>	University of Singapore
<b>Zeliang Zhao</b>	Data Storage Institute, Singapore
<b>Prabhu U. Arumugam</b>	University of Arkansas
<b>Farhad Shir</b>	The George Washington University
<b>Eric Baumberger</b>	Stony Brook University
<b>Qingyu Yan</b>	Stony Brook University
<b>Zhongwu Liu</b>	The University of Sheffield, England
<b>Christian Scheck</b>	University of Alabama
<b>Roni Kopelman</b>	University of Washington, St. Louis
<b>John Carpenter</b>	University of Illinois, Urbana-Champaign
<b>Debjani Banerjee</b>	Indian Institute of Technology, Bombay, India
<b>Zhiya Zhao</b>	University of Alabama, Tuscaloosa

## Finalists – Conference Best Student Paper Award

**AB-05:** *Magnetic Depth Profile and Annealing Dependence in Ga<sub>1-x</sub>Mn<sub>x</sub>As*

B. Kirby, J. Rhyne, J. Borchers, K. O'Donovan, S. Velthuis

A. Hoffmann, J. Furdyna, R. Wojtowicz, X. Liu

**FB-01:** *High Yield Cell Separation Using Magnetic Nano Wires*

A. Hultgren, M. Tanase, E. Felton, C. Chen, D. Reich

**HQ-06:** *Effects of Atomic Ordering on Curie Temperature of FePd and FePL10 Type Alloys*

L. Wang, Z. Fan, A. Roy, D. Laughlin

**AD-03:** *Electron Optical Phase Shift Computations of Magnetic Nanoparticles*

S. Tandon, M. Beleggia, Y Zhu, M. De Graef

**FD-09:** *Magnetic Particles of Uniaxial Synthetic Antiferromagnetic Films*

Z Zhao, P. Mani, W. Lee, G. Makey

## IEEE Magnetics Society 2004 Distinguished Lecturers

- **Dieter Weller**, Seagate Research  
Assault on Storage Density of 1 Terabit / in<sup>2</sup> and Beyond
- **Jian-Gang (Jimmy) Zhu**, Carnegie Mellon University  
Magnetoresistive Random Access Memory: The Path to Competitiveness
- **Robert D. McMichael**  
Dynamics, Damping, and Defects in Thin Ferromagnetic Films”



## Keynote Plenary Address

### Keynote Speaker

**Dr. Gerrit Verschuur**  
University of Memphis



### Keynote Topic

#### ***Magnetic Meanderings: Bacteria to Interstellar Space***

As the pioneer in the measurement of the magnetic field between the stars using the Zeeman Effect at radio wavelengths, Prof. Verschuur's interests in the subject lead to his book "Hidden Attraction: The Mystery and History of Magnetism." His meanderings will take him from the nature of lodestone to the depths of space. This will lead him to ask whether our technological civilization could have emerged by now had Nature not conveniently provided us with magnets to stimulate human curiosity

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### Plenary Reception 9<sup>TH</sup> Joint INTERMAG – MMM Conference

On Behalf of the Steering Committee for the 9<sup>th</sup> Joint INTERMAG-MMM Conference,  
We Invite All Conference Attendees to Our Plenary Reception in Marquis Ballroom  
Center

- *Wine and Beer*
  - *Cheese and Snacks*
  - *Networking*
-

## Conference Report

### muMAG Evening Session 9th Joint MMM/Intermag Conference

January 7, 2004, Anaheim, CA  
Bob McMichael, Session Chair

#### Agenda:

- ▶ **Welcome and Introduction**  
Bob McMichael, NIST
- ▶ **magpar, finite element micromagnetics**  
Werner Scholz, Seagate
- ▶ **OOMMF: Where it is, where is it going?**  
Don Porter and Mike Donahue, NIST
- ▶ **Open Discussion: Toward a thermal standard problem**  
Bob McMichael, moderator

#### Session report:

The MAG evening session ran from 7:30 to approximately 9:30 and drew approximately 90 participants.

#### \*\* Welcome and Introduction

**Bob McMichael** opened the session with a very brief introduction to muMAG and its objective of fostering improved communication within the micromagnetic community and encouraging improvements in the reliability of micromagnetic computations. The two technical efforts within muMAG are

1. Public micromagnetic code
2. Standard Problems

#### \*\* magpar, finite element micromagnetics

**Werner Scholz** then gave a description of the finite element micromagnetic software he developed as a graduate student at the Technical University of Vienna under the guidance of Thomas Schrefl and Josef Fidler. A few weeks before this meeting, Werner had announced the public release of this software via the muMAG mailing list.

The features of magpar include

- entirely based on portable, free, open source software packages,
- highly portable to different hardware platforms, which range from
- simple PCs to massively parallel supercomputers,
- highly optimized and scalable,
- well integrated, combining static energy minimization and dynamic
- time integration.
- magpar is distributed under the GNU General Public License.

Werner described the open source software packages he incorporated to handle the large matrices and vectors, to perform energy minimization or LLG time integration and ultimately, to make the program run efficiently on parallel processors. The efforts to parallelize the code appear to be quite successful since the computation time scales inversely with the number of processors used.

Official website and distribution site:

<http://magnet.atp.tuwien.ac.at/scholz/magpar/>

The complete source code, including documentation and a package of examples are available for download.

Werner requests that all correspondence concerning magpar be directed to the following address only: [magpar@magnet.atp.tuwien.ac.at](mailto:magpar@magnet.atp.tuwien.ac.at)

Werner's presentation ended with a double round of applause and thanks for this very important contribution to the micromagnetic community.

**\*\* OOMMF: Where it is, where is it going?**

**Don Porter and Mike Donahue** reported on the status and future directions for the NIST Object Oriented MicroMagnetic Framework, (OOMMF).

Don described a maintenance release in the 1.1 branch of the OOMMF software, which is centered on the 2D solver mmSolve2D. The new release has basically the same capabilities as the previous release, but includes updates to maintain compatibility with various operating systems and the Tcl/Tk programming language. Support for the Mac operating system (OS X) is included for the first time.

Mike Donahue described an upcoming release in the 1.2 branch of OOMMF. This distribution will include all updates in the new 1.1 release, but it is centered on the 3D solver, Oxsii. The new release incorporates a number of bug fixes and several important new features, including a Runge-Kutta solver for integration of the LLG equations of motion and a problem restart capability.

For users of the 2D mmSolve2D program, Mike described an input file translation utility that translates input files to the format required for 3D Oxsii. Mike presented some examples of the 3D input syntax and showed how to use the Tcl scripting features for flexible input. He also described what is involved in creating an extension module for Oxsii through an example hexagonal anisotropy class.

Mike discussed planned features for the future 1.3 branch of OOMMF, and announced plans to open a contributor website to facilitate user contributions to the code.

**\*\* Open Discussion: Toward a thermal standard problem**

The final item was a discussion geared toward designing a new micromagnetic standard problem to test thermal effects in micromagnetics. As with previous successful standard problems, the new standard problem should have the following properties.

- \* solvable with a reasonable amount of effort
- \* ability to distinguish good technique from bad
- \* solvable by a wide number of techniques.
- \* availability of analytical results are especially desirable

The lively discussion centered primarily around two main issues: whether the Langevin approach, where a fluctuating, random applied field is used to simulate the effects of temperature, is thermodynamically rigorous and what kinds of standard problems are best suited as tests for thermodynamic rigor. A list of suggested problems was generated, and the ideas fell basically into two categories: steady state problems and thermal switching. The audience was reminded that results should be demonstrated to be independent of discretization.

**Bob McMichael**

## Conference announcement 1



### **MAGNETO- OPTICAL RECORDING INTERNATIONAL SYMPOSIUM (MORIS 2004)**

**May 16-19, 2004,  
Yokohama Symposia, Yokohama, Japan**

#### **INTRODUCTION**

The 9th Magneto-Optical Recording International Symposium (MORIS) will be held from May 16 to 19, 2004 in Yokohama, Japan. The purpose of MORIS 2004 is to provide a forum for information exchange on optical and magnetic recording. A broad range of topics covering materials, physics, and the technology of recording as well as fundamental background studies will be addressed. The latest information on MORIS 2004 can be found on the Conference Web Site:

<http://www.pac.ne.jp/moris2004/>

#### **DEADLINES**

- **January 31, 2004 (Digest submission)**
- **March 31, 2004 (Post deadline paper)**
- **April 16, 2004 (Early Registration)**

#### **SCOPE**

Papers are solicited on all topics relevant to magneto-optical memory and magneto-optical devices including hybrid recording. The current status of new development of materials, components, measurement and basic theory, as well as their applications will be discussed. In addition to contributed papers, a number of invited papers on important topics will be presented. A list of the subject areas is given below.

- 1. Magneto-optical recording materials and fabrication**
- 2. Magnetism and domain physics**
- 3. Magneto-optical effect and physics**
- 4. High density MO recording**
- 5. Hybrid recording**
- 6. Alternative recording technologies**
- 7. High density mastering and nano-fabrication**
- 8. Near field optics and applications**
- 9. Magneto-optical devices for optical communication system**
- 10. Advances in components and related drive technology**
- 11. Measurements**
- 12. Others**

The symposium will include invited and contributed papers. Some of the invited papers will be selected from those submitted by the deadline of **January 31, 2004**.

## FURTHER INFORMATION

For further information, please contact to  
Proactive Convention Co., Ltd.  
Eiko Bldg. 2F, 93 Edomachi, Chuo-ku,  
Kobe 650-0033, Japan  
Phone:+81-78-334-6661 Fax:+81-78-334-6662  
E-mail: [moris2004@pac.ne.jp](mailto:moris2004@pac.ne.jp)  
URL: <http://www.pac.ne.jp/moris2004/>



## Conference announcement 2

### 5th Magnetic Microsphere Meeting

## Scientific and Clinical Applications of Magnetic Carriers

*May 20 - 22, 2004*

*Lyon, France*

*Not far from the [Grenoble High Magnetic Field Laboratory!](#)*

### **DEADLINES**

**Topics:**

***Preparation and Modification of Magnetic Particles***  
***Characterization of Magnetic Particles***  
***Application in Cell Separation and Analysis***  
***Applications in Molecular Biology***

**Clinical Applications:**

***Cancer Treatment***  
***Hyperthermia***  
***Magnetic Resonance Contrast Enhancement***  
***Drug Delivery***

**Organized by:**

***Cleveland Clinic Foundation, Cleveland, Ohio, U.S.A.***  
***Urs Häfeli and Maciej Zborowski***  
***[hafeliu@ccf.org](mailto:hafeliu@ccf.org)***

**For further information, please check as always our website**

**<http://www.magneticmicrosphere.com/meet2004.htm>**

**<http://www.magneticmicrosphere.com>**

## Conference announcement 3



### 4<sup>th</sup> International Symposium on Metallic Multilayers (MML '04)

When: June 7 – 11, 2004

Where: **National Institute of Standards and Technology,**  
Boulder, Colorado, USA

We wish to inform you of the Metallic Multilayers Symposium to be held in Boulder, Colorado, in June 2004 (MML '04). This upcoming meeting continues the tradition of giving scientists a single-session venue for the presentation of outstanding, cutting-edge research in a relaxed, picturesque setting. Past conferences were held in Kyoto 1992, Cambridge 1995, Vancouver 1998, and Aachen 2001. MML '04 will be held on the campus of the National Institute of Standards and Technology. Topics for the conference include both fundamental and applied aspects of magnetic metallic multilayers. The subject matter spans the range from devices to film properties; from spin injection into semiconductors to spin-dependent tunneling; from magnetization dynamics to exchange bias; from magnetic recording media to patterned structures ... to name just a few exciting topics of research. Please mark your calendars, and we look forward to seeing you in Boulder in 2004!

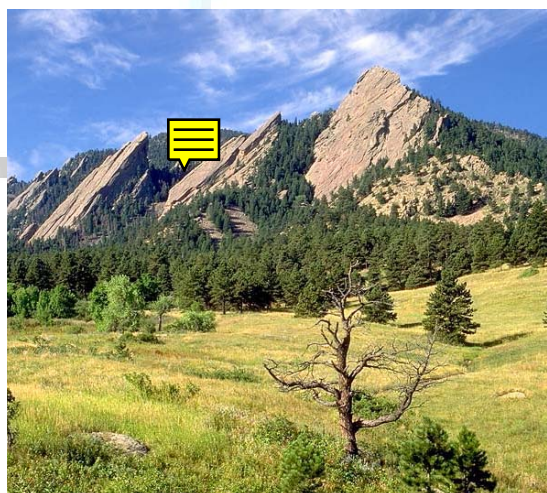
Symposium Co-chairs:

***Dr. Thomas J. Silva***

Magnetic Technology Division  
NIST, US Dept. of Commerce  
Boulder, Colorado  
USA

***Prof. Zbigniew Celinski***

Physics Department  
University of Colorado at Colorado Springs  
Colorado Springs, Colorado  
USA



## Conference announcement 4



### **Second Seeheim Conference on Magnetism**

Seeheim, Germany  
June 27- July 1, 2004

SCM is a series of Conferences held every three years under the auspices of the Darmstadt University of Technology. Scientists from 36 countries attended the last Seeheim Conference on Magnetism in 2001. The conference covers the latest developments in the magnetism of nanostructured materials, surfaces, interfaces and nanoparticles.

The location is Lufthansa Training Centre Seeheim. The idyllic climatic resort of Seeheim is situated 43 km south of Frankfurt Airport. The Training Centre is embedded in the Odenwald forest overlooking the Rhine river valley. Here the participants of SCM will find a quiet, natural country environment with everything it takes for concentrated discussions.

#### **CONFERENCE COORDINATORS**

*M. Ghafari, H. Hahn*

Darmstadt University of Technology

Petersenstr. 23

64287 Darmstadt

Germany

Tel: + 49-6151-16 63 25      Fax: + 49-6151- 16 63 35

[scm@tu-darmstadt.de](mailto:scm@tu-darmstadt.de)

The complete information on

#### **THE SECOND SEEHEIM CONFERENCE ON MAGNETISM**

is now available at:

<http://www.tu-darmstadt.de/magnetism/>



## Conference announcement 5

**EMSA 2004**

**5th European Magnetic Sensors and Actuators Conference**

**July 4 -7, 2004**

**Cardiff, United Kingdom**

### Scope and Format

The European Magnetic Sensors and Actuators Conference (EMSA) is already a well known European forum that serves to assess the status, recent progress, and development in the field of magnetic sensor technology and magnetic actuators. It was first held in Iasi–Romania and since then has continued every two years in Sheffield–UK, Dresden–Germany, and Athens–Greece. The aim of the conference is to generate an overview of research in magnetic sensors and actuators, to recognize their relevance in modern industry and to identify potential future collaborations. EMSA 2004 provides an excellent opportunity to bring together scientists and engineers from universities, research institutes and industry to present and discuss their most recent results covering both fundamental and applied aspects of magnetic sensors and actuators.

### Conference Topics

- Materials
- Physical phenomena
- Modelling and simulation
- Magnetic Sensors – concepts, designs and applications
- Magnetic Actuators – concepts, designs and applications
- Magnetic MEMS
- Miniaturization
- Nanotechnology
- Integration

### Publications

Papers will be published in a special volume of Sensors and Actuators after a regular review process. Details related to abstract formatting, preparation and submission will be announced on the conference website [www.cardiff.ac.uk/engin/ems2004](http://www.cardiff.ac.uk/engin/ems2004)

### Important Deadlines

**Abstract submission March 01, 2004**

**Notification of acceptance April 01, 2004**

**Early registration May 01, 2004**

**Papers to be submitted July 06, 2004**

### Conference Office

**Cherrie Summers**

Wolfson Centre for Magnetism Technology

School of Engineering, Cardiff University

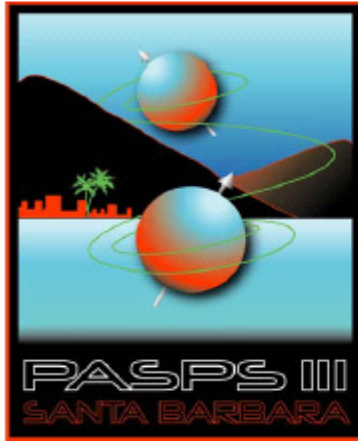
Cardiff CF24 0YF, United Kingdom

Tel / Fax: +44(0)29 2087 4421

E-mail: [ems2004@cardiff.ac.uk](mailto:ems2004@cardiff.ac.uk)

[www.cardiff.ac.uk/engin/ems2004](http://www.cardiff.ac.uk/engin/ems2004)

## Conference announcement 6



### The 3<sup>rd</sup> International Conference on Physics and Applications of Spin-Related Phenomena in Semiconductors (PASPS III)

21-23 July 2004  
Fess Parker's DoubleTree Resort  
Santa Barbara, CA

**Call for Papers**

**Abstract Deadline March 1, 2004**

Please visit the website for complete information:

[www.sainc.com/pasps3](http://www.sainc.com/pasps3)

#### Areas of interest include:

- Spin coherence and dynamics in nanoscale semiconductor structures
- Spin entanglement: production, coherence and detection
- Electrical and optical manipulation of nonequilibrium spin orientation and coherence
- Optical and electrical approaches to magnetic resonance (electronic and nuclear pseudomagnetic resonance)
- Spin transport and spin injection in semiconductors
- Magnetization currents, spin conductance and spin Hall effect in magnetic and non-magnetic systems
- Spin effects in quantum dots
- Spintronic devices and applications
- New magnetic semiconductor materials
- Optically induced ferromagnetism
- Magnetic semiconductor heterostructures and superlattices
- Organic semiconductor spintronics
- Challenges for materials modeling from solid-state quantum information processing and quantum computation
- Spin based quantum information processing
- Spin effects in mesoscopic systems

On behalf of the PASPS III organizers and advisory committee, I hope to meet you in Santa Barbara.

***Dr. David Awschalom***

University of California, Santa Barbara  
Conference Chair

## Conference announcement 7

**Gordon Research Conference on  
Magnetic Nanostructures  
August 22 –27, 2004 –Big Sky Resort (Montana, USA)**

### Sessions and invited speakers (preliminary)

**Magnetic semiconductors:** *H. Ohno (Sendai)*

**Magnetic nanowires:** *TBA*

**Magnetic anisotropy of nanoclusters:** *H. Brune (Lausanne)*

**Spin-dependent tunneling:** *TBA*

**Spin-injection:** *W.W. Rühle (Marburg)*

**Spin-current induced excitations and magnetization reversal:**

*R.A. Buhrman (Ithaca) / M.D. Stiles (Gaithersburg)*

**Ultrafast magnetization dynamics:** *Th. Rasing (Nijmegen) / C. Chappert (Orsay)*

**Kondo effect in self-organized nanostructures:** *K. Kern (Stuttgart)*

**Spin-dependent effects in quantum dots:** *J. Martinek (Poznan)*

**Spin Hall effect and novel spin dependent phenomena:** *TBA*

**Spin manipulation and quantum computing:** *to be announced*

**Magnetic logic:** *R. Koch (Berlin)*

**Berry phase, spin chirality, and anomalous Hall effect:** *Y. Tokura (Tsukuba, Tokyo) (to be confirmed)*



### Information and applications:

<http://www.grc.uri.edu/programs/2004/magnano.htm>

**Contact:** [bruno@mpi-halle.de](mailto:bruno@mpi-halle.de)  
[grc-magn-nano@mpi-halle.de](mailto:grc-magn-nano@mpi-halle.de)

## Conference announcement 8

# ICF-9 Ninth International Conference of Ferrites

*August 23-27, 2004*  
Cathedral Hill Hotel, San Francisco, California, U.S.A.

## Second Announcement and Call for Papers

### Abstract Submission Deadline—March 1, 2004

The 2004 International Conference on Ferrites (ICF) is the ninth in a series of conferences that provide a forum for the presentation and discussion of the latest scientific and technological developments in ferrites (magnetic ceramics) and related materials. The International Advisory Committee and the U. S. Organizing Committee are pleased to announce that for the second time in its history, the conference (ICF9) will be held in San Francisco, California.

The eight previous conferences were held in Kyoto, Japan (1970, 1980, and 2000), Tokyo, Japan (1992), Bellevue, France (1976), San Francisco, U.S.A. (1984), Bombay, India (1989), and Bordeaux, France (1996). The last conference in 2000 attracted over 500 attendees from 30 countries and had a technical program of 312 papers (oral and poster).

**Hosted by:** The American Ceramic Society; **Sponsored by:** Japan Society of Powder and Powder Metallurgy International Magnetism Association; **Endorsed by:** The American Physical Society; **Cooperating Society:** IEEE Magnetism Society

### Scope

The conference will cover all areas of basic science and technology for ferrites and related materials. Special emphasis will be placed on advanced findings and emerging technologies that are expected to open new horizons for ferrites in the twenty first century. Papers on the results of academic, technical, and industrial studies are welcome. The subject areas for ICF9 are as follows:

#### Science (S)

1. Physics of ferrites and related materials
2. Chemistry of ferrites and related materials
3. Crystal growth, sintering and microstructure
4. Thin films, multilayers, and fine particles
5. Other basic science

#### Processing and Applications (PA)

6. Raw materials and manufacturing processes/facilities
7. Soft magnetic materials and cores
8. Hard magnetic materials and magnets
9. Magnetic recording media, heads and systems
10. Magneto-optics and applications
11. High frequency and microwave ferrites
12. Bio-magnetics and medical applications
13. Power magnetism
14. Transducers and sensors
15. Other applications

#### Special Topics (ST)

16. Nano-structured ferrites and related materials
17. Magnetic fluids, magnetorheological fluids, and novel magnetic devices
18. Multilayer chip inductors

19. Other novel emerging technologies
20. Other special topics

### **Invited Speakers and Special Sessions**

In addition to contributed oral and poster papers in the above areas, ICF9 will include a number of invited speakers, symposia, panel discussions, and workshops. The Program Chair (patton@lamar.colostate.edu) welcomes suggestions for invitees, special topic sessions, as well as the names of possible organizers for such sessions. The Program Committee will review all suggestions and assemble a slate of invited speakers and special sessions in key areas of current interest to the ferrite community.

Possible *symposia, panel, and workshop topics* include:

1. Energy conversion using ferrites and related compounds
2. Magnetite bio-mineralization: new developments and current topics
3. New physics, especially of electronic phase transitions in magnetite, perovskites, and other oxides exhibiting Giant Magnetoresistance (GMR), Colossal Magnetoresistance (CMR), and superconductivity
4. Linear and nonlinear microwave processes in thin films
5. Magnetic and magnetorheological properties of novel ferrite films, including amorphous films and multilayered structures
6. Bonded magnets: basic and applied studies, from raw materials in current use to new products
7. Magnetic materials and components for power electronics
8. New raw materials, methods, and equipment for ferrite processing
9. Ferrite applications [Joint with International Magnetism Association (IMA)]

### **Abstract Submission**

Scientists and engineers working in the broad area of ferrite materials, science, and applications are invited to submit abstracts for consideration by the Program Committee. Abstracts for contributed papers must be submitted electronically through The American Ceramic Society Online Conference Management Submission (OCMS) system. Potential submitters as well as prospective attendees are invited to visit the ICF9 Web site at

[www.ceramics.org/meetings/ferrites](http://www.ceramics.org/meetings/ferrites).

Abstracts must be 300 words or less in length, not counting the title, author and address by-lines, and references. An acknowledgement of receipt will be sent by e-mail. If acknowledgement is not received, the abstract was not properly submitted. Contact [ocms@ceramics.org](mailto:ocms@ceramics.org) if you have problems with submission of your abstracts.

Acceptance notices will be sent out in early April, 2003. The web submission software will automatically produce the accepted abstracts in the proper format for publication in the ICF9 Meeting Guide.

**The firm cut-off date for the submission of abstracts is March 1, 2004**

### **Sponsorship and Commercial Exhibits**

Organizations and companies with ferrite related services and products are invited to serve as industrial sponsors for the conference. These organizations, especially those involved in ferrite production, raw materials supply, production equipment manufacture, and measuring instrumentation, are invited to exhibit their products in a specially designated ICF9 exhibit area. Further information on sponsorship and exhibits will be sent out shortly. Contact Christine Schnitzer at [cschnitzer@ceramics.org](mailto:cschnitzer@ceramics.org) for more information.

### **Conference Proceedings**

The ICF9 Proceedings will be published by the American Ceramic Society.

### **ICF- 9 U. S. Organizing Committee**

*Conference Chairperson*

**Dr. Alex Goldman**, President, Ferrite Technology Worldwide, [ferrittec@aol.com](mailto:ferrittec@aol.com)

*Secretary General:*

**Prof. Gareth Thomas**, University of California at Berkeley [garth@uclink4.berkeley.edu](mailto:garth@uclink4.berkeley.edu)  
*Program Committee Chairperson:*

**Prof. Carl E. Patton**, Colorado State University, [patton@lamar.colostate.edu](mailto:patton@lamar.colostate.edu)

*Publications Committee Chairperson:*

**Prof. Ronald F. Soohoo**, University of California, [r2soohoo@aol.com](mailto:r2soohoo@aol.com)

*Corporate Relations Committee Chairperson*

**Mr. Richard G. Parker**, Chairman of the Board, Fair-Rite Products Corp, [parkerr@fair-rite.com](mailto:parkerr@fair-rite.com)

*Local Committee Chairperson*

**Mr. Thomas M. Coughlin**, President, Coughlin Associates, [TmCoughlin@aol.com](mailto:TmCoughlin@aol.com)

**American Ceramic Society (ACerS) Conference Coordinator**

**Ms. Christine Schnitzer**, [e-mail-cschnitzer@ceramics.org](mailto:e-mail-cschnitzer@ceramics.org)

In order to be placed on the ICF9 mailing list for future announcements, please visit the conference web link indicated above or contact Ms. Schnitzer by email.

[www.ceramics.org/meetings/ferrites](http://www.ceramics.org/meetings/ferrites)



## Conference announcement 9 Joint European Magnetic Symposia

# JEMS'04

September 05 – 10, 2004  
Dresden, Germany

### SCOPE

The Joint European Magnetic Symposia, **JEMS**, are the unification of the two most important conferences on magnetism regularly organized in Europe, namely EMMA (European Magnetic Materials and Applications) and MRM (Magnetic Recording Materials). JEMS focus on magnetism research and applications as well as new magnetic materials.

Information about the conference is available at:

<http://www.ifw-dresden.de/imw/jems04/>

### TOPICS (PRELIMINARY)

- Soft magnetic materials and their applications
- Magnetic recording materials
- Spin electronics and magnetic semiconductors
- Giant magnetoresistive and giant magnetoimpedance materials
- Artificially structured materials, small structures
- Magnetic materials and advanced characterization
- Micromagnetism, magnetization processes and magnetic viscosity
- Sensors and micro-devices
- Numerical modelling, devices and machines
- Imaging and probe techniques
- Permanent magnetic materials and their applications
- Magnetocaloric, magnetostrictive and ferromagnetic shape memory materials
- Magnetic materials in high magnetic fields

### IMPORTANT DATES

<i>February 1, 2004</i>	Deadline for abstract submission
<i>March 15, 2004</i>	Notification about abstract acceptance
<i>May 15, 2004</i>	Deadline for advanced registration
<i>June 30, 2004</i>	Deadline for paper submission

### CONTACTS

For further information, please contact the organisers at the following address:

A. Kirchner: IFW Dresden, P.O. Box 27 00 16, 01171 Dresden, Germany

Phone: +49 351 4659 405 / 460

Fax: +49 351 4659 541

email: [jems04@ifw-dresden.de](mailto:jems04@ifw-dresden.de)

<http://www.ifw-dresden.de/imw/jems04/>

## Conference announcement 10

### EIGHTH INTERNATIONAL SYMPOSIUM ON MAGNETIC MATERIALS, PROCESSES AND DEVICES

Part of the 206th Meeting of The Electrochemical Society  
**October 3-8, 2004, Honolulu, Hawaii**

#### *Call for Papers*

Magnetic thin films play important roles in data recording systems, sensors, microelectromechanical systems (MEMS), and other devices. New knowledge continues to be acquired in magnetic film processing including: film nucleation and growth, structure of deposits, stress and micromagnetics of films, thermal and magnetic annealing, electrochemical and electroless plating systems, etching, process chemistry, tool design, process control, etc. Our understanding of the correlations between deposition parameters, film composition, structure, properties and device performance also continues to improve.

The purpose of the symposium is to bring together electrochemists, physicists, engineers, and device designers who are working in the area of magnetic thin-film technology to review the present state of the field and to point out fruitful new areas for research. Materials of interest include Fe, Ni, Co, and their alloys, as well as laterally patterned, laminated or compositionally modulated structures, including nanowires and self-organized films

The symposium will further cover subjects specific to the fabrication of thin-film heads, microelectromechanical systems, micromotors, and other magnetic devices. The symposium will include invited review or tutorial papers and contributed papers.

**Publication of a Proceedings Volume to be available after the Meeting is provisionally planned.**

Acceptance of a paper in this symposium (oral or poster) obliges the authors to submit a camera-ready copy of the full proceedings volume manuscript at the meeting. Instructions for preparing the manuscript will be sent out by the symposium organizers after the notification of acceptance is distributed by the ECS Headquarters Office. Abstracts, suggestions, and inquiries should be sent electronically to ECS Headquarters and the symposium organizers. **Abstracts must be received at ECS Headquarters by June 1, 2004.**

#### *Symposium organizers:*

**C. Bonhôte**, Hitachi Global Storage Technologies, [christian.bonhote@hgst.com](mailto:christian.bonhote@hgst.com);  
**S.R. Brankovic**, Seagate Research, [stanko.r.brankovic@seagate.com](mailto:stanko.r.brankovic@seagate.com);  
**W. Schwarzacher**, University of Bristol, [w.schwarzacher@bristol.ac.uk](mailto:w.schwarzacher@bristol.ac.uk);  
**G. Zangari**, University of Virginia, [gz3e@virginia.edu](mailto:gz3e@virginia.edu);  
**T. Osaka**, Waseda University, [osakatet@waseda.jp](mailto:osakatet@waseda.jp)  
**Y. Kitamoto**, Tokyo Institute of Technology [kitamoto@iem.titech.ac.jp](mailto:kitamoto@iem.titech.ac.jp)

Visit the Symposium website at

<http://researchweb.watson.ibm.com/SymposiumMMPD/>

for updates and to see the Table of Contents of previous Proceedings volumes.



## Conference announcement 11

# INTERMAG 2005

**April 4-8, 2005**  
**NAGOYA, JAPAN**  
Nagoya Congress Center

### Submission Deadlines

**Digests:** November 1, 2004

**Manuscripts:** January 31, 2005

### Contact

For further information, please contact  
Intermag 2005 Secretariat  
c/o Convention Linkage, Inc.  
Akasaka-Nihon Bldg., 9-5-24, Akasaka, Minato-ku,  
Tokyo 107-0052, Japan  
Phone : ☐81-3-5770-5531  
Fax : ☐81-3-5770-5532  
E-mail : [info@intermag2005.jp](mailto:info@intermag2005.jp)

<http://www.intermag2005.jp/>

## T-MAG Publication news

### IEEE TRANSACTIONS ON MAGNETICS on the web

#### THE IEEE LAUNCHES IEEE XPLORE(R) RELEASE 1.5:

The IEEE launched IEEE Xplore(R) Release 1.5 during July. The upgrade provides free abstract/citation records for guests and enhanced linking to complete abstract/citation records for IEEE members and subscribers, as well as:

- ▶ Title history for related journals and magazines
- ▶ Ask \*IEEE link for referenced articles not in IEEE Xplore
- ▶ Google to index IEEE abstracts, enabling searches to locate IEEE content directly from a Google web search
- ▶ Thomson ISI now includes links from their Web of Science products directly to articles in IEEE Xplore(R).

In addition, through IEEE Xplore 1.5, subscribers to the IEEE Member Digital Library can now sort information in their personal file cabinets by publication name, primary author and original filing date.

For more information on this release, visit  
<http://ieeexplore.ieee.org/xpl/ReleaseNotes.jsp>

Starting in 1965 with vol. 1, now all papers published in **IEEE TRANSACTIONS ON MAGNETICS** are available at **IEEE Xplore**, as well as the searchable **Cumulative Index 1985-2000, Volumes 21-36**

**Ron Goldfarb**  
**Editor in Chief**  
[r.goldfarb@ieee.org](mailto:r.goldfarb@ieee.org)

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Members who would like to volunteer their services as technical reviewers are needed. Society members with **ideas for new books** or candidates for the **Classic Re-Issue** series are urged to get in touch with:

**John T. Scott,**  
**Magnetics Society Liaison to IEEE Press**  
 E-mail: [john.scott@physics.org](mailto:john.scott@physics.org)

- For **Classic Re-Issues**, the contact is Stan Charap [charap@ece.cmu.edu](mailto:charap@ece.cmu.edu)
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  - For **new books in other areas**, the contact is John T. Scott [john.scott@physics.org](mailto:john.scott@physics.org)
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