



IEEE Magnetics Society Newsletter

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Martha Pardavi-Horvath, Editor

Romney Katti, Publicity

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May 28-30, 2003
 4. **MIPE 2003** Joint conference on Micromechanotrics,
Yokohama, Japan, June, 2003

5. **COMPUMAG** 14th Conference on the Computation of Electromagnetic Fields, , Saratoga Springs, New York, USA, *July 13 - 18, 2003.*
 6. **ICM2003** International Conference on Magnetism, Roma, Italy, *July 27-Aug 1, 2003.*
 7. International Conference and School on Semiconductor **Spintronics and Quantum Information Technology**, Brugge, Belgium, *4 - 8 August 2003,*
 8. **SMM16** 16th Soft Magnetic Materials Conference, Düsseldorf, Germany, *9-12 September, 2003*
 9. 5th **Magnetic Microsphere** Meeting, Lyon, France, *May 20-22, 2004*
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- **Books on magnetism**
 - **Visual Magnetism – Solution**

Officers of the IEEE Magnetics Society

Magnetics Society Officers

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Robert C. O'Handley
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Roger S. Wood

Division IV Director's Report: Swansong

The June-September swoon in the stock market sharpened the focus on investments at the November BoD series. Will the October-November market rise continue through the end of the year? You will probably know the answer by the time you read this, but it will not minimize the concentration on the IEEE portfolio in the months to come. In retrospect, one of the smartest financial reporting changes implanted 2 years ago was the separation of operations from investments. Operations have been under intense scrutiny, and will continue to be. The results are positive and noticeable. Now it's time for investment policy to have its turn in the spotlight.

But there are more, larger issues. Our accounting consultants reported their thoughts on IEEE's Corporate Infrastructure (CI) at the November BoD Series, which is of strategic importance to the Institute. It's at the end of this article. First, an update of recent financial issues.

Infrastructure Expenses

Direct infrastructure expenses have been identified and a distribution algorithm was passed in February. Now that we know what they are, we can work on cutting them. It is beginning to happen. In November, TAB passed the motion from TAB FinCom to distribute 2002 *indirect* costs in TAB according to the default methodology, excluding co sponsored publications, for 2003 and going forward. This methodology prescribes a distribution in proportion to ASPP and Book Broker revenue shares, and an additional component proportional to Society year-end reserves.

The important issue here is NOT the algorithm, since others give pretty much the same share, but the amount of the distribution. In 2002, the combined direct/indirect infrastructure amounted to 21.5M. These are scheduled to be reduced to 18.7M in 2003, through work on cost-cutting and business rule simplification. In case you have not skipped to the CI section yet, the consultants want to transfer as many indirect functions as possible to direct charges. Easier to identify and validate as either necessary or unnecessary.

Business Rule Simplification

In November 2001, the BoD charged RAB and TAB with identifying business rule changes to realize a possible \$3M annual savings in infrastructure charges associated with membership services. RAB and TAB Business Rule Simplification teams have been working the details since February 02. TAB committee discussions have focussed on simplifying the options available for Society membership, and the subscription process for members regarding optional Society publications.

In June, TAB endorsed the concept that, in general, member fees and prices should at least cover the *relevant variable costs*. In November, the Cost-of-Membership task force reported back on three metrics to measure membership costs; these metrics will be made available to each Society for their use in running their membership "business", starting with the 2003 budget cycle. Further details can be found in TAB Caucus Treasurer's Report. (link below) This same group has also been looking at business rule simplifications, and at their suggestion, also in November, TAB passed a motion which will consolidate student, retired, minimum income, and unemployed member categories for the purpose of providing a single discount to Society membership dues and Society optional publications. Details of this and other business rules simplification efforts in the membership area are in TAB

agenda item V.C. Both actions are located in http://www.ieee.org/organizations/tab/tco_tabagendas.html. Three items remain on the membership business rules table. The first is how to simplify the offerings of Society optional publications. The second is simplifying the Technical Interest Profile selection procedure. The holy grail of membership business rules simplification is web renewal, because this would take away the need for the print membership brochures and costly reminder mailings. Web renewal is just about at the 50% mark, and Regions 7-10 are leading the adoption of this service. When fully adopted, electronic renewal can save over \$1M annually. This committee and IEEE staff will continue to work on these issues. You can do your part by renewing electronically.

In case you have not skipped to the CI section yet, the consultants are fully behind this and other simplification efforts. Cut the complications, save money.

2002 Forecast (Update): Focus on Investments

As the year winds down, operations for the S/Cs are very close to break-even. The infrastructure cuts made early in the year have relaxed pressures on the Societies to deliver revenues in a down economy.

Unfortunately, 2002 so far has not been favorable to our investment portfolio, and while October and November were strong months, equity indices are down for the year, and it does not look likely that they will recover to parity with January 02 by year-end. It is clear that efforts by staff and volunteers to normalize operations over the past 2 years have paid off. Now the elements of our investment portfolio strategy have come under scrutiny as the market continues to droop. Specific questions have been asked, all of which have a strategic nature. What is our investment policy and how do we benchmark it? How do we define and measure risk tolerance? How do we convert risk tolerance to asset allocation? What strategic elements of our policies offer guidance for transitioning to different asset mixes or risk tolerances? Accordingly, a TAB Adhoc Investment Advisory Committee will be formed to provide a direct path of communication between the IEEE Investment Committee and TAB.

The consultants agree that balanced budgets are great, and support a complete and clear investment strategy and policy.

2003 Society Budget highlights

While the bottom line for the Societies was marginally positive at the 2003 November view, 9 Societies have negative nets for 2003, and 6 of those 9 have had negative budgets for the past two years. These 9 Societies appeared at the TAB FinCom meeting in Chicago to present their plans for recovery. 4 of the 9 participants will return in February for an update.

Corporate Infrastructure Study

Finally, the CI section! Since the June BoD Series, an independent accounting consultant has been studying the corporate infrastructure of the Institute. Their findings, presented at the November BoD series, are in 4 main categories: Governance, Simplification, Strategy, and Trust. Here's my take on their report.

Governance: IEEE is a membership-led organization. Membership-led organizations move more slowly than management-led organizations, and are effective only to the extent that the Members have a view for the entire organization. With 1-2 year S/C leadership terms, and 2 year BoD terms, our governance knowledge gets cycled off far too quickly.

Result? Learning cycles that consume much of the term of service. During the learning cycle, without a view for the organization, votes are cast with/for the constituency, the only point-of-view available to new leadership. As a further consequence, the member-governors learn by managing, or micro-managing. Staff does our bidding, and the daily work gets done, albeit very inefficiently. Unfortunately, there is little time for working strategic issues (see below). Recipe for improvement – set longer terms for our leadership (S/C Presidents, Board Members). Reduce the size of governing boards, whose members are selected at-large on the basis of skills, not quotas. Let the leadership lead (i.e., set strategy), and allow the staff manage to the scorecard set by the strategy.

Simplification: IEEE's corporate infrastructure (CI) is far too complex, a result of the rules we set to serve our constituents. The CI should be diminished and its role should be defined. Our cost allocation model is complex and complicated. To the extent we do not understand it, we waste money and time. Our budget process needs an overhaul. 13 months is too long. Simplification of Business Rules will save millions.

Strategy: Get one. Define and benchmark big picture issues in publishing, membership, governance, and fiscal policy.

Trust: This topic is an overarching one, and is probably the most important to changing our situation. We need to empower a small team and let it be the agent for changes noted above. The problem with associations is that they are democratic.

Bottom line: We need a more nimble governance structure and a long term strategy. Simplification should be on every scorecard, and change will only happen with trust.

That, in a nutshell, is the word from our infrastructure consultants... strong medicine. Does this have a familiar ring to it? Resuming an effort begun in 1992 (!), a Presidential Blue Ribbon Committee, reestablished in 2000, presented ***governance*** proposals in July and November 2001(http://ewh.ieee.org/reg/6/Docs/pbrc_nov01_final.htm) with striking similarities to the Consultants suggestions. At that time, the medicine was too strong. Principles were approved, but change agents were not empowered to implement the tough issues, such as dissolution of committees, and creating a smaller BoD with longer term limits. Now we have essentially the same message from outsiders.

Discussion

By the time you read this, my term as your Division Director will be history. It has been a pleasure, I assure you, to meet so many energized volunteers. I'm not going away just yet, but will stick around as TAB Treasurer, and look forward to further discussions on finance as well as the other issues on the CI agenda. **Hal Flescher** (h.Flescher@ieee.org) is your new man. Ask him what his views are on the consultants' report. Let's get going.

Peter Staecker, (outgoing) Division IV Director
p.staecker@ieee.org

December 2002

IEEE Magnetics Society Achievement Award 2003

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

The past award winners were Fred Luborsky 1981, Herb Storm 1982, Harold Lord 1984, Joe Suozzi 1985, Fritz Friedlaender 1986, Andrew Bobeck 1987, Floyd Humphrey 1988, Paul Biringier 1989, Daniel Gordon 1990, Emerson Pugh 1991, Yoshifumi Sakurai 1992, William Doyle 1993, Richard Barker 1994, Mark Kryder 1995, Koosuke Harada 1996, Gordon Slemon 1997, Stanley Charap 1998, David Thompson, 1999, C. Denis Mee 2000, Fred B. Hagedorn 2001 and Shun-ichi Iwasaki 2002.

This year we are proud to announce that the winner for

Year 2003 IEEE Magnetics Society Lifetime Achievement Award is

Prof. Carl E. Patton

of Colorado State University, Fort Collins, Co. He will be presented with a diploma with citation and a cash prize at the INTERMAG meeting in Boston, Ma.

From Floyd Humphrey

Chapters Corner

CHAPTER CHAIRS (or for that matter members at large!)..... please respond to the following so we can update our members on what's happening in ***chapterland!***

If you are the local chapter chairman 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 a 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 Chair

IEEE Magnetics Society Distinguished Lecturers for 2003-2004

IEEE Magnetics Society Distinguished Lecturers for 2003

Wall Watching: The Progress of Domains in Small Elements

John Chapman

University of Glasgow



An understanding of magnetization processes is of direct interest to physicists and is crucial for developing high performance magnetic devices. The domain structure, and the way it changes under the influence of a magnetic field, depends not only on basic material parameters but also on the physical shape and size of the magnetic material. Thus, quite different domain configurations are found in bulk materials, thin films, and small magnetic elements made from the same material. The same is true of domain walls, whose structure can change markedly as one or more of the dimensions of the material under investigation moves into the sub-micrometer regime. Given the extreme miniaturization that occurs in magnetic storage and sensing devices, as detailed a knowledge as possible of the magnetization configuration in small elements is essential.

For many years, the Lorentz imaging mode of transmission electron microscopy (TEM) has yielded high resolution magnetic images of domains and walls in magnetic films and elements. Since only a modest amount can be learned from a single image of an element, however, recent advances -- whereby *in situ* magnetizing capabilities within the TEM have been enhanced -- have made a considerable impact.

In this talk I will illustrate the radical changes that occur as the dimensions of magnetic elements are reduced from a few micrometers to tens of nanometers. While size is a very important parameter, the detailed shape can also exert a major role, and changes here offer a way of tailoring properties to meet specific requirements. Other important influences are coupling between layers (if the element is formed from a magnetic multilayer) and the nature of the substrate. It is hoped that many of the images, as well as revealing in a very direct way how the magnetization process proceeds, will appeal to the aesthetics of the audience.

John Chapman received both the M.A. degree in Natural Sciences and the Ph.D. degree from the University of Cambridge, United Kingdom, in 1973.

Following a Research Fellowship at Fitzwilliam College, Cambridge, he became a Lecturer at the University of Glasgow in the Department of Physics and Astronomy. Promotion to readership in 1984 and full professorship in 1988 followed; currently he is Head of Department. Professor Chapman's main research interest concerns the characterization, development, and application of advanced functional materials. Overall his aim is to gain understanding at a microscopic level of how various physical properties relate to material nanostructure and how the former can be improved by the ways in which materials are grown and processed. He studies magnetic materials extensively, with particular emphasis on magnetic nanostructures and multilayer films. Much of his work uses electron microscopy and related analytical techniques. He has co-authored about 250 papers.

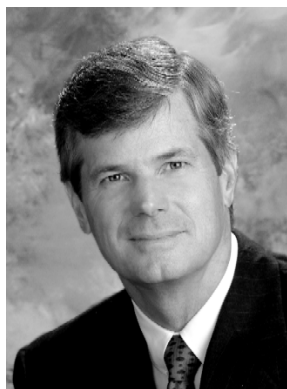
In 1991 Professor Chapman was elected a Fellow of the Royal Society of Edinburgh. He is also a Fellow of the Institute of Physics and of the Royal Microscopical Society.

Contact: Prof. John N. Chapman, Department of Physics and Astronomy, University of Glasgow, Glasgow G12 8QQ, U.K.; telephone: +44 141 330 4462; fax: +44 141 330 4464; e-mail: j.chapman@physics.gla.ac.uk

Characterization of Magnetic Recording Channels: A Historical Perspective

Thomas D. Howell

San Jose State University



The design of advanced signal processing systems for recovering data stored on magnetic media requires an accurate understanding of the input/output characteristics of the storage system. The designer must be able to predict the output resulting from an arbitrary input in order to select the optimum set of signals to represent the data. He or she should also know the statistical properties of the noise and the types of distortion affecting the storage and readback processes.

Early systems used simple models of channel behavior. As densities increased and signal processing schemes became more complex, more sophisticated models were needed. It is interesting to observe how effects once considered negligible became important, and conversely, how dominant distortions, once understood, became part of the expected signal and hence of negligible importance as disturbances.

In this lecture I will examine selected developments from the history of magnetic recording channel characterization. I will discuss the changing roles of intersymbol interference and nonlinear transition shift, along with some of the techniques used to measure and model them. Magnetic recording systems continue to evolve at a rapid pace; the lessons learned from history often help speed progress and avoid future pitfalls.

Thomas D. Howell (M'81, SM'89) received the B.S. degree in mathematics from the California Institute of Technology, Pasadena, CA, in 1973 and the Ph.D. degree in computer science from Cornell University, Ithaca, NY, in 1976.

He became a Lecturer in computer science and electrical engineering at San Jose State University, CA, in 2002. From 1977 to 1990 he was a research staff member in the IBM Research Division at their San Jose, Zurich, and Almaden centers, where he conducted research on the application of advanced signal processing techniques to magnetic recording channels. After joining Quantum Corporation in 1990, he managed advanced engineering groups in a variety of areas and helped introduce new technologies including digital channels, magnetoresistive and giant magnetoresistive heads into the company's products. He held a number of positions, ending as Vice President of Research. He served on the board of directors of the National Storage Industry Consortium and on industrial advisory councils at several university research centers during the 1990s.

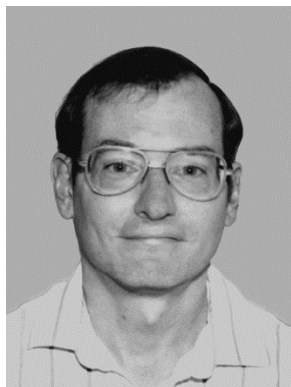
Dr. Howell served as an editor of the *IEEE Transactions on Magnetics* (1997-2000) and chaired The Magnetic Recording Conference (2000).

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Thermal Magnetization Noise and Fluctuation-Dissipation in Magnetoresistive Heads, Sensors, and Ferromagnetic Thin-Film Devices

Neil Smith

IBM Almaden Research Center, IBM Corporation



Continuing technological development of giant magnetoresistive (GMR) spin-valve materials and devices, and tunneling magnetoresistive (TMR) sensors, has been largely driven by ever-increasing demands for greater areal storage density and data transfer rates for hard-disk drives. These technological demands will require future GMR (or TMR) materials with increasing MR coefficients $\Delta R/R \gg 10\%$, and read-head/sensor dimensions at and below the scale of 100 nm. In this regime, the sensor's intrinsic electrical noise can be exceeded by resistance noise arising from thermally-induced magnetization fluctuations ("mag-noise") in the very thin, magnetically soft, ferromagnetic sensing layers of the MR read head. This mag-noise contribution scales as $P \cdot (\Delta R/R)^2 \cdot \chi_i^2/V$ (where P is the input power, χ_i is the sensor's internal magnetic susceptibility, and V is the sensor volume), whereas the signal power similarly scales as $P \cdot$

$(\Delta R/R)^2 \cdot \chi_e^2$ (where χ_e is the external field susceptibility). Hence, mag-noise serves as a fundamental limit on GMR sensor signal-to-noise ratio that does not substantially improve with further increases in $\Delta R/R$ or sensitivity χ , but which can become more severely limiting as sensor volume decreases.

In addition to its technological implications, observation of mag-noise in sub-micrometer MR sensors provides a relatively simple electrical measurement to study basic damping properties and loss mechanisms in the constituent ultra-thin ferromagnetic films. This can include geometric finite-size effects in very small (100 nm) structures not easily probed by traditional ferromagnetic resonance experiments. The basic relationships between intrinsic magnetic damping and measured thermal magnetization fluctuations can be described by application of the fluctuation-dissipation theorem.

In this talk I will offer a brief tutorial on the fluctuation-dissipation theorem and how it may be properly employed to quantitatively model the mag-noise amplitude and spectrum observed in MR sensors. I will review some recent measurements of mag-noise in MR devices, compare experimental with model expectations, and offer scaling projections of magnetic noise vs. sensor size. In addition, I will discuss how fluctuation-dissipation arguments can discriminate between alternative phenomenological damping models in ways not obvious using traditional uniform magnetization descriptions of damped ferromagnetic resonance, and conclude with a brief consideration of excess damping contributions from inhomogeneity and finite-size effects.

Neil Smith received the S.B. degree in physics from the Massachusetts Institute of Technology, Cambridge, in 1977, and the Ph.D. degree in physics, also from MIT, in 1983.

He joined the Eastman Kodak Company in 1984 and worked in the Magnetic Heads Division of Kodak Research Labs, San Diego, CA, until 1998. His work there primarily involved the physics of magnetic recording of magnetic tape heads and systems, with particular emphasis on the development of magnetoresistive read heads and very high sensitivity anisotropic and giant magnetoresistance magnetic field sensors. In 1998 he joined the IBM corporation, working in the Recording Heads Group at the IBM Almaden Research Center, San Jose, CA. At IBM he has concentrated on both write and read head technology for hard-disk drives, including research on the basic physical and technological limits of read heads for ultra-high disk storage densities. He has recently conducted some of the first investigations into fundamental signal-to-noise limits of magnetoresistive read heads due to thermally induced magnetization fluctuations.

Contact: Neil Smith, IBM Almaden Research Center, 650 Harry Road, San Jose, CA 95120-6099; telephone: +1 408 927 2808; fax: +1 408 927 3010; email: neils@almaden.ibm.com

MagNews

Any exciting new achievements?

Share the news!

This is the place to inform the magnetics community about a new discovery, great achievement, theoretical or experimental breakthrough in magnetism.

Submit a one page description of your new accomplishment – pictures welcome!

Editor:

mpardavi@gwu.edu

Sorry, this is NOT the place for commercial advertisement.

VISUAL MAGNETICS

WHAT IS THIS?



SOLUTION?

GO TO THE END



Conference reports

Pictures of a conference - MMM 2002 Tampa



Chairman
Chia-Ling Chien
Program Co-Chairs
Jeffrey Childress
James MacLaren



Those who steered the MMM in the right direction now might relax....

Photo: Phil Wigen



and all the others too...

... some at the Bierstube,
(Photo Wigen)



....some in Ybor City,
(Photo mph)

and then it's over,
(Photo mph)



See you at the Joint Conference in January 2004!

Conference announcements

INTERMAG 2003

The 2003 IEEE International Magnetism Conference, Boston, Massachusetts
March 30 -April 3, 2003.

Letter from the conference chair

WELCOME TO INTERMAG 2003

SCOPE OF CONFERENCE

The Intermag 2003 Conference is sponsored by the IEEE Magnetism Society and will be held from Sunday, March 30th, through Thursday, April 3rd, at the *Boston Marriott Copley Place*, in Boston, Massachusetts, USA. This is the premier conference on applied magnetism and information storage technologies. Every member of the international scientific and engineering communities interested in recent developments in magnetism and associated technologies is invited to attend the Conference and contribute to its technical sessions. The Conference will provide an outstanding opportunity for participants to meet their colleagues from around the world, and to share and discuss developments in a wide range of topics.

An exciting program has been planned for Intermag 2003. About 700 *papers* have been scheduled for the Conference. Five invited *Symposia* will cover rapidly growing areas of interest: biological and medical applications of magnetism, high frequency magnetism, nano-technologies, and spintronics. In addition, a *Tutorial session* on biological and medical applications of magnetism, as an introduction to this field of research, has been assembled. Finally, the Exhibits in the Partner's Pavilion, reviewing the latest products and developments in applied magnetism, will be of great interest.

PLENARY SESSION

During the Conference ***Plenary Session on Monday, March 31st, at 2:00 PM***, the IEEE Magnetism Society will recognize its 2003 award recipients: the *IEEE Information Storage Field Award* will be presented to Professor **Neal Bertram**, and the *IEEE Magnetism Society Lifetime Achievement Award* will be presented to Professor **Carl Patton**. The newly elected IEEE Fellows will be recognized, and the Intermag Student Travel Award winners will be announced.

The **Plenary Speaker** for Intermag 2003 will be **Dr. John H. Marburger, Director of the White House Office of Science and Technology Policy**. Dr. Marburger also co-chairs the President's Committee of Advisors on Science and Technology, and supports the President's National Science and Technology Council.

Established in 1976, the OSTP has a broad mandate to advise the President and others within the Executive Office of the President on the impacts of science and technology on domestic and international affairs. The OSTP is also authorized to lead an interagency effort to develop and to implement sound science and technology policies and budgets, and to work with the private sector, state and local governments, the science and higher education communities, and other nations toward this end. The OSTP also provides technical support to the Office of Homeland Security through a joint arrangement with that Office.

The Plenary Talk will focus on the current, significant changes in R&D trends and the government policies formulated to address and impact these. Additional details will be available soon on the Conference web site.

TUTORIAL SYMPOSIUM ON BIOMAGNETISM

The IEEE Magnetism Society *Education Committee* will present: **"What's New in Biomagnetism?"**, on Wednesday, April 2, 2003, from 7:30 PM. A distinguished group of speakers will highlight the latest developments in biomagnetism. The symposium will be tutorial in nature and will cover topics,

such as, biomedical applications of nanoparticles, magnetoelectronics for molecular biology, magnetism-based biomedical sensors and magnetic resonance microscopy.

If you ever wondered how magnetics is advancing the state of the art in medical technology then please come and join us for this exciting session.

CONFERENCE SOCIAL EVENT

The Conference social event will be held on *Tuesday evening, April 1st*, at the **New England Aquarium** from 6:00 PM to 10:00 PM. Tickets for the event may be ordered at the time of Advance Registration, or purchased on site during the Conference. Due to limited space, advance purchase is encouraged.

The New England Aquarium opened its doors to the public for the first time on June 20, 1969. The Aquarium was designed with the intention of providing an underwater experience for the visitor and of being a cultural institution that would reconnect Boston to its waterfront. In its more than 30 years of existence the Aquarium has grown significantly. The Giant Ocean Tank opened in 1970 and was, at the time, the largest circular, saltwater tank in the world. The Aquarium continues its tradition to serve as a leader in research, education and conservation. The evening will feature access to the main exhibits. Dinner stations will be set up throughout the aquarium featuring a choice of meat, fish and vegetarian entries, soft beverages, dessert and coffee. A full cash bar will be available from 6:00 PM to 9:00 PM.

STUDENT TRAVEL SUPPORT

The *Education Committee and the Awards Committee* of the IEEE Magnetism Society are pleased to sponsor a small number of students working in magnetism to attend the INTERMAG 2003 Conference. These awards (approximately \$500 each) are intended to partially offset travel costs to attend the Conference. **Nominations** will be accepted from faculty advisors of the interested students. The nominator must also be a member of the IEEE Magnetism Society. Preference will be given to students who are nearing completion of their graduate studies and presenting papers at the conference. No support will be granted to postdoctoral fellows or non-students. For details, please visit the Conference web site.

HOTEL

Located in the heart of Boston's historic Back Bay neighborhood, the Boston Marriott Copley Place, 110 Huntington Avenue, Boston, Massachusetts, is the site for Intermag 2003. **The hotel must receive your room reservation no later than March 3rd for you to obtain the special Intermag 2003 room rates.** Complete instructions for how to book a room via the web site, by fax or by mail can be found at: www.intermagconference.com.

CONFERENCE REGISTRATION

All Conference attendees, including speakers, must be registered for the Conference. You can register in advance at a reduced rate, before the deadline of March 3, 2003. Complete instructions for can be found on the Intermag 2003 web site at: www.intermagconference.com. **Onsite registration will be at higher rates.**

ADDITIONAL INFORMATION

Intermag 2003
c/o Courtesy Associates
2025 M Street, N.W., Suite 800
Washington, D.C. 20036, USA
PHONE: (202) 973-8676
FAX: (202) 973-8722
EMAIL: intermag@courtesyassoc.com

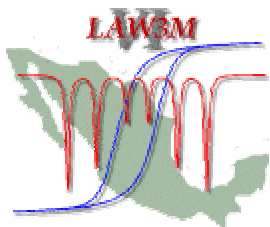
You may also access complete conference information through the Web at the Intermag home page at:

www.intermagconference.com

SEE YOU IN BOSTON,

V. R. Ramanan, General Chair of INTERMAG 2003

Conference announcement



VI LAW3M VI Latin American Workshop on Magnetism, Magnetic Materials and their Applications CIMAV, Chihuahua Mexico April 7th-11th 2003

The **Sixth Latin American Workshop on Magnetism, Magnetic Materials and their Applications (VI LAW3M)** to be held at Advanced Materials Research Center (CIMAV) in Chihuahua, Mexico on April 7th-11th, 2003 continues a series of biennial meetings initiated in La Habana Cuba in 1991 and followed by workshops in Guanajuato Mexico (1993), Mérida Venezuela (1995), São Paulo Brazil (1998) and San Carlos de Bariloche Argentina (2001).

LAW3M is designed to support scientific exchanges among researchers and institutions interested on recent developments in all branches of fundamental and applied magnetism. This series of Workshops has grown as one of the most prestigious conferences in Latin America. Each successive edition has involved more specialized subjects, scientists and results, not only from the region but all around the world.

This 6th edition of LAW3M will provide an open forum to promote collaboration between

different groups, where participants can discuss the latest information regarding to their experiences, new concepts and general developments in materials research and magnetic applications.

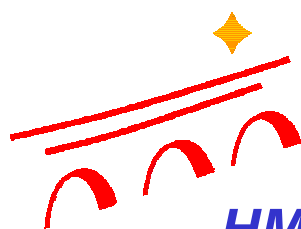
The participation of young graduate students is most welcome.

Workshop Proceedings will be published as a Special Issue of the Elsevier Science B.V. journal, ***Journal of Alloys and Compounds***.

Fellowship Award for Graduate Studies in Magnetic Materials at CIMAV!!

<http://www.law3m.org.mx/>

Conference announcement



Last Call for Digests

HMM 2003

4th International Symposium on Hysteresis and Micromagnetic Modeling

**May 28-30, 2003
University of Salamanca, Spain**

Deadline for digest submission: February 1, 2003.

Registration fee: 250 € (*advanced*), 300 € (*on-site*).

Proceedings will be published in ***Physica B***.

Scientific Categories:

1. Mathematics of hysteresis.
2. Phenomenological models of hysteresis.
3. Classical spin models for disordered systems.
4. Magnetic hysteresis: experiments and measurements.
5. Magnetization processes: Barkhausen noise, domain-wall dynamics, etc.
6. Nonmagnetic hysteresis: experiments and interpretation.
7. Thermal relaxation and aftereffects.
8. Micromagnetics: theory and numerical techniques.
9. Micromagnetics: thermal effects and relaxation.
10. Micromagnetics: applications.



IEEE



**Universidad
de
Salamanca**

Local Organizing Committee

| | | |
|---------------|-----------------|----------------|
| L. López-Díaz | J.I. Íñiguez | M.A. Hernández |
| L. Torres | C. de Francisco | V.J. Raposo |
| O. Alejos | A.G. Flores | M. Zazo |
| E. Martínez | J. Sánchez | |

More information:

Web page: <http://mumag.usal.es/hmm2003.htm>

E-mail: hmm2003@usal.es

Conference announcement

MIPE 2003

[http://
www.jsme.or.jp/iip/english/.htm](http://www.jsme.or.jp/iip/english/.htm)

Call for Papers

2003 JSME-IIP/ASME-ISPS Joint Conference on
Micromechatronics for Information and
Precision Equipment

IIP/ISPS Joint MIPE

June 16-18 (Mon-Wed), 2003
Pacifico Yokohama, Yokohama, Japan



Sponsored by

Information, Intelligence and Precision Equipment (IIP) Division of JSME
Information Storage and Processing Systems (ISPS) Division of ASME

Participating Societies (Planned)

Japanese Society of Tribologists, The Japan Society for Precision Engineering, The Surface Science Society of Japan, The Horological Institute of Japan, The Magnetic Society of Japan, Japanese Society for Medical and Biological Engineering, The Institute of Electronics, Information and Communication Engineers, Sensors and Micromachines Society of the Institute of Electrical Engineers of Japan, Industry Applications Society of the Institute of Electrical Engineers of Japan, International Disk Drive Equipment Materials Association Japan, The Japan Society of Applied Physics, The Japan Fluid Power System Society, The Japan Society of Applied Electromagnetics and Mechanics, The Robotics Society of Japan, The Society of Instrument and Control Engineers, The Institute of the Systems, Control and Information Engineers, Storage Research Consortium, Magnetic Society of IEEE, The Society of Tribologists and Lubrication Engineers, The Institution of Mechanical Engineers, The Korean Society of Mechanical Engineers

Conference announcement



**Saratoga Springs
July 13-18, 2003**

Welcome to COMPUMAG 2003

The 14th Conference on the Computation of Electromagnetic Fields will be held July 13 - 18, 2003, in Saratoga Springs, New York, USA.

Contact at
www.compumag2003.com

Conference announcement



ICM 2003

INTERNATIONAL CONFERENCE ON MAGNETISM

**July 27 - Aug 1, 2003
ROMA, ITALY**

ICM 2003 Conference Secretariat
Mrs. G. Ianni
Istituto di Struttura della Materia -CNR
 Area della Ricerca di Roma
 PO. BOX 10
 00016 Monterotondo Scalo (RM)
 ITALY
 Phone: +39-06-90672285/360
 FAX: +39-06-90672470
 e-mail : icm2003@mlib.cnr.it
<http://www.icm2003.mlib.cnr.it>

The International Conference on Magnetism (ICM) belongs to a series of Conferences, held once every three years, under the auspices of the International Union for Pure and Applied Physics (IUPAP). The most recent conferences were held in Recife (2000), Cairns (1997), Warsaw (1994), Edinburgh (1991), Paris (1988) and San Francisco (1985). In the year 2003, ICM will be held in Roma, Italy, from Sunday, July 27 through Friday, August 1. ICM 2003 will also include the Symposium on Strongly Correlated Electron Systems (SCES 2003).

All information about the conference, accommodation and touring in Italy can be found at

<http://www.icm2003.mlib.cnr.it>

SCOPE: ICM 2003 has been programmed to provide a forum for the international magnetism community to discuss new concepts, properties and developments in all branches of fundamental and applied magnetism, as well as research on magnetic materials and their applications. Selected contributed oral and poster presentations are planned, together with plenary lectures, invited talks and symposia.

ICM 2003 will be conducted in accordance with IUPAP principles regarding the free circulation of scientists for international purposes. In particular, no bona fide scientist will be excluded from participation on the grounds of origin, nationality, or political reasons unrelated to science.

REGISTRATION FEES: The registration fees, valid only before the registration **deadline of May 15, 2003**, are:

| | | |
|--------------------|------------------------|------------------------------------|
| Full registration: | check or bank transfer | - EURO 480; credit card- EURO 505 |
| Students/retired: | check or bank transfer | - EURO 320; credit card - EURO 335 |

Full registration fee includes Abstracts and Conference Program booklets, Conference Proceedings, participant kit, Welcome Party, coffee breaks. After May 15, only on-site registration will be accepted, with an extra charge of 25%. Thus, registering in advance is strongly recommended if you want to save time and money and queuing up at the registration desk. On the other hand, advanced registration enables you to have all your Conference materials ready for you when arriving on site. In addition, for those booking the Hotel through the Conference Organization, the registration material will be delivered to the hotel reception desk on arrival. **Note** also that only **cash (Euro)** or **credit card** payment will be accepted for on-site registration. There will be an exchange bureau in the Conference building.

PROCEEDINGS: The proceedings of ICM 2003 will be published by Elsevier's Journal of Magnetism and Magnetic Materials. Only **full** pay registrants will receive a free copy of the Proceedings. According to arrangements with Elsevier, they will also receive a password to allow free electronic access to the proceedings during one year. As in previous ICM conferences, only one contributed paper per registered participant will be published in the proceedings. This allows us to keep within the limit set by the Publisher. Only the papers presented at the Conference and accepted by the referees will be published. The deadline for the manuscript submission is **April 15, 2003**. Instructions for manuscript preparation will be sent with the notification of abstract acceptance.

CONFERENCE SITE: The Conference will be held at the *Palazzo dei Congressi in Roma*, presently the largest Conference Center in Roma, equipped with all the facilities required for large conferences. It is the main building of the splendid complex of the Universal Exhibition of Roma, in the modern EUR district. It can be reached from the Leonardo da Vinci Airport in only 20 minutes by car and it is linked to the city by a number of buses and underground trains (Metro). Roma, the Eternal City, has always attracted tourists from all over the world for its beauty and charm, its unforgettable monuments, architecture and invaluable arts which are a fascinating reminder of the past. The temperatures in Roma range from 28 to 35 degrees Celsius in late July and rarely rains. A large number of Romans go on vacation in this period, therefore the most popular tourist attractions, museums, shops and galleries are less crowded. Obviously the Congress Center, as well as most indoor cultural facilities, restaurants and shops are air conditioned.

TRANSPORTATION AND ACCOMMODATION: Roma can be reached through many air routes. Most scheduled airlines have daily flights to Roma. Several airlines offer promotional fares to Roma. Train connections from the European cities are also very good. If you plan traveling in Europe, Roma is a very convenient base since any other European city can be reached within an hour or two by air.

Roma has an overall accommodation capacity of about 30,000 rooms (single, double or suites). Some 4 star hotels (e.g. Sheraton, the Conference Hotel) are close to the Conference site. Besides, a large number of fine hotels of different categories near the historical center of Roma and well connected (by Metro) to the Conference site have been booked for Conference participants. Cheaper accommodation can be offered to a limited number of applicants in some of the pilgrim houses in Roma belonging to religious orders or congregations. The official travel agency of the Conference will take care of the Hotel accommodation.

VISA REQUIREMENTS: A valid passport is required for everyone wishing to enter Italy except for European citizens for which a valid Identity card is required. The visa requirement depends on the home Country of citizenship. The ICM 2003 Home Page contains a list of the countries, which have a visa waiver agreement with Italy. Foreign participants are urged to contact the Italian Embassy or Consulate in their home Country as soon as possible to determine their particular visa requirements and to apply well in advance of their departure dates. If you need a personal letter of invitation to attend the Conference, please contact the ICM 2003 secretariat at phone No. +39-06-90672285/360, FAX +39-06-90672470 or E-mail icm2003@milib.cnr.it, and give your complete mailing address. A signed letter will be then mailed to you. This letter of invitation, however, does **not** imply an invited talk or waiver of registration fee.

EXHIBITS: During ICM 2003 there will be an area for the exhibition of relevant services, equipment, materials and books. Individuals and organizations interested in exhibiting their products should contact Dr. L. Del Bianco, tel.+390690672338; fax.+390690672470, e-mail lucia.delbianco@milib.cnr.it

PRE-POST CONFERENCE TOURS AND ACCOMPANYING PERSONS PROGRAM: The ICM 2003 Home Page contains a description of several tours in Roma (and in the neighborhood) and in Italy that can be booked through the official travel Agency: **Triumph Viaggi & Incentive**. We hope you will enjoy this opportunity of visiting one of the most beautiful and famous cities in the world and other unforgettable historical and artistic towns of Italy.

TIME SCHEDULE

| | |
|---------------------------------|---|
| January 10, 2003 | Deadline for abstracts submission |
| February 28, 2003 | Notification of acceptance/rejection |
| April 15, 2003 | Deadline for papers submission |
| May 15, 2003 | Deadline for registration |
| July 27 - August 1, 2003 | ICM2003 - incorporating SCES '03 |

ICM 2003 EXECUTIVE COMMITTEE

- **Chairman:** Dino Fiorani
ISM - CNR - Roma
Tel. +39-06-90672553
E-mail: dino.fiorani@milib.cnr.it
- **Publication chair:** Luigi Pareti
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E-mail: pareti@maspec.bo.cnr.it
- **Program chair:** Paolo Allia
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E-mail: allia@ien.it
- **Local chair:** Elisabetta Agostinelli
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- **Treasurer:** Franco Lucari
Università - INFM - L'Aquila
Tel. +39-0862-433098
E-mail: lucari@aquila.infn.it

SYMPOSIA

| | | |
|--|--|---|
| BIOMAGNETICS/ MEDICAL APPLICATIONS | CHAIRMAN: Shoogo UENO - University of Tokyo - Japan | |
| | Speakers | Title |
| | T. Matsunaga - Japan | Biomagnetic mineralization: from gene structures to medical applications. |
| | E. Mayes - UK | Biologically derived nanomagnets. |
| | R.T. Tranquillo - USA | Magnetic Orientation and Control of Cells for Tissue Engineering. |
| FAST DYNAMICS | CHAIRMAN: Burkard HILLEBRANDS - University of Kaiserslautern - Germany | |
| | Speakers | Title |
| | W. Koopmans - NL | The secrets of femtosecond magnetization dynamics. |
| | J. Miltat - France | A Micromagnetic Picture of Spin Transfer. |
| | P. A. Crowell - USA | Imaging Spin Dynamics in Closure Domain and Vortex Structures. |
| SPINS IN SEMICONDUCTORS | CHAIRMAN: David D. AWSHALOM - University of California -Santa Barbara - USA | |
| | Speakers | Title |
| | H. Ohno - Japan | to be confirmed |
| | D. Loss - Switzerland | Spin-based Quantum Computing in Nanostructures. |
| | L. Sham - USA | to be confirmed |
| NON-FERMI-LIQUID PHENOMENA | CHAIRMAN: Alexei TSVELIK - Brookhaven - USA | |
| | Speakers | Title |
| | T. Rosenbaum - USA | to be confirmed |
| | G.G. Lonzarich - UK | to be confirmed |
| | S. Paschen - Germany | to be confirmed |

ICM 2003 *Invited PLENARY LECTURES*

As usual for ICM, one plenary lecture will be given by the winner of the IUPAP Magnetism Prize (to be communicated later). The other three speakers have been chosen on the basis of their scientific reputation and clarity.

| | | |
|---------------------------|------------------------------------|---|
| Dante GATTESCHI | University of Florence - ITALY | Molecular magnets, new opportunities in magnetism |
| Mark H. KRYDER | Seagate Research, Pittsburgh - USA | Physics, Materials and Prospects for Future Magnetic Storage Technologies |
| Sadamichi MAEKAWA | Tohoku University, Sendai - JAPAN | Spin Dependent Transport in Magnetic Nanostructures |
| Winner of Magnetism Prize | -- | to be determined |

SATELLITE CONFERENCES

7th International Symposium on Research in High Magnetic Fields - RHMF 2003

<http://www.lncmp.org>

Toulouse - France **July 20-23, 2003**

Chairmen: G. Rikken, O. Portugall

E-mail: rikken@cict.fr portugall@insa-tlse.fr

XVIII International Colloquium on Magnetism, Films and Surfaces - ICMFS 2003

<http://www.ucm.es/info/magnet>

Madrid - Spain **July 22-25, 2003**

Chairmen: A. Hernando, F. Briones, R. Miranda and J. M. Rojo

E-mail: ahernando@renfe.es; briones@imm.cnm.csic.es
rodolfo.miranda@uam.es; jmrojo@eucmax.sim.ucm.es

EPR and NMR at high field: applications to magnetic systems and superconductors

<http://sentinel.icqem.pi.cnr.it>

Pisa - Italy **July 23 -25, 2003**

Chairmen: M. Martinelli and A. Rigamonti

E-mail: massimo@ifam.pi.cnr.it
attilio.rigamonti@pv.infn.it

Polarized Neutrons and Synchrotron X-Rays for Magnetism - PNSXM

<http://venice.infm.it>

Venezia - Italy **August 4 - 6, 2003**

Chairmen: R. Caciuffo and M. Altarelli

E-mail: rgc@unian.it
massimo.altarelli@elettra.trieste

International Conference on Theoretical Trends In Low-Dimensional Magnetism - LDM 03

<http://infmweb.fi.infn.it/LDM03/>

Firenze - Italy **July 23 - 25, 2003**

Chairmen: R. Vaia and A. Cuccoli

E-mail: vaia@ifac.cnr.it; cuccoli@fi.infn.it

Symposium on Spintronics SPINTECH II

http://www.imec.be/Spintronics_Bruges2003

Bruges - Belgium **August 4 - 6, 2003**

Chairman: Jo de Boeck

E-mail: deboeck@imec.be

Conference announcement

International Conference and School on Semiconductor Spintronics and Quantum Information Technology

4 - 8 August 2003, Brugge, Belgium

Call for papers / registration / scholarship applications

- Conference: 4-6 Aug, 2003
- School: 7-8 Aug, 2003

Topics:

- spin injection and propagation in semiconductors
- electronic spin dynamics / spin coherence
- magnetic semiconductor and hybrid magnetic/semiconductor heterostructures
- co-operative phenomena and electronic band structure of magnetic semiconductors
- spin-dependent tunneling
- magneto-optical and opto-electronic effects
- spin-based quantum computing in semiconductors
- incorporation of the above concepts into semiconductor-based spin devices

Deadline for abstracts: **March 1, 2003.**

Location: City of Brugge, Belgium: www.brugge.be

Crowne Plaza Hotel: <http://www.global-hotel.com/brugge.html>

Have a wonderful 2003 :

Spintech II Chairs

Jo De Boeck
Berry Jonker

Check the website for all information + formalities:

<http://www.sainc.com/spintech2>

Conference announcement

| | |
|---|--|
|  | <h1>16th Soft Magnetic Materials Conference (SMM 16)</h1> <p>9. -12. September 2003 Düsseldorf, Germany</p> |
|---|--|

Scope of the Conference

This conference will be the 16th of a series of international meetings devoted to all kinds of soft magnetic materials placing particular emphasis on industrial and application aspects.

The Soft Magnetic Materials Conference provides a forum for the presentation of advances in the study, characterization, production and application of soft magnetic materials. It traditionally brings together scientists from universities, research institutions, and industry who are in the forefront of research on soft magnetic materials.

During the last three decades the SMM Conference has experienced increasing success due to the active participation of the academic world as well as of industry, the selective approach of the most relevant topics and sessions, the high scientific level of contributed and invited communications, and the permanent interest of the industrial world.

Topics

- basic problems, magnetization processes
- magnetic characterization, measurement techniques
- electrical steels: GO, NGO, thin electrical steels, higher Si-alloys
- FeNi, FeCo, Amorphous and Nanocrystalline Alloys
- Ferrites and other oxides, powder and composites
- design of electromagnetic components: modelling of magnetic circuit and numerical methods
- power applications (e.g. motors, transformers, actuators)
- electronic and high frequency applications

Dates, Deadlines, and Registration

| | |
|---------------------------------|-----------------------|
| deadline for paper submission | 30. April 2003 |
| deadline for early registration | 30. April 2003 |
| conference | 9.-12. September 2003 |
| printed proceedings | 31. May 2004 |

Conference Secretariat of SMM 16

D. Raabe, email: smm16@mpie.de

Department for Microstructure Physics and Metal Forming

Max-Planck-Institut für Eisenforschung

Max-Planck-Str. 1

40237 Düsseldorf

Germany

Telefon: +49(0)211-67 92-340 / 278

Telefax: +49(0)211 67 92 – 333

Homepage: www.soft-magnetic-materials16.mpie.de

Conference announcement



4th 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

5th Magnetic Microsphere Meeting

Dear Colleagues:

We are proud to announce our next, the **5th Magnetic Microsphere Meeting**. The date and location are now final:

Lyon, France, May 20-22, 2004

In order to once again have a successful meeting, we would like your input on two issues.

1. We plan to have 3 invited speakers who will discuss subjects important to the magnetic microsphere community. Do you have suggestions for a topic, talk title, and/or specific speaker?
2. We will publish the newest results in our field after the meeting. As you know, we have tried 3 different formats at previous meetings. Please e-mail which of the following you prefer for the next meeting:
 - a. Special issue of JMMM
 - b. Online journal European Cells and Materials
 - c. Book

For further information, please check as always our website

www.magneticmicrosphere.com

We wish you all a great start to the New Year 2003, wonderful research results and lots of grants.

Sincerely,

Urs Hafeli, Maciej Zborowski, Wolfgang Schütt, Stéphane Legastelois

Urs Hafeli, Ph.D.

The Cleveland Clinic Foundation

9500 Euclid Ave T28

Cleveland, OH 44195

Tel (216) 444-2174

Fax (216) 445-4480

e-mail: hafeliu@ccf.org

Magnetic Carrier Home Page:

<http://www.magneticmicrosphere.com>

Books on Magnetism

The IEEE has long been known for publishing excellent journals, magazines, proceedings, standards, and the like. Relatively recently the Institute added books to the list, under the imprint *IEEE Press*, and for more than thirty years has published many very interesting titles. An important source of book manuscripts and technical reviewers has always been IEEE Members identified through sponsorship by the IEEE societies, including the Magnetism Society.

In this endeavor IEEE has been taking the same route as other professional organizations, such as the American Chemical Society and the American Institute of Physics, both of whom started book-publishing programs at about the same time as IEEE did. And all three discovered that niche publishers such as these societies certainly have the right contacts to attract good authors with important manuscripts, but have difficulty operating their book production, marketing, and distribution departments effectively and efficiently without the economies to be gained by joining with a larger program. Within the last few years, ACS has made an agreement with Oxford University Press, AIP with Springer Verlag, and now IEEE Press with John Wiley and Sons; in each case the for-profit publisher has the world-wide distribution and marketing tools necessary to bring the professional society's books to the widest possible market.

IEEE Press's agreement with John Wiley and Sons was finalized in early 2001 and became effective April 1st 2001. The IEEE Press still maintains a staff of editors who search out and contract with new authors and work with them to develop manuscripts, which are then published under the "co-branded" Wiley-IEEE Press imprint. Although production, distribution and marketing are handled by Wiley, IEEE members continue to receive a 15% discount on the list price, as they did when IEEE Press maintained their own sales and distribution operation. (Larger discounts are offered when the books are bought at book displays in association with conferences such as MMM and Intermag.)

Catalogs and ordering information are available both on IEEE's and Wiley's websites. Go to:

<http://shop.ieee.org/store/> and follow the link to "Books,"

or:

<http://www.wiley.com/IEEE>, where Wiley has established a special home page for all of the books included in the joint imprint.

A word of warning: Wiley's search engine has creatively classified books on magnetism, making a search by subject rather challenging. The kind of books likely to appeal to Magnetism Society members are listed variously under such topic headings as "Electricity and Magnetism" (which is mostly populated by E&M college texts), Materials Science, and some other, more eccentric, choices. The classic *Physical Principles of Magnetism* by Morrish, recently re-issued by IEEE Press, is listed under General Electromagnetic Theory. Four other books sponsored by the Magnetism Society (Ashar on *Magnetic Disk Drive Technology*, Bozorth on *Ferromagnetism*, Daniel, Mee and Clark on *Magnetic Recording: the First Hundred Years*, and Ed Della Torre on *Magnetic Hysteresis*) are listed under Superconductors! It gets worse; Gambino and Suzuki's book on Magneto-Optical Recording Materials can only be found in the category called "Database and Data Warehousing Technologies."

Bob O'Handley's excellent *Modern Magnetic Materials: Principles and Applications* is rather more sensibly listed under "Magnetic Materials," itself a subset of "Physics and Astronomy." (This is a Wiley book, not Wiley-IEEE Press.)

Further details on all books mentioned above, with list prices, follow. Remember, IEEE members get a **15% discount** off Wiley-IEEE books, or 20% if bought at conferences such as the coming Intermag in Boston. You must quote **promotion code #38011** as you check out to be credited with your member discount.

Magnetic Disk Drive Technology : Heads, Media, Channel, Interfaces, and Integration

Kanu G. Ashar
ISBN: 0-7803-1083-7
Hardcover, 366 Pages
September 1996, Wiley-IEEE Press
US \$105.00

Ferromagnetism

Richard M. Bozorth
ISBN: 0-7803-1032-2
Hardcover, 986 Pages
August 1993, Wiley-IEEE Press
US \$115.00

Magnetic Recording: The First 100 Years

Eric D. Daniel (Editor), C. Denis Mee (Editor), Mark H. Clark (Editor)
ISBN: 0-7803-4709-9
Hardcover, 370 Pages
August 1998, Wiley-IEEE Press
US \$66.95

Magnetic Hysteresis

Edward Della Torre
ISBN: 0-7803-6041-9
Paperback, 230 Pages
August 2000, Wiley-IEEE Press
US \$73.95

Magneto-Optical Recording Materials

Richard J. Gambino (Editor), Takao Suzuki (Editor)
ISBN: 0-7803-1009-8
Hardcover, 464 Pages
August 1999, Wiley-IEEE Press
US \$125.00

The Story of Electrical and Magnetic Measurements: From 500 BC to the 1940s

Joseph F. Keithley

ISBN: 0-7803-1193-0
 Paperback, 256 Pages
 December 1998, Wiley-IEEE Press
 US \$62.95

The Physical Principles of Magnetism

Allan H. Morrish
 ISBN: 0-7803-6029-X
 Hardcover, 696 Pages
 January 2001, Wiley-IEEE Press
 US \$99.95

Modern Magnetic Materials: Principles and Applications

Robert C. O'Handley
 ISBN: 0-471-15566-7
 Hardcover, 768 Pages
 November 1999
 US \$140.00

What's coming?

IEEE Press plans to continue its successful series of re-issues of classic texts that are now out-of-print (such as Morrish's and Bozorth's books). Chad Graham has agreed to revise and update B. D. Cullity's *Introduction to Magnetic Materials*, originally published by Addison-Wesley in 1972, in this series, with a publication date expected in 2004.

John Wiley and Sons has announced the publication of
Mathematics of Hysteretic Phenomena: The $T(x)$ Model for the Description of Hysteresis,

by **Jeno Takacs**,

which is expected in June 2003, listed at \$95.00.

Not specifically about magnetic hysteresis, the book may well have value to Magnetics Society members. The publisher's description is:

"Starting with the mathematical modeling of classical problems of hysteresis phenomena, this book provides an insight into the physics of the inverse hysteresis, higher order reversal loops, accommodation, viscosity, creep, wasp-waisted loops or hysteretic coupled systems. Adopting a novel approach, the author presents the $T(x)$ model and applies it successfully to describe most, if not all, important phenomena in magnetism. Not only scientists in physics and applied mathematics will benefit from this analytical tool, but also engineers working in electrical and magnetic circuit design gain a mathematical tool for their work. Moreover, designers of magnets and magnetic components will also profit from the book as well as researchers from other branches of physics, technology or natural sciences."

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

John T. Scott,

Magnetics Society Liaison to IEEE Press

E-mail: john.scott@physics.org

GOOD NEWS:

IEEE Xplore

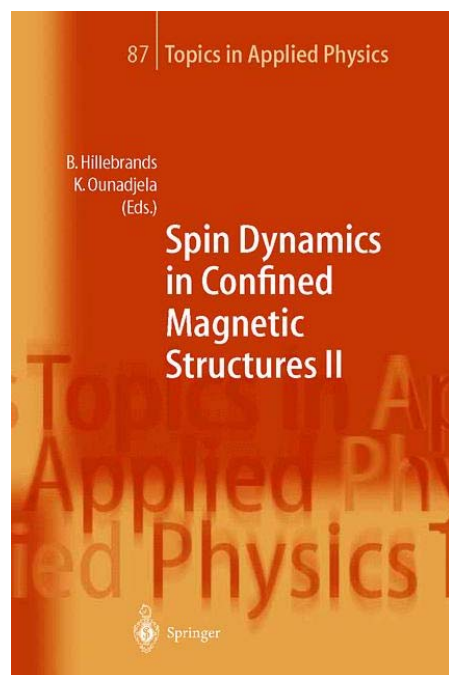
now includes the pre-1988 issues of **IEEE Transactions on Magnetics**.

From *Ron Goldfarb*



Springer Science Online

http://www.springer.de/cgi-bin/search_book.pl?isbn=3-540-44084-4



Spin Dynamics in Confined Magnetic Structures II

By
Hillebrands, Burkard, Universität Kaiserslautern,
 Germany;
 and
Ounadjela, Kamel, DRFMC, Grenoble, France
 (Eds.)

2003
 Approx. 350 p. 180 illus., 10 in color.
 (also available as online-version)
 Hardcover
 3-540-44084-4
 Recommended Retail Price EUR 152,00

This second volume of the book on spin dynamics in confined magnetic structures covers central aspects of spin dynamic phenomena, so that researchers can find a comprehensive compilation of the current work in the field. Introductory chapters help newcomers to understand the basic concepts, and the more advanced chapters give the current state of the art for most spin dynamic issues in the milliseconds to femtoseconds range. Both experimental techniques and theoretical work are discussed. The comprehensive presentation of these developments makes this volume very timely and valuable for every researcher working in the field of magnetism. It describes the new experimental techniques which have advanced this field very rapidly. Among the techniques covered, particular attention is given to those involving high temporal, elemental and spatial resolution as well as to techniques involving magnetic field pulses with very short rise times and durations.

Contents: Fast Switching of Mesoscopic Magnets.- Spin Damping in Ultrathin Magnetic Films.- Magnetization Dynamics Investigated by Time-Resolved Kerr Effect Magnetometry.- High-Speed Switching and Rotational Dynamics in Small Magnetic Thin-Film Devices.- Time-resolved X-ray Magnetic Circular.- The Dynamic Response of the Magnetization to Hot Spins.- Ultrafast Magnetization and Switching.- Ultrafast Magnetization and Switching

Series: Topics in Applied Physics. *Volume. 87*

VISUAL MAGNETICS – SOLUTION

Faraday's dynamo



James Clerk Maxwell's unsurpassed synthesis of the laws of electricity and magnetism were explicitly based on Michael Faraday's series of publications *Experimental Researches in Electricity*.

The Faraday's disc was the first dynamo ever invented, described by Faraday in *Experimental Researches* in 1831. The device consists of a copper disc that can be rotated in the narrow gap between the poles of a magnet. Contacts near the centre and edge of the disc (made more conducting by the application of mercury) develop a voltage between them. By using a sensitive voltmeter Faraday was able to dispense with the laboratory magnet and use only the Earth's natural magnetic field. Although brilliantly innovative, the dynamo in this form was not developed commercially. The device in the picture, which looks more functional than aesthetic, is a nineteenth-century piece with an

appearance quite in keeping with some of Faraday's own simple equipment still to be seen at The Royal Institution.

Although the underlying principle of dynamos had been discovered by Faraday early in the 1830s, to design an efficient machine was a challenge that occupied many brilliant minds until the end of the century, and beyond. Geometrical constraints, electrical, magnetic and mechanical properties of real materials all interacted in a design in a complex way, not fully understood at the time. There is, therefore, more than meets the eye to most dynamos. For example, every dynamo needs within it a large magnetic field. It is a subtle property of iron that makes it better to expend current all the time maintaining this field by coils rather than simply using the field from a permanent magnet. This use of coils, which was demonstrated by *Dr Werner Siemens* in 1867, at the time he coined the description '*dynamo-electric machine*'.

John S Reid

Based on the Web Pages of the Natural Philosophy Collection of Historical Scientific Instruments belonging to the University of Aberdeen, Scotland

<http://www.abdn.ac.uk/~nph126/items/nl45.htm>