



# IEEE Magnetics Society Newsletter

April 2003

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Martha Pardavi-Horvath, Editor  
Can Korman, Publicity

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  1. **HMM 2003**, the 4th International Symposium on Hysteresis and Micromagnetic Modeling, University of Salamanca, Spain, *May 28-30, 2003*
  2. **MIPE 2003** Joint conference on Micromechanotrics, Yokohama, Japan, *June, 2003*
  3. **COMPUMAG** 14th Conference on the Computation of Electromagnetic Fields, Saratoga Springs, New York, USA,  
*July 13 - 18, 2003.*
  4. **ICM2003** International Conference on Magnetism, Roma, Italy, *July 27-Aug 1, 2003.*
  5. Int. Conf. and School on Semiconductor **Spintronics and Quantum Information Technology**, Brugge, Belgium, *4 - 8 August 2003*
  6. **TMRC 2003** The Magnetic Recording Conference, Santa Clara, California, *August 18-20, 2003*
  7. **SMM16** 16<sup>th</sup> Soft Magnetic Materials Conference, Düsseldorf, Germany, *9-12 September, 2003*
  8. **AVS Magnetic Interfaces And Nanostructures**, Baltimore, MD, *November 2-7, 2003*
  9. The **9th Joint MMM/INTERMAG** Conference, Anaheim, CA, *January 5-9, 2004.*
  10. 5th **Magnetic Microsphere** Meeting, Lyon, France,  
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# IEEE MAGNETICS SOCIETY OFFICERS

## 2003-2004

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## 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](mailto:r.dee@ieee.org) so we can include in the next MagSoc newsletter.

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

## IEEE Magnetics Society Technical Committee

If you look at the backside of the front cover of the **IEEE Transactions on Magnetics**, you find a lot of information about the Magnetic Society. Among others, there is also a “*Technical Committee*”, and you may have wondered what the Technical Committee is and what it is doing.

The Technical Committee is a group of experts in their respective fields which has an advisory function to the Magnetic Society. The members of the Technical Committee have volunteered to provide service to the Magnetic Society, such as helping with the review process of the Transactions of Magnetics and serving as Program Committee members of IEEE sponsored conferences on magnetism. Last not least the Technical Committee members answer general technical questions which are posed to the Magnetic Society. In the past, these questions were answered individually, but it is planned to provide an FAQ section in the Magnetic Society web page so that the questions and answers are accessible to all interested parties.

In the last years, the Technical Committee had 10 – 15 members. Currently there are 20 members and it is aimed to expand the Committee to 20 – 40 active members. The areas of expertise are chosen such that they reflect the main topics which are currently discussed in the field of applied magnetism. Depending on the current level of activity, an area of expertise can be represented by more than one member of the Committee.

If you have any questions or suggestions, please feel free to contact:

### *Hans Jürgen Richter*

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## 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.

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## 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).

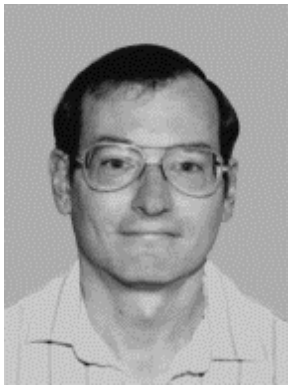
**Contact:** Dr. Thomas D. Howell, Department of Computer Science, San Jose State University, One Washington Square, San Jose, CA 95192; telephone: +1 408 924 7171; fax: +1 408 924 5080; e-mail: [t.howell@ieee.org](mailto:t.howell@ieee.org)

## 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,  $\chi_i$  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  $\chi_e$  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  $\chi$ , 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](mailto: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](mailto:mpardavi@gwu.edu)

*Sorry, this is NOT the place for commercial advertisement.*

## CONFERENCE REPORT

### INTERMAG 2003

**Boston, Massachusetts**

*March 30 - April 3, 2003.*



## PLENARY ADDRESS

# Dr. John H. Marburger, III



**Dr. John H. Marburger, III** is Director of the Office of Science and Technology Policy in the Executive Office of the President. 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. Before his appointment in the Executive Office of the President, he served as Director of Brookhaven National Laboratory from 1998, and as the third President of the State University of New York at Stony Brook (1980-1994). Dr. Marburger attended Princeton University (B.A., Physics) and Stanford University (Ph.D., Applied Physics).

During his tenure as President, federally sponsored scientific research at SUNY Stony Brook grew to exceed that of any other public university in the northeastern United States.

As Director of the laboratory, Dr. Marburger carried out the mandates of the Department of Energy to improve management practices there.

Until 1980, Dr. Marburger was Professor of Physics and Electrical Engineering at the University of Southern California, serving as Physics Department Chairman and Dean of the College of Letters, Arts and Sciences in the 1970's.

Dr. John H. Marburger, III is Director of the Office of Science and Technology Policy in the Executive Office of the President. 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. Before his appointment in the Executive Office of the President, he served as Director of Brookhaven National Laboratory from 1998, and as the third President of the State University of New York at Stony Brook (1980-1994). Dr. Marburger attended Princeton University (B.A., Physics) and Stanford University (Ph.D., Applied Physics).

Until 1980, Dr. Marburger was Professor of Physics and Electrical Engineering at the University of Southern California, serving as Physics Department Chairman and Dean of the College of Letters, Arts and Sciences in the 1970's. At USC, Dr. Marburger focused on research in nonlinear optics, developing theories for various laser phenomena, and co-founded the Center for Laser Studies there. His teaching activities included "Frontiers of Electronics", a series of educational programs on CBS television.

During his tenure as President, federally sponsored scientific research at SUNY Stony Brook grew to exceed that of any other public university in the northeastern United States.

As Director of the laboratory, Dr. Marburger carried out the mandates of the Department of Energy to improve management practices there.

Dr. Marburger guided the opening and growth of the University Hospital and the development of the biological sciences as a major strength of SUNY Stony Brook. During his tenure as President, federally sponsored scientific research at SUNY Stony Brook grew to exceed that of any other public university in the northeastern United States. He also served on numerous boards and committees, including Chairmanship of the Governor's Commission on the Shoreham Nuclear Power Facility, and Chairmanship of the 80 campus "Universities Research Association", which operates Fermi National Accelerator Laboratory, and served as a Trustee of Princeton University and many other organizations. He also chaired the highly successful 1991/92 Long Island United Way Campaign.

In 1994, Dr. Marburger returned to the faculty at Stony Brook, teaching and doing research in optical science as a University Professor. In 1997 he became President of Brookhaven Science Associates, a

partnership between the university and Battelle Memorial Institute, that won the competition for the contract to operate Brookhaven National Laboratory. As Director of the laboratory, Dr. Marburger carried out the mandates of the Department of Energy to improve management practices there. His company, Brookhaven Science Associates, continued to produce excellent science at the lab while achieving ISO14001 certification of the lab's environmental management system, and winning back the confidence and support of the community.

The Office of Science and Technology Policy was established in 1976, with 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 Department of Homeland Security through a joint arrangement.



## **CONFERENCE REPORT** **INTERMAG 2003**

Boston, Massachusetts

### **Recognitions**

#### **IEEE Magnetics Society Volunteer Recognition**

The president of the IEEE Magnetics Society recognized the following three individuals who have dedicated their time and energies to helping us benefit most effectively from the IEEE who are stepping down from their present positions but we hope will remain actively involved. The Magnetics Society is in their debt.

- ❖ **Robert Fontana**, Past President
- ❖ **Gordon Fish**, Past Finance Chair
- ❖ **Craig Perlov**, Past Conference Executive Chair

#### **Student Travel Awardees**







Each year the IEEE Magnetics Society in coordination with the Education Committee and Awards Department recognizes many research students by awarding partial travel grants that assist in their participation in several major international magnetics conferences.

This year's cohort includes these 18 students. In addition, the Magnetics Society has embarked on an aggressive campaign and all student conferees who are not IEEE members will be given IEEE and Magnetics Society memberships.

**Let's acknowledge the accomplishments of our next generation of magneticsians.**



Geoffry S. D. Beach  
Kang Ryong Choi  
Tobias Hempel  
Adrian Hozoi  
Du-Hyun Lee  
Jun Sig Kum  
Yi-Chih Lai  
Yan Li  
Shunichi Miyazawa

Anton Plotkin  
Kristina Zuzek Rozman  
Amarendra K. Singh  
Weijun Tan  
Andy Thomas  
Brian H. Thornton  
Tsung-Yu Wang  
Haitao Xia  
Jose Francisco Díaz Zamora



## NEW IEEE FELLOWS

The grade of IEEE Fellow has its roots from 1912. In that year, the AIEE revised its membership structure and established the grade of Fellow for those engineers who had demonstrated outstanding proficiency and had achieved distinction in their profession.

As it stands today, 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.

This year the Magnetics Society sponsored the first three individuals listed here, and the following lists new Fellows who are Magnetics Society members and were sponsored by another society.

### **Prof. Ronald Scott Indeck**

Washington University

*for contributions to information technology, especially advances in magnetic information storage security.*

### **Dr. Yoshimasa Miura**

Fujitsu, Shinshu University

*for contributions and leadership in research and development of high-density magnetic storage technology*

### **Prof. Satish S. Udpa**

Michigan State University

*for contributions to the development of methods for solving inverse problems in the field of nondestructive evaluation.*

### **Dr. William Joseph Gallagher**

IBM

*for contributions to the development of oxide-barrier tunnel junctions for superconducting and magnetic device applications.*

### **Dr. Tomy Sebastian**

Delphi Automotive Systems

*for contributions to the theory, design, and application of permanent magnet motors and drives in automotive systems.*

### **Dr. Zoltan Joseph Csendes**

Ansoft Corporation

*for contributions to the application of finite element modeling to microwave guides, structures and circuits.*

### **Dr. Steven Noel Stitzer**

*for contributions to the field of ferrite microwave control devices.*

### **Dr. Robert Emil Reinovsky**

Los Alamos National Laboratory

*for contributions to pulsed power science and technology.*

## 2003 IEEE MAGNETICS SOCIETY LIFETIME ACHIEVEMENT AWARD

**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.**

# Dr. Carl E. Patton



**Dr. Carl E. Patton** is Professor of Physics at Colorado State University, Fort Collins, CO. He is a Fellow of the IEEE, a Fellow of the American Physical Society, and a recipient of an IEEE Third Millennium Medal. Dr. Patton has a B.S. in Physics from Massachusetts Institute of Technology, and M.S. and Ph.D. degrees in Electrical Engineering from California Institute of Technology.

**Dr. Patton's** group at CSU is involved in magnetics research on microwave and millimeter wave relaxation processes, Brillouin light scattering in magnetic films and super-lattices, hexagonal ferrite materials, ferromagnetic resonance, nonlinear spin wave processes, and envelope solitons in thin films.

Over the years, **Dr. Patton** has served the magnetics community in numerous ways, e. g., as Editor of the IEEE Transactions on Magnetics; as

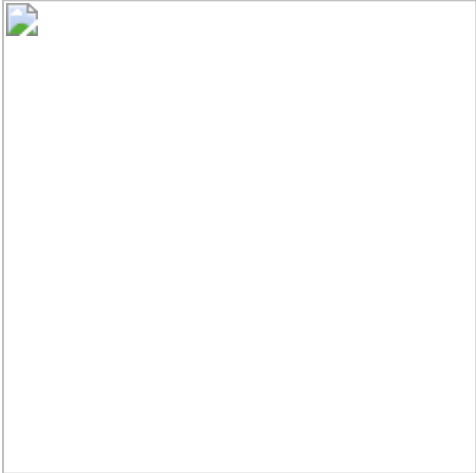
General or Publication Chair for several international magnetism conferences; as Chair of the newly formed American Physical Society Topical Group on Magnetism and its Applications; and, as a member of the International Organizing Committee for the International Conference on Ferrites.

**Dr. Carl E. Patton** is Professor of Physics at Colorado State University, Fort Collins, CO. He is a Fellow of the IEEE, a Fellow of the American Physical Society, and a recipient of an IEEE Third Millennium Medal. Dr. Patton has a B.S. in Physics from Massachusetts Institute of Technology, and M.S. and Ph.D. degrees in Electrical Engineering from California Institute of Technology.

## IEEE MAGNETICS SOCIETY 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.

The **IEEE Reynold B. Johnson Information Storage Award** was established by the Board of Directors in 1991 and may be presented annually for outstanding contributions to information storage, with emphasis in the area of computer storage. It is named in honor of **Reynold B. Johnson**, who is renowned as a pioneer of magnetic disk technology and was founding manager of the IBM San Jose Research and Engineering Laboratory, San Jose, California in 1952, where IBM research and development in the field was centered.







**1987 Sidney M. Rubens**  
**1988 Jay W. Forrester**  
**1989 Reynold B. Johnson**  
**1990 Marvin Camras**  
**1991 Charles H. Coleman**  
**1992 Claude Shannon**  
**1993 John M. Harker**  
**1994 C. Denis Mee**  
**1995 James U. Lemke**  
**1996 Nobutaka Imamura**  
**1997 Alan F. Shugart**  
**1998 JeanPierre Lazzari**  
**1999 David A. Patterson, Randy H. Katz, Garth A. Gibson**  
**2000 Mark H. Kryder**  
**2001 Tu Chen**  
**2002 Christopher Bajorek**





# 2003 IEEE REYNOLD B. JOHNSON INFORMATION STORAGE AWARD

## Dr. H. Neal Bertram

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

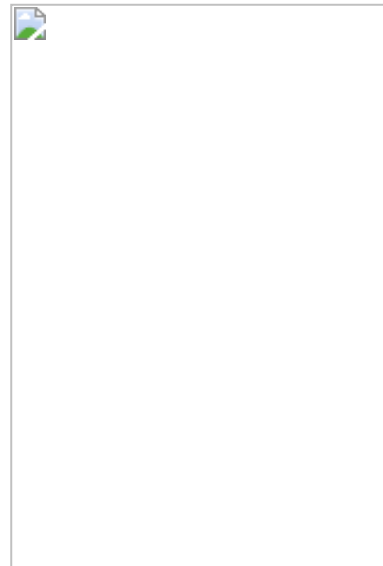
**Dr. H. Neal Bertram** is an Endowed Chair Professor in the Electrical and Computer Engineering Department at the University of California at San Diego, associated with the Center for Magnetic Recording Research. Prior to joining UCSD, he was a member of the research department at Ampex Corporation, Redwood City, CA.

**Dr. Bertram** is a Fellow of the IEEE, and a recipient of the annual technical achievement award from the International Storage Industry Consortium. He was an IEEE Distinguished Lecturer in 1986. Dr. Bertram has a B.A. from Reed College in Portland, OR, and a Ph.D. in Physics from Harvard University.

**Dr. Bertram's** focus on research at Ampex Corp. was on magnetization reversal and general properties of particulate magnetic media. He developed models of the *ac*-biased recording process, generalized reciprocity, and saturation in write-transducers. He engaged in a variety of experimental studies of magnetic tape recording, focusing on high density signals and noise. Later he became involved in experimental studies of thin film disc media and the design of high frequency write pole tips.

At UCSD, Dr. Bertram directs a research program in the physics of magnetic recording, including studies of polycrystalline thin film media, write and read transducers, fine particle tape systems and general analyses of ultimate limits in ultra high density recording. In these areas, his students engage in both experimental and theoretical studies of basic issues in high density magnetic recording, including noise phenomena, nonlinearities, dynamic processes, thermally induced relaxation and large scale numerical simulations of high density magnetic recording.

Dr. Bertram has created graduate courses in magnetic recording theory, analysis of recording materials and magnetic recording measurements, and has published a book: *Theory of Magnetic Recording* (Cambridge University Press, March 1994). He has had a life-long interest in music, plays the cello, and gives concerts on occasion.



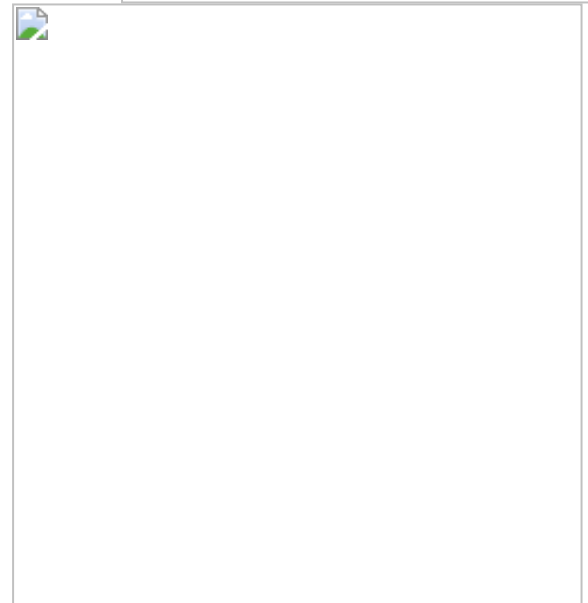
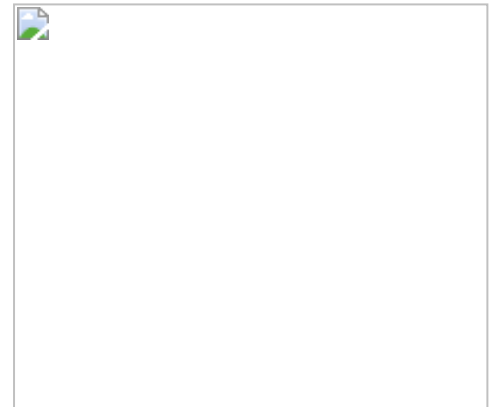
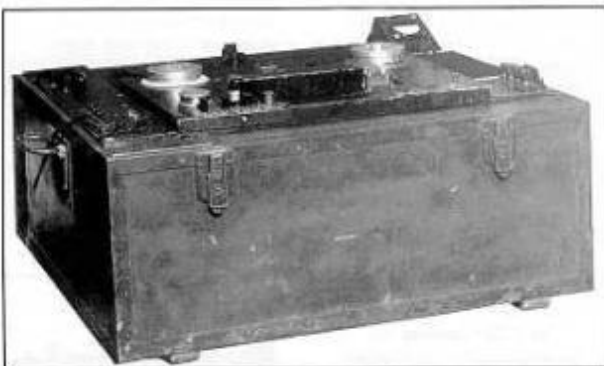
**IEEE Magnetics Society President Dr. Ron Indeck presents Dr. Carl E. Patton with the IEEE MAGNETICS SOCIETY LIFETIME ACHIEVEMENT AWARD AT THE PLENARY SESSION OF INTERMAG 2003**



**IEEE Magnetics Society President Dr. Ron Indeck presents Dr. H. Neal Bertram with the IEEE REYNOLD B. JOHNSON INFORMATION STORAGE AWARD AT THE PLENARY SESSION OF INTERMAG 2003**

## **VISUAL MAGNETICS**

**HISTORY QUIZ:**





**SOLUTION?**

**GO TO THE END**



**Conference announcement 1**



## **4<sup>th</sup> 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.

### **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](mailto:hmm2003@usal.es)**



**Universidad  
de  
Salamanca**

**Conference announcement 2**

**MIPE 2003**



<http://www.jsme.or.jp/iip/english.htm>

### Conference announcement 3



**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](http://www.compumag2003.com)

## Conference announcement 4



# 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@milib.cnr.it](mailto:icm2003@milib.cnr.it)  
<http://www.icm2003.milib.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.milib.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





<b>FAST DYNAMICS</b>	CHAIRMAN: Burkard <b>HILLEBRANDS</b> - University of Kaiserslautern - Germany	
	<b>Speakers</b>	<b>Title</b>
	<b>W. Koopmans</b> - NL	The secrets of femtosecond magnetization dynamics.
	<b>J. Militat</b> - France	A Micromagnetic Picture of Spin Transfer.
	<b>P. A. Crowell</b> - USA	Imaging Spin Dynamics in Closure Domain and Vortex Structures.
<b>SPINS IN SEMICONDUCTORS</b>	CHAIRMAN: David D. <b>AWSHALOM</b> - University of California -Santa Barbara - USA	
	<b>Speakers</b>	<b>Title</b>
	<b>H. Ohno</b> - Japan	to be confirmed
	<b>D. Loss</b> - Switzerland	Spin-based Quantum Computing in Nanostructures.
	<b>L. Sham</b> - USA	to be confirmed
<b>NON-FERMI-LIQUID PHENOMENA</b>	CHAIRMAN: Alexei <b>TSVELIK</b> - Brookhaven - USA	
	<b>Speakers</b>	<b>Title</b>
	<b>T. Rosenbaum</b> - USA	to be confirmed
	<b>G.G. Lonzarich</b> - UK	to be confirmed
	<b>S. Paschen</b> - 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.incmp.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](mailto:vaia@ifac.cnr.it); [cuccoli@fi.infn.it](mailto:cuccoli@fi.infn.it)

**Symposium on Spintronics  
SPINTECH II**

[http://www.imec.be/Spintronics\\_Bruges2003](http://www.imec.be/Spintronics_Bruges2003)  
Bruges - Belgium      **August 4 - 6, 2003**  
Chairman: Jo de Boeck  
E-mail: [deboeck@imec.be](mailto:deboeck@imec.be)

## Conference announcement 5



## Spintech II

International Conference and School  
**Semiconductor Spintronics and Quantum Information Technology**  
Brugge (Belgium), Crowne Plaza Hotel      **August 4 - 8, 2003**  
[www.sainc.com/spintech2](http://www.sainc.com/spintech2)

The use of spins has been an important component in the rapid progress realized in information science and technology in the last decade of the 20th century, in particular within the context of high-density data storage and read out. While such technology has relied exclusively on metallic magnetic systems, recent developments in the physics of spin-dependent phenomena in semiconductors have now opened the door to fundamentally new technological possibilities that harness electronic spin for semiconductor-based spin electronics and quantum computation. It is hence anticipated that the spin degree of freedom will play a crucial role in the development of information technologies with advanced functionality in the 21st century.

Continuing the themes of the **SPINTECH I** conference (Maui, Hawaii, May 2001), Spintech II will highlight important progress in the following topics:

- spin injection and propagation in semiconductors
- electronic spin dynamics/spin coherence
- crystal growth and nanofabrication of magnetic semiconductor and hybrid magnetic/semiconductor materials
- co-operative phenomena (ferromagnetism, antiferromagnetism, spin polarons) in magnetic semiconductors
- electronic band structure of magnetic semiconductors
- spin-dependent tunneling
- magneto-optical and optoelectronic effects
- spin-based quantum computing in semiconductors
- incorporation of the above concepts into semiconductor-based spin devices

This summer school and international conference will focus on the areas of semiconductor "spintronics" and quantum information. It has been organized to discuss the possibilities within these emerging fields. The International Conference and School, scheduled to run from August 4 through August 8, 2003, has the dual purpose of providing (1) an international conference exploring the most recent spintronic developments including the utilization of spin for quantum information science, and (2) an intensive two day lecture series for graduate students and postdoctoral fellows, focusing on the fundamental aspects of spintronics taught by experts in this field. For organisational reasons the conference precedes the school. This school and conference will provide graduate and postdoctoral students with a detailed grounding in the fundamental science and technological opportunities, as well as the latest information in these rapidly changing fields.

*On behalf of the Spintech II organisers and advisory committee we hope to meet you in Brugge,*  
**Jo De Boeck and Berry Jonker**

**SPINTECH II School (7 – 8, August 2003)**

<b>Topic 1: Semiconductor Spintronics: Introduction &amp; Overview</b>	<b>Hideo Ohno</b>
<b>Topic 2: Magnetic semiconductor: Materials, experiment and theory</b>	
2A. <i>Magnetic Semiconductors: Historical Perspective</i>	<b>Joël Cibert</b>
2B. <i>Magnetic Semiconductors: “New” FMS – Experiment</i>	<b>Nitin Samarth</b>
2C. <i>Magnetic Semiconductors: “New” FMS – Theory</i>	<b>Steve Erwin</b>
<b>Topic 3: Ferromagnetic Metal Spintronics</b>	<b>Ronnie Jansen</b>
<b>Topic 4: Spin Injection, Scattering and Transport (mostly non-coherent)</b>	
4A. <i>Injection and Interface Effects</i>	<b>Georg Schmidt</b>
4B. <i>Transport and Scattering</i>	<b>Slava Safarov</b>
4C. <i>Opportunities in Spin Transport</i>	<b>Michael Flatte</b>
<b>Topic 5: Spin Coherence: fundamentals and opportunities</b>	<b>David awshalom</b>
<b>Topic 6: SpinS in Reduced Dimensions: primarily Quantum Dots</b>	<b>To be confirmed</b>
<b>Topic 7: Nuclear Spin Polarization</b>	<b>Igor Merkhulov</b>
<b>Topic 8: Quantum Computation: Fundamentals, Approaches, &amp; Current Status</b>	

Student participation for Spintech II is given high priority. **Scholarships** will be offered to help cover associated expenses. **See the web site** for further information and application forms.

[www.sainc.com/spintech2](http://www.sainc.com/spintech2)

ERENCE

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nd  
TEMS

August 18-20, 2003, Santa Clara, CA

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# Conference announcement 7

<p><b>AN INTERNATIONAL CONFERENCE ON MAGNETIC RECORDING HEADS</b></p> <p>The Fourteenth Magnetic Recording Conference (TMR/C 2003) will be held August 18-20, 2003, at Santa Clara University, Santa Clara, CA, USA.</p> <p>TMR/C 2003 will focus on MAGNETIC RECORDING HEADS and SYSTEMS. About thirty invited papers of the highest quality will be presented orally and subsequently published in the IEEE Transactions on Magnetics. The topics to be presented include:</p> <ul style="list-style-type: none"><li>• Advanced Read Heads (CMR, TMR, CPP)</li><li>• Perpendicular and Longitudinal Write Heads</li><li>• Recording Physics</li><li>• Head Disk Interface and Head Reliability</li><li>• Recording System and Channel Integration</li><li>• Process, Interconnects, Microstructure</li></ul> <p><i>Submissions for speakers should be directed to the Program Chairs, available by e-mail before April 11, 2003. Please contact Dr. Samuel Yoon for heads, and Dr. Tom Howell for systems related topics, respectively. Poster sessions will have contributed posters in addition to those given by the invited speakers. Poster contributors must send a one page abstract to the Program Chair by July 18, 2003 for selection purposes. The full program booklet of TMR/C 2003 will be available in June 2003.</i></p> <p><small>Current information on TMR/C 2003 can be found at <a href="http://www.ieee.org/tech">http://www.ieee.org/tech</a></small></p>	<h2>16<sup>th</sup> Soft Magnetic Materials Conference (SMM 16)</h2> <p><b>9. -12. September 2003</b> Düsseldorf, Germany</p>
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## 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](mailto: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](http://www.soft-magnetic-materials16.mpie.de)

## Conference announcement 8

### AVS MAGNETIC INTERFACES AND NANOSTRUCTURES DIVISION AVS 50th International Symposium of the American Vacuum Society November 2-7, 2003, Baltimore, MD

The **Magnetic Interfaces and Nanostructures Division (MI)** has planned an exciting and comprehensive technical program for the 50<sup>th</sup> International Symposium of the AVS. The program highlights recent scientific results and technological challenges in the areas of magnetic / spintronic materials, characterization, and devices. Nascent device technologies, new materials such as ferromagnetic semiconductors, and measurement techniques will be covered by invited speakers and contributed presentations in the MI sessions, several of which will be listed jointly with Semiconductors, Thin Films, and Nanoscale Science. In addition, the AVS will host a number of special events in celebration of the 50<sup>th</sup> anniversary Symposium.

**\*\* Student travel assistance is available – see the AVS web site!**

**We invite your participation and abstract submission.** Visit the AVS web site for a complete listing of the program and submission instructions: <http://www.avs.org/call/>

Please see the MI web site for further information on the **Leo Falicov Award**: <http://divisions.avs.org/min/>

**Abstract deadlines: April 28, 2003 (paper/fax);  
May 5, 2003 11:00 pm EDT (email/web)**

## SESSIONS AND INVITED SPEAKERS



**MI 1 + NS SELF-ASSEMBLY & NANOMAGNETISM**

M. Farle, *Gerhard-Mercator-Universität Duisburg*

C.A. Ross, *Massachusetts Institute of Technology*

**MI 2 + SC SPINTRONICS I: SEMICONDUCTOR SPIN INJECTION & TRANSPORT**

P. Bruno, *Max Planck Institute of Microstructure*

*Physics*

A.T. Hanbicki, *Naval Research Laboratory*

**MI 3 + SC SPINTRONICS II: MATERIALS AND DEVICES**

C.R. Abernathy, *University of Florida*

P. Van Dorpe, *TU Delft, The Netherlands*

**MI 4 MAGNETIC RECORDING: HEADS & MEDIA**

K.M. Minor, *Seagate*

**MI 5 + NS MAGNETIC IMAGING**

A. Schneider, *Max-Planck-Institute for*

*Solid State Research*

D.J. Smith, *Arizona State University*

**MI 6 MAGNETIC SPECTROSCOPIES**

D.R. Gamelin, *University of Washington*

M.R. Freeman, *University of Alberta*

J.P. Park, *University of Minnesota*

**MI 7 MAGNETIZATION DYNAMICS**

**MI 8 + TF MAGNETIC THIN FILMS**

P. Allongue, *Univ. P&M Curie, France*

**MI 9 HIGHLY POLARIZED MATERIALS**

J. Z. Sun, *IBM T.J. Watson Res. Ctr.*

**MI 10 TUNNELING AND GMR**

S. Yuasa, *National Institute of Advanced Industrial Science & Technology, Japan*

A. Zangwill, *Georgia Institute of Technology*

**MI 11 POSTER SESSION**

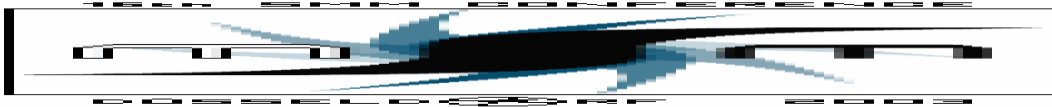
***The LEO M. FALICOV STUDENT AWARD***

has been established by the Magnetic Interfaces and Nanostructures division to recognize outstanding research performed by a graduate student.

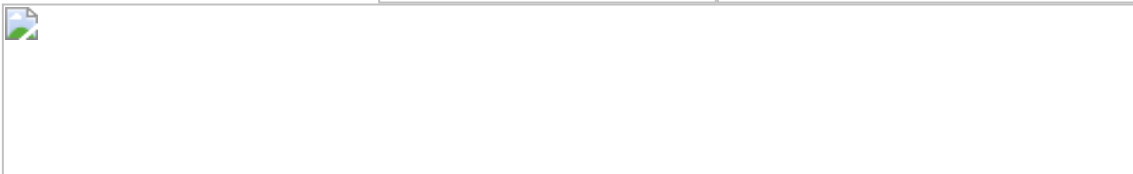
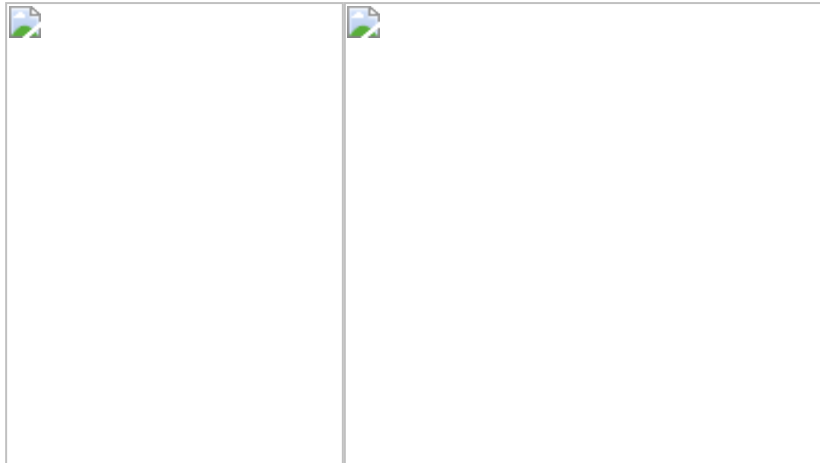
Finalists will receive a \$500 award. For further information, please contact **Berry Jonker** [jonker@nrl.navy.mil](mailto:jonker@nrl.navy.mil), or visit <http://divisions.avs.org/min/>



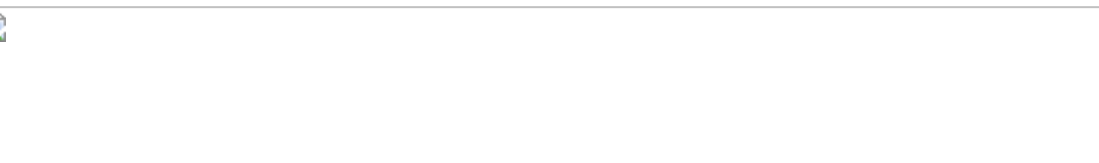
## Conference announcement 9



This conference annually brings together scientists and engineers interested in recent developments in all branches of fundamental and applied magnetism. Emphasis is placed on experimental and theoretical research in magnetism, the properties and synthesis of new magnetic materials, and advances in magnetic technology. The Program consists of invited and contributed papers. Abstract booklets will be made available at the Conference, and Proceedings will be published in the *Journal of Applied Physics* and the *IEEE Transactions on Magnetics*.



<http://www.aip.org/mmm/index.html>



## Conference announcement 10

### **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 [tjs1]. 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 11

### 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>

# Obituary

## *Ernst F. R. A. Schloemann*

of Weston, Massachusetts died on March 2, 2003 at the Lahey Clinic in Burlington, Massachusetts after a six month illness with melanoma. He was 76 years old.

Ernst Schloemann has been a preeminent researcher and scholar in the broad field of magnetism and magnetic materials, with a strong but not exclusive emphasis on ferrites and microwave processes. Dr. Schloemann was one of the first scientists to propose and develop a theoretical framework for two magnon scattering microwave relaxation processes in ferrites. He also developed the first comprehensive theory of parallel pumping, a nonlinear process for the parametric excitation of spin waves with a microwave field parallel to the static field. His far reaching work in magnetism has spanned many other areas as well, from the basic theory of loss processes and excitations in magnetic materials, to thin films, microwave device applications, and magnetic separation, among others. Dr. Schloemann was a Fellow of the American Physical Society, a Fellow of the Institute of Electrical and Electronic Engineers (IEEE), and a member of Sigma Xi.



Ernst Schloemann was born in Borgholzhausen, Germany on December 13, 1926. He graduated from the University of Goettingen in the Federal Republic of Germany with a Bachelor of Science degree in Physics in 1951, a Master of Science Degree in 1953, and a Ph. D. degree in 1954. After graduation, Dr. Schloemann came to the United States as a Fulbright Fellow at the Massachusetts Institute of Technology in Cambridge, Massachusetts. In 1955 he began his career with Raytheon Corporation as a staff scientist at the Raytheon Research Division located in Waltham, Massachusetts. He became a Research Fellow at Raytheon and was the recipient of the Raytheon T. L. Phillips Award for Excellence in Technology in 1990. Dr. Schloemann retired from Raytheon in 1995 but continued vigorous research work as a consultant and participated in numerous international conferences and research programs up to the time of his death. Ernst Schloemann was an avid windsurfer and champion squash player. He was a member of the Longfellow Sports Club in Sudbury, Massachusetts and the Massachusetts Squash Racquets Association.

A resident of Weston, Massachusetts since 1960, Dr. Schloemann was married to Gisela Mattiat up until her death in 1990. They had been married for 35 years. He is survived by his second wife of 9 years, Sally Duren Schloemann of Weston, three daughters, a brother and sister, and five grandchildren. Dr. Schloemann is interred at the Linwood Cemetery in Weston.

*Respectfully submitted by Carl E. Patton and Jerome J. Green*

## Books on Magnetism

### What's coming?

#### WILEY-IEEE PRESS SIGNS COMPUTING, MAGNETICS, CMOS BOOKS

Wiley-IEEE Press has recently signed the following books:

**"Electrical Energy Conversion and Transport: An Interactive Computer-Based Approach"** by *G. G. Karady and K. E. Holbert.*

Slated to publish in February, 2004.

**"Introduction to Magnetic Materials,** Second Edition by *B. D. Cullity and C. D. Graham.*

Scheduled to publish in March, 2005.

**"Computationally Intelligent Hybrid Systems: The Fusion of Soft Computing and Hard Computing with Applications"** by *S. J. Ovaska.*

Expected to publish in September, 2004.

**"CMOS Electronics: How It Works, How It Fails"** by *J. A. Segura and C. F. Hawkins.*

Expected to publish in March, 2004



Stan Charap  
Press Liaison  
[charap@ece.cmu.edu](mailto:charap@ece.cmu.edu)



**IEEE Press's agreement with John Wiley and Sons** was finalized in early 2001 and became effective April 1<sup>st</sup> 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 Magnetics 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 Magnetics 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.

## What'snew?

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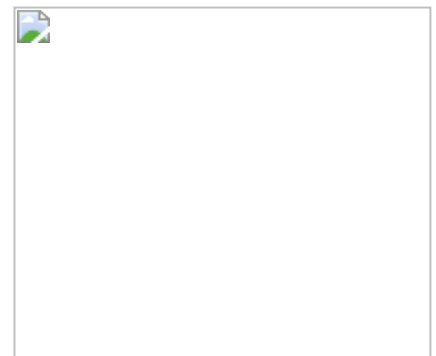
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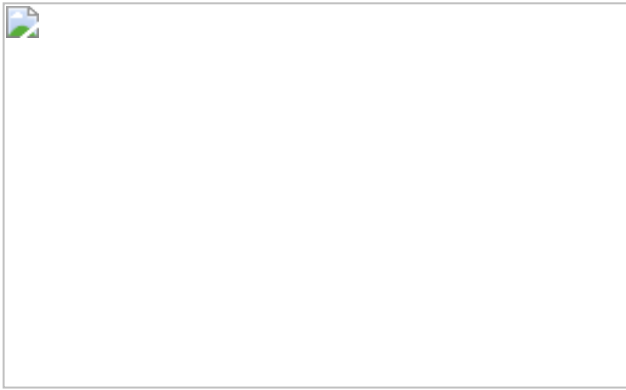
## VISUAL MAGNETICS – SOLUTION

### From the history of tape recording

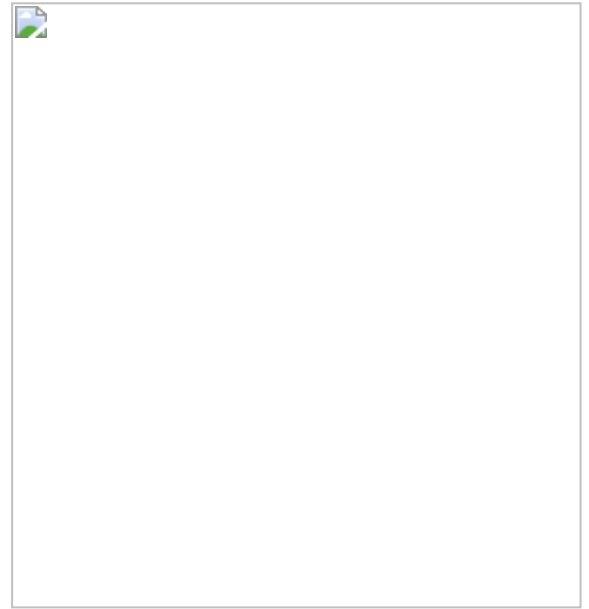
AEG Magnetophon, 1935, from EMTEC



A well-worn transport assembly of a German Magnetophone tape recorder. This machine was one of those brought back to the U.S. by Jack Mullin. (Courtesy of Ampex.)



Ampex chief engineer Harold Lindsay checks out the first American professional audiotape recorder, the model 200. This machine was first used by ABC in 1948.



Magnetic recording tape pioneers Jack Mullin (left), Frank Healey, and Wayne Johnson discuss early tape programs edited for the ABC Philco Hour radio program with Bing Crosby (right). Crosby was an avid proponent of tape recording, and his ABC network show was the first nationally broadcast tape program in the United States. Mr. Johnson led engineering research at Crosby Enterprises. (*Courtesy of 3M.*)

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*(Courtesy of Ampex.)*

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