



IEEE Magnetics Society NEWSLETTER

Volume 43 No. 2

April 2005

Martha Pardavi-Horvath, Editor

TABLE OF CONTENTS

- **From The President of the Magnetics Society**
- **Officers of the IEEE Magnetics Society**
- **Chapters Corner**
- **INTERMAG 2005, Nagoya, Japan**
- **IEEE Magnetics Society Distinguished Lecturers for 2005**
- **Call For Nominations 2006 IEEE Reynold B. Johnson Award**
- **IEEE News**
 - **Senior membership**
 - **The INSTITUTE online**
 - **IEEE-USA Today's Engineer**
- **MAGNEWS**
- **QUIZ**
- **Conference announcements**
 1. **HMM 2005** 5th Int. Symposium on Hysteresis and Micromagnetic Modeling, Budapest, Hungary, *May 30 – June 1, 2005.*
 2. **MISM** Moscow International Symposium on Magnetism, Moscow, Russia, *June 25-30, 2005.*
 3. **TMRC 2005** 16th Magnetic Recording Conference, Stanford, CA, USA, *August 15-17, 2005.*
 4. **ISPM2005** Int. Symposium on Physics of Magnetic Materials, Singapore, *14-16 September, 2005.*
 5. **ISMST-8** 8th International Symposium on Magnetic Suspension Technology, Dresden, Germany, *Sept. 26 - 28, 2005.*
 6. **50th MMM** San Jose, California, *Oct. 30-Nov. 3, 2005.*

7. **IEEE SENSORS 2005**, Irvine, California, *Oct. 31-Nov.3, 2005*.
 8. **ICST'05** Int. Con. on Sensing Technology, Palmerston, New Zealand, *November 21-23, 2005*
 9. **LAW3M05** Seventh Latin-American Workshop on Magnetism Magnetic Materials and their Applications, Reñaca, Chile, *December 11-15, 2005*
- **Magnetics Society Publication news**
 - Authors Needed
 - IEEE Xplore
 - **QUIZ** - Solution
-

FROM THE PRESIDENT OF THE MAGNETICS SOCIETY

Kevin O'Grady, The University of York, UK

As many of you will know I took over as President of the Society on 1 January 2005. Apparently this makes me the first non-North American based President in the history of our Society. On taking over I am pleased to be able to tell you that we are in good shape in terms of technical matters, organisational matters and more importantly financial matters. This is in no small part due to the efforts over the last two years of my predecessor, Ron Indeck of George Washington University. It is my pleasure to thank Ron for his two years of service, during which time he made major strides in resolving the difficulties over the organisation of the MMM conference and more pertinently guiding the Society through the financial difficulties which affected the whole of IEEE due to the collapse of the US stock market.



It is also our duty to provide a vote of thanks to a number of long serving members of the administration AdCom committee of the Society who have stood down from office at the end of this year. In particular Bob Fontana of Hitachi GST requires special mention as he leaves the AdCom having served for two years as Past President of the Society. During Bob's tenure the difficulties over the MMM conference became quite critical and it was only due to his patience and diligence that the groundwork was laid for the final resolution and the drafting of a new MOU two years ago. Bob should also be acknowledged as the innovator who set up the mechanism by which the Intermag conference is now routinely held outside the United States in both Asia and Europe. Testaments to the quality of the mechanism Bob devised have been seen at the Amsterdam and Nagoya Intermags which were the largest conferences that we have ever organised.

A number of other long-term servants of the Society have also recently stood down from office. These include another past President, Dave Thomson, Floyd Humphrey and Stan Charap, who was most recently the Distinguished Lecturer Coordinator. We acknowledge and are most grateful to these individuals for their volunteer service to the Society.

Looking to the future the Society also undertook a major revision of its **Constitution** last year and the new Constitution came into force 1 January, 2005. Full details of the changes and a copy of the Constitution itself can be found on the website <http://www.ieeemagnetics.org/>. The main features of the new Constitution are a simplified structure in which ten committee chairs sit on the AdCom together with 24 elected members and 3 officers. Please note that at this time nominations are open for 8 vacancies, which will occur for next year's AdCom. Please see the Nominations Committee announcement on the website for details.

Under the new Constitution a number of key appointments had to be made or tenure in positions renewed at the beginning of the year. Major appointments of note are that Mel Gomez from the University of Maryland now chairs an enlarged Technical Committee composed mainly of people who are new to involvement with the Society and with wide

international representation. The Technical Committee exists to provide advice to the AdCom or other committees and to seek nominations for positions in the Society, invited lecturers at conferences, distinguished lecturers etc. It is interesting to note that at the time of this writing the membership renewals for 2005 show that exactly half the Society membership is now non-US based. Hence this shift to represent the membership is very important .

In this vein it is also the case that the vast majority of our Chapters are based in the US. Richard Dee of StorageTek chairs the Chapters committee and is very active at this time setting up new Chapters in Spain, Taiwan and Brazil. Any members who would wish to form a Chapter either in their locality or in their country should contact Richard. Funds are available to support new Chapter activities and with the rapid advance of globalisation the formation of new Chapters to better represent the Society and allow participation in our activities is a clear priority.

One mechanism by which the Society can support both Chapter activities and provide outreach is via our distinguished lecturer programme Here there has been a change in distinguished lecturer coordinator Roy Chantrell has taken over this role and therefore becomes a non-voting member of the AdCom. Here the policy is to broaden participation, particularly in the nomination of DLs and anyone who wishes to make suggestions should contact Roy as these will be most welcome. Full details of the DL programme and this year's lecturers can be found again on the Society website which has now been expanded due to a Herculean effort by Can Korman and Martha Pardavi Horvath.

Of course the Magnetism Society inevitably faces some challenges and issues as we go forward. At the recent AdCom meeting in Nagoya the issue of the citation index for the TRANSACTIONS ON MAGNETICS was raised. Currently our citation index level is about 1.2 as compared with 0.8 for JMMM and 4 for APL. There is an increasing trend, particularly in Europe but also from the US Department of Energy, that work which they fund must only be published in journals with high impact factors. Hence we must do what we can to raise the impact factor of our Transactions. One suggestion from the Editorial Board is that in future Intermag papers would be 4 pages and that we keep the number of pages published constant. This would mean a rejection rate for Intermag papers of the order of 30% or slightly higher. Another factor linked to the above is the fact that we are seeing a serious escalation in conference fees. One solution to this problem would be to decouple the publication of papers from the conference fee. If this policy were implemented then conference fees would fall into the \$350 to \$400 range but individuals wishing to publish a paper would then be required to pay between \$300 and \$350 in page charges. Since this would disproportionately affect authors from developing economies, we have decided to hold a year-long debate and discussion that will involve the Publications committee and the Technical committee as well as the AdCom of the Society. Members wishing to express an opinion on either of the above suggestions are invited to contact any members of the committees of the Society whose names appear on the website. Input to the Publication committee and the Technical committee are probably most appropriate.

As many of you will know the Magnetism Society's activities are overseen by the Technical Activities Board of IEEE (TAB). At the recent TAB meeting a number of issues were raised which again have relevance to the comments above re Intermag and publications. One is that due to open access publication revenues will fall in the next few years and hence only conference fee income will be stable. Thus we are advised that we must budget in all conferences for a surplus to fund our other activities such as distinguished lecturers, student

travel etc. Also the real overhead on what we do lies between 10 and 15% of revenue. Coupled with the above comment it would appear that conference budgets will have to allow for a 20% surplus in future years. Hence further excessive conference fee inflation can be expected unless the publication is unbundled from the conference fee.

The Magnetics Society forms part of **Division IV** of the IEEE. At this time the directorship of Division IV is due for election and on behalf of the Society I nominated Ed Della Torre of George Washington University for this prestigious position. I believe that as a highly active past President of the Magnetics Society and a well-known engineer in the United States, Ed would provide valuable input to the IEEE from one of the smaller societies. Participating in the IEEE at this level would also provide valuable insight to those of us who are now charged with managing the affairs of the Society. Please look out for the ballot on the Division IV directorship and participate if you wish.

Finally, those of us who participated cannot fail to have been impressed by the fantastic organisation involved in the Intermag conference in Nagoya. As I know from experience it is a difficult thing to take Intermag outside the United States and to retain the distinct format of the conference while simultaneously allowing for the cultural experience of being in another country. I believe all those involved with the meeting made an outstanding contribution to the health of our Society. It is always difficult to single out individuals but in this case I feel I should acknowledge the Herculean efforts of Roger Wood, Prof Uchiyama and Takao Suzuki who were the main drivers behind a very successful meeting.

Best regards

Kevin O'Grady
University of York

IEEE MAGNETICS SOCIETY OFFICERS 2005-2006

OFFICERS

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

APPOINTED CHAIRS

First Name	Last Name	Position	Company / Institution
Richard	Dee	Chapters	Storage Technology Corporation
Ron	Goldfarb	Publications	NIST
Mel	Gomez	Technical Committee	UMD Department of ECE
Bruce	Gurney	Awards	Hitachi Global Storage Technologies,
J.W.	Harrell	Education	The University of Alabama
Can	Korman	Publicity	George Washington University
Laura	Lewis	Finance	Brookhaven National Laboratory
Bob	McMichael	Standards	NIST
Phil	Wigen	Nominations	Ohio State University

NON-VOTING MEMBERS

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

Chapters Corner

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

Chapter Chair meeting held in Nagoya, Japan:

A meeting of Chapter Chairs was held during the recent INTERMAG Conference (April 4-8, 2005) in Nagoya, Japan. Those chapter Chairs present were from our chapters in Asia (Japan, Korea and Singapore). Primary topics discussed were activity, funding and the distinguished lecturers. The Distinguished Lecturer coordinator was also present and outlined the DL process for us. There were no specific outcomes and the minutes of the meeting were distributed to all chapter chairs.

IEEE Magnetics Society Chapters

	Chapter Name	Local Chapter Chair	Email Address
1	CENTRAL & SOUTH ITALY	GUGLIELMO RUBINACCI	rubinacci@unicas.it
2	CENTRAL NEW ENGLAND	ADAM TORABI	adam_torabi@maxtor.com
3	CHICAGO	JEAN F OSTIGUY	OSTIGUY@FNAL.GOV
4	DENVER, ROCKY MOUNTAIN	DAVE PAPPAS	pappas@boulder.nist.gov
5	HOUSTON	JEFFERY WILLIAMS	jwilliams@uh.edu
6	JAPAN	SHIGERU TSUNASHIMA	tsunashi@nuee.nagoya-u.ac.jp
7	LOS ANGELES	JACK JUDY	jjudy@ee.ucla.edu
8	MILWAUKEE	MARK JUDS	markajuds@eaton.com
9	PHILADELPHIA	Position Open	
10	PITTSBURGH	MIKLOS GYIMESI	miklos.gyimesi@aNsys.com
11	POLAND	MARION SOINSKI	magneto@magneto.pl
12	ROMANIA	ALEXANDRU STANCU	alstancu@uaic.ro
13	SAINT LOUIS JT with AP, MTT, EDS, LEOS	DAVE MACKE	maccadi@aol.com
14	SAN DIEGO	GORDON HUGHES	gfhughes@ucsd.edu
15	SANTA CLARA VALLEY/SAN FRANCISCO	GERADO BERTERO	Gerardo.Bertero@komag.com
16	SEOUL, KOREA	YOUNG KIM	ykim97@korea.ac.kr
17	SINGAPORE	THOMAS LIEW	tomliew@mail.dsi.a-star.edu.sg
18	SWEDEN	TORBJORN LEMBKE	tal@magnetal.se
19	TWIN CITIES (Minneapolis/St. Paul)	BENNET DY	bdy@ieee.org
20	UNITED KINGDOM & REPUBLIC of IRELAND	MIKE GIBBS	M.R.Gibbs@sheffield.ac.uk
21	WASHINGTON/NORTHVIRGINIA	CAN KORMAN	korman@seas.gwu.edu

Dr. Richard H. Dee

Magnetics Society Chapters Chair

r.dee@ieee.org

INTERMAG 2005
Conference Report
Plenary Session

Conference Chair report



Plenary Session: INTERMAG ASIA 2005

- **Conference Chairmen's Remarks**

Susumu Uchiyama – Nagoya University, Japan
 Roger Wood – Hitachi GST, San Jose,
 California, USA

- **Presentation of IEEE Awards**

Bruce Gurney – Awards Chair, IEEE Magnetics Society
 Hitachi GST, San Jose, California,
 USA
 Kevin O'Grady – President IEEE Magnetics Society
 University of York, UK

Introduction of Plenary Speaker

Kaneo Mohri – Chair Intermag 2005 Steering
 Committee
 Japan Science and Technology Agency, Japan

**"Future Power Train System for Sustainable
 Mobility"**

Kiyoshi Nakanishi, President Genesis Research Institute,
 Japan

Conference Reception



Conference Executive Committee

Treasurers

- Takao Suzuki - Toyota Technological
Institute, Japan
- Jeffrey R. Childress - Hitachi GST, USA

Finance Committee Members

- Masahiro Birukawa (Matsushita Electric, Japan)
- Mitsuteru Inoue (Toyohashi University of
Technology, Japan)
- Kenji Ohmori (Sumitomo Metal Mining, Japan)

Steering Committee

Kaneo Mohri (Chair) - Japan Sci. & Tech. Agency, Japan

General Affairs

- **Satoshi Iwata** (Chair) - Nagoya University, Japan
- Takeshi Kato - Nagoya University,
Japan
- Tsuyoshi Uchiyama - Nagoya University, Japan

Facility Management

- **Kenji Sumiyama** (Chair) - Nagoya Inst. of
Technology, Japan
- Mutsuko Jimbo - Daido Institute of
Technology, Japan
- Takehiko Hihara - Nagoya Inst. of
Technology, Japan



Conference Executive Committee

Steering Committee (cont.)

Publicity

- **Masaaki Matsui** (Chair) - Nagoya University, Japan
- Hidefumi Asano - Nagoya University, Japan
- Ayumu Kida - Hokkaido University, Japan

Student Travel Awards

- **Matthew J. Carey** (CoChair) - Hitachi GST, USA
- **Masahiko Yamamoto** (CoChair) - Osaka University, Japan

Social Program

- **Manabu Gomi** (Chair) - Nagoya Institute of Technology, Japan
- Nobuyasu Adachi (Nagoya Institute of Technology, Japan)
- Tadashi Kobayashi (Mie University, Japan)
- Shigeru Shiomi (Mie University, Japan)
- Hironaga Uchida (Toyohashi University of Technology, Japan)

Exhibition

- **Yoshinobu Honkura** (CoChair) - Aichi Steel Corp., Japan
- **Yasuo Okazaki** (CoChair) - Gifu University, Japan
- Lei Tian - Aichi Steel Corp., Japan



Conference Executive Committee

Program Committee

Masanori Abe (CoChair) Tokyo Inst. of Technology,
Japan

Yoshimasa Miura (CoChair) Shinshu University,
Japan

Shigeru Tsunashima (CoChair) Nagoya University,
Japan

Dieter Weller (CoChair) Seagate Technology, USA

Yasuo Ando

Toru Asahi

Ching-Ray Chang

Tow Chong Chong

Koji Fujiwara

Kazumasa Fukuda

Hirotohi Fukunaga

Bruce Gurney

Satoshi Hirose

Naoki Honda

Kazuhiro Hono

Osamu Ichinokura

Nobuyuki Inaba

Koichiro Inomata

Mitsuteru Inoue

Keiji Iramina

Takahiko Iriyama

Shunji Ishio

Akira Kikitsu

Chong-Oh Kim

Osamu Kitakami

Yoshitaka Kitamoto

Hae-Woong Kwon

Sang Ho Lim

Bo Liu

Hidetoshi Matsuki

Mikio Matsuzaki

Akimitsu Morisako

Koichi Mukasa

Hiroaki Muraoka

Katsuji Nakagawa

Shigeki Nakagawa



Conference Executive Committee

Program Committee (cont.)

Ryoichi Nakatani	Hang-Ping Shieh	Yoichiro Tanaka
Yoshinobu Nakatani	Yutaka Shimada	Keiji Tsukada
Shigehiro Ohnuma	Kyung-Ho Shin	Masakiyo Tsunoda
Yoshihiro Okamoto	Sung Chul Shin	Yoshinori Uchikawa
Yoshichika Otani	Satoshi Sugimoto	Masahiro Yamaguchi
Hans Juergen Richter	Yoshio Suzuki	Kiyoshi Yamakawa
Yoshiaki Saito	Yoshishige Suzuki	Hiroshi Yamamoto
Hiroshi Sakakima	Koki Takanashi	Setsuo Yamamoto
Akimasa Sakuma	Yasushi Takemura	Keita Yamazaki
Ichiro Sasada	Takahiko Tamaki	Yeong Der Yao
Toshiro Sato	Atsushi Tanaka	Kazuetsu Yoshida
	Masaaki Tanaka	Yoshihito Yoshizawa



Conference Executive Committee

Publication Committee

Masaaki Matsui (CoChair) Nagoya University, Japan
Hiroaki Muraoka (CoChair) Tohoku University, Japan
Giora Tarnopolsky (CoChair) TarnoTek, USA

Editors

J.R. Cruz	Kazuyuki Koike
Francis Dawson	Adalbert Konrad
Joseph Feng	Hideki Miyajima
Peter George	Terunobu Miyazaki
Romel D. Gomez	William Rippard
Satoshi Hirosawa	Daniel Robb
Michael Ho	Hiroshi Sakakima
Junichirou Inoue	Yoshishige Suzuki
Shunji Ishio	David Wachenschwanz
Masahiko Kaneko	Masahiro Yamaguchi



Conference Statistics

- **Papers**

- 1527 Submitted Digests
- 1058 Presentations (including invited)
- 817 Papers Submitted for IEEE Trans. Magn
- 585 Published Papers (anticipated)

- **Presentations -- Global Perspective**

Japan	409	USA	157
South Korea	132	Taiwan	52
Singapore	42	United Kingdom	35
Germany	33	China	29
India	23	France	21

- **Registration/Attendance**

- 1338 total attendees
- 1124 Advance registrants, 244 on-site registrants

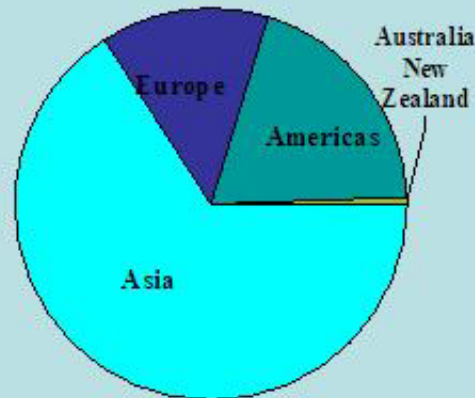
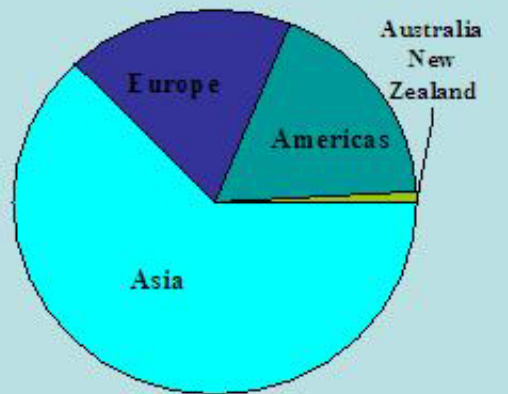
(updated 4/18/05 - RW - some duplicate registrations may be included)



Conference Statistics

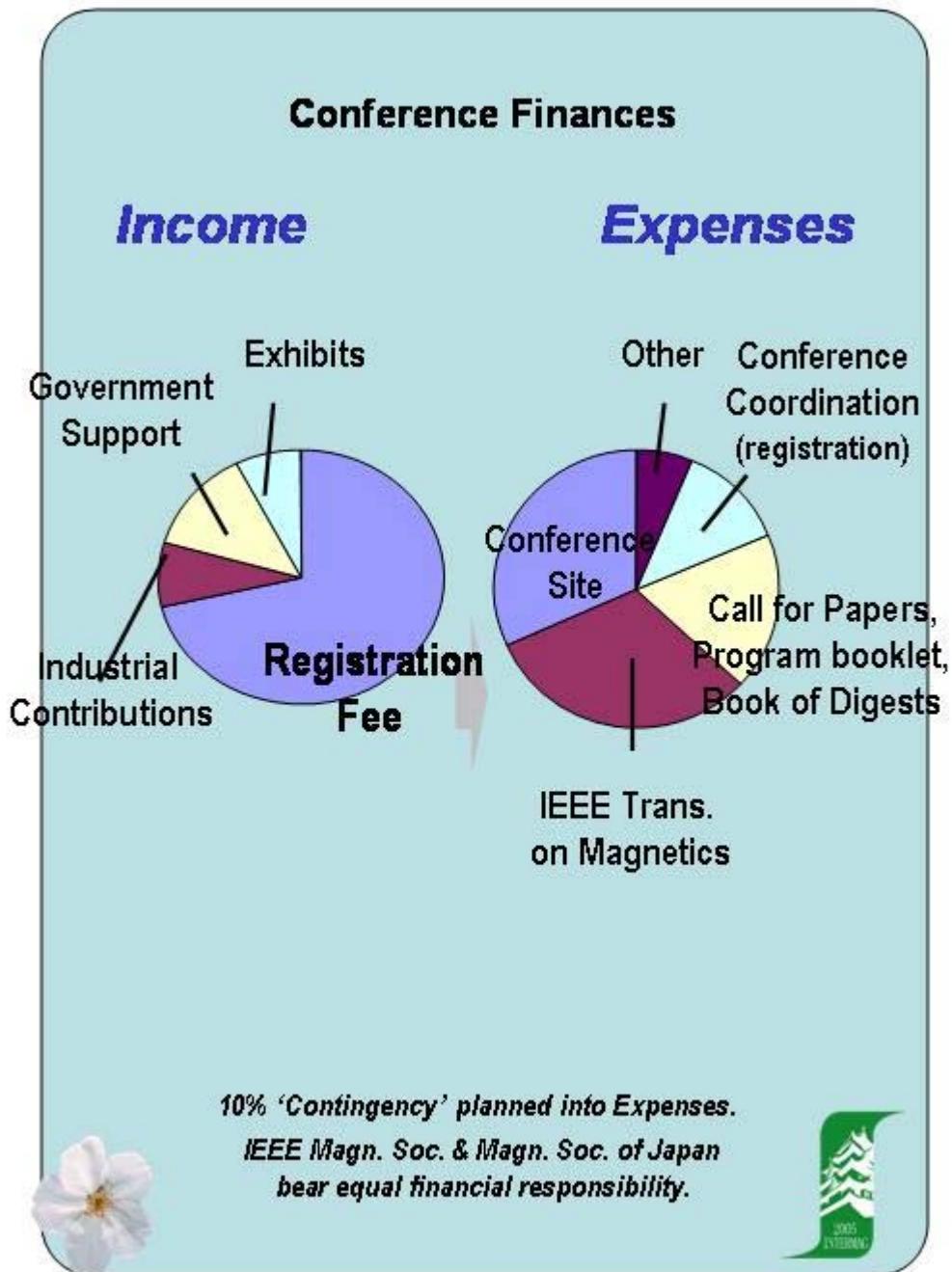
1058 Presentations

1338 Attendees



Intermag Asia 2005





Awards

IEEE Magnetics Society Awards

Chairs

Kevin O'Grady – President
IEEE Magnetics Society

Bruce Gurney – Awards Chair
IEEE Magnetics Society

- **IEEE Reynold B. Johnson
Information Storage Systems
Award**
- **IEEE Magnetics Society 2005
Fellows**
- **Student Travel Awards**



Information Storage Award History

- IEEE Magnetics Society Information Storage Award
 - 1987 **Sidney M. Rubens**
 - 1988 **Jay W. Forrester**
 - 1989 **Reynold B. Johnson**
 - 1990 **Marvin Camras**
 - 1991 **Charles H. Coleman**
 - 1992 **Claude Shannon**



Information Storage Award History

- IEEE Reynold B. Johnson Information Storage Award
 - 1993 **John Harker**
 - 1994 **C. Denis Mee**
 - 1995 **James U. Lemke**
 - 1996 **Nobutaka Imamura**
 - 1997 **Alan F. Shugart**
 - 1998 **Jean Pierre Lazzari**
 - 1999 **David Patterson, Randy Katz, Garth Gibson**
 - 2000 **Mark H. Kryder**
 - 2001 **Tu Chen**
 - 2002 **Christopher Bajorek**
 - 2003 **H. Neal Bertram**
 - 2004 **Bruce Gurney, Virgil Speriosu**



IEEE Reynold B. Johnson Information Storage Systems Award

- 2005 Recipient
 - **François D'olive**
IBM Research,
Zurich, Switzerland



- Citation
 - *"For the application of digital signal processing to the magnetic recording channel in hard disk drives."*



IEEE Reynold B. Johnson Information Storage Systems Award

*Remarks from Dr. Kevin O'Grady, IEEE
Magnetics Society President*

*The presentation of the 2005 IEEE Reynold B.
Johnson Information Storage Systems Award to
François D'olivo Presented at the IEEE
INTERMAG 2005 during the Plenary Session at
4:30PM (UTC) on Wednesday, 6 April 2005,
Nagoya Congress Center, Nagoya, Japan*

Good afternoon ladies and gentlemen. I am pleased to be here today to represent the IEEE Board of Directors in the presentation of the IEEE Reynold B. Johnson Information Storage Systems Award.

The IEEE and its predecessor societies, the AIEE and the IRE, have been recognizing outstanding contributions for over a century. Through these awards, many important inventors and innovators have been honored.

IEEE Awards, such as the Reynold B. Johnson Award, that I am presenting here today, provide peer recognition for individual contributions to the information and electrotechnology communities worldwide.



The 2005 IEEE Awards would not be possible without the sponsorship of some of the world's leading corporations, foundations and individuals whose interest in the IEEE's technological disciplines are shown by their support.

These awards also help increase public awareness of the accomplishments of engineers. By raising this awareness, we are cultivating an environment conducive to engineering excellence.

The IEEE Reynold B. Johnson Information Storage Systems Award is sponsored by the IBM Almaden Research Center, and may be presented for outstanding contributions to information storage systems, with emphasis on computer storage systems.

This year, we are honoring DR. FRANÇOIS DOLIVO for the application of digital signal processing to the magnetic recording channel in hard disk drives.

Manager of the Pervasive Computing Group at the IBM Zurich Research Laboratory, Dr. Dolivo is recognized for his innovation and commitment in formulating and applying digital signal processing (DSP) methods to the magnetic recording channel in hard disk drives.



Dr. Dolivo has had a critical impact on this widely used technology.

In 1974, Dr. Dolivo joined IBM Research Division's Zurich Research Laboratory in Rüschlikon, Switzerland, where he applied DSP techniques tailoring it to magnetic recording channel in disk drive applications, which have been essential to the growth of the Internet and the importance to the industry.

He later headed the magnetic recording group that developed the partial-response signaling and maximum-likelihood sequence (PRML) recording channel. The novel digital recording technique became the industry standard.

Since 1996, Dr. Dolivo's work has focused on various technologies for supporting pervasive and mobile applications.

An IEEE Fellow, Dr. Dolivo is a member of the IBM Academy of Technology. His other honors include the PC Magazine Award for Technical Excellence and an IEEE Third Millennium Medal.

Ladies and gentlemen, please join me in congratulating the 2005 IEEE Reynold B. Johnson Information Storage Systems Award recipient DR. FRANÇOIS D'OLIVO



IEEE Magnetics Society Fellows 2005

Dr. Pavel J.D. Kabos, National Institutes of Standards & Technology

"For contributions to the metrology of high frequency spin wave dynamics in bulk and thin film magnetic structures."

Dr. Nobutake Imamura, TeraHouse Corporation

"For contributions to the development and commercialization of magneto-optical recording media and read / write systems."

Dr. Jaekyun (Jae) Moon, University of Minnesota

"For contributions to signal processing and coding for magnetic recording."

Dr. Kent Ritter Davey, University of Texas

"For contributions to the analysis and use of magnetic fields in bio-magnetics, electromechanics, and magnetic levitation."

Dr. Giorgio Bertotti, IEN Galileo Ferraris

"For contributions to the understanding of hysteresis phenomena, micromagnetics and magnetization dynamics."



Student Travel Awards - INTERMAG 2005

25 awards out of 86 applicants

Mark Beal	University of York, UK
J. Arout Chelvane Technology, India	Indian Inst. Of
Jill Claydon	University of York, UK
Xuying (Shirley) Dong USA	University of Minnesota,
Ali Reza Farahani Canada	University of Toronto,
Medhi Farhoudi Australia	University of Wollongong,
Hugo Ferreira	INESC, Portugal
Karin Garcia Madrid, Spain	Materials Science Inst. of
Ehtsham-ul Haq Netherlands	University of Twente,
Hao Hu USA	Arizona State University,
Oleksander Hoshtanar	Cardiff University, UK
Hyuk-Jae Jang USA	University of Minnesota,



Student Travel Awards - INTERMAG 2005

Jia-Yang Juang Berkeley, USA	University of California,
Michail Kiziroglou Southampton, UK	University of
Michaela Kuepferling Technology, Austria	Vienna Inst. Of
Hui Li Singapore	National University of
Baodan Liu Japan	University of Tsukuba,
Naveen Mysore	McGill University, Canada
T. Hoang Yen Nguyen and Tech.	Korea Inst. Of Science
Hyun Soon Park	Tohoku University, Japan
Rumyana Petrova Florida, USA	University of Central
Arash Phirouznia Shahid	Baheshti University, Iran
Nand Kishore Prasad Technology, Bombay	Indian Inst. Of
Daniel Ruiz Belgium	Ghent University,
Uta Schlickum Germany	Max Plank Institute,



Plenary talk

Keynote Plenary Address

- Keynote Speaker



**Kiyoshi
Nakanishi**

*President,
Genesis
Research
Institute, INC.*

*Advisor,
Toyota Motor
Corporation*



Mr. Kiyoshi Nakanishi

Mr. Nakanishi received his Master's degree in Mechanical Engineering from Kyoto University and joined Toyota Motor Corporation in 1970. One of his major works in Toyota was to do research and development of a new gasoline and diesel engine focusing on its combustion process, which was introduced into the market in 1980. He has developed many innovative systems like a closed coupled catalyst and two O₂ sensor systems which have been applied to many passenger cars of worldwide as a global standard. He has carried out many inventions. Japan Institute of Invention and Innovation has given him the Imperial Invention Prize two times. He has been in charge of advanced research and development of internal combustion engine fuel cell vehicle and future project first as Director and afterwards as Managing Officer since 2000. He retired from Toyota Motor Corporation and was assigned to Genesis Research Institute as President in 2004.



17:00-17:50

Plenary Keynote Lecture

**Future Power-train System
for
Sustainable Mobility**

Kiyoshi Nakanishi

**President
Genesis Research Institute, INC.**



Nagoya INTERMAG 2005 – memories

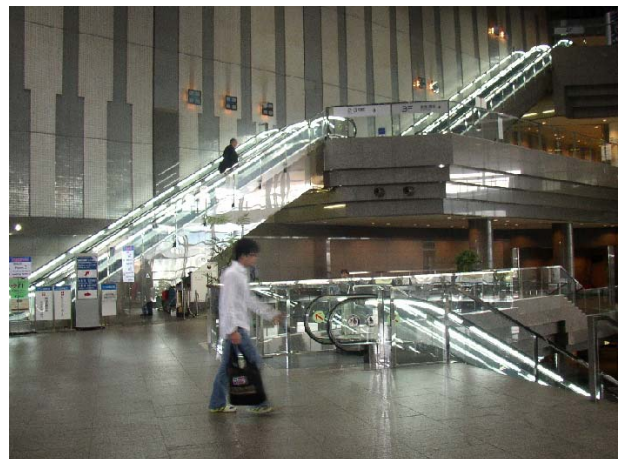


Nagoya – old and new



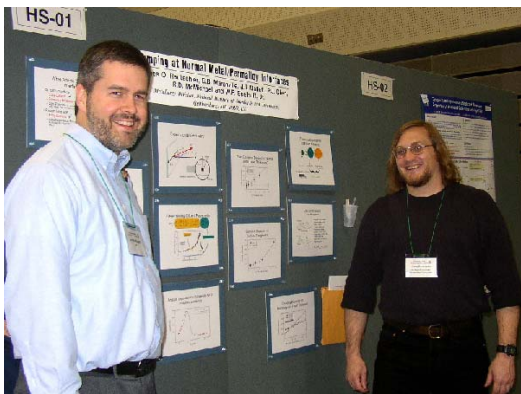


Nagoya Congress Center
– the site of INTERMAG 2005





INTERMAG 2005 - people



Annual General Meeting

Under the terms of the revised Constitution and By-Laws of the IEEE Magnetics Society the Society will now hold an Annual General Meeting each year, usually at our Intermag Conference.

The 2005 Annual General Meeting was held during the Intermag Conference in Nagoya on 7 April from 12.30 pm to 1.00 pm in Room 131/132 of the Nagoya Congress Center.

The Agenda for the meeting was:

- 12.30 pm Introduction and Welcome Kevin O'Grady, Magnetics Society President
- 12.30 pm President's Report
- 12.35 pm Treasurer's Report Randall Victoria
- 12.40 pm Conference Executive Committee Report Doug Lavers
- 12.45 pm Open Discussion
- 1.00 pm Nominal Close

The primary purpose of the General Meeting is to improve awareness of how the Society operates and also how the membership can become involved in the work of the Society should they so wish. Hence time for open discussion has been maximized.

As a Magnetics Society member you may also like to know that the Society has recently undertaken a major overhaul of its Constitution and By-Laws. The Constitution requires that members are given an opportunity to object to these changes and if more than 10% of the membership objects the new Constitution does not come into effect. The Constitution can be found at <http://www.ieeemagnetics.org/> should you wish to review it. Any objections should be sent to the Executive Director of the Society, Diane Melton, whose e-mail address is: magsoc@courtesyassoc.com.

IEEE Magnetics Society Distinguished Lecturers for 2005

Half-Metals, Spin Torque, and Nanorings

Chia-Ling Chien

The Johns Hopkins University

The exploration of magnetic nanostructures in recent years has resulted in a string of discoveries such as interlayer coupling, giant magnetoresistance (GMR), exchange bias, and tunneling magnetoresistance. Some of these effects were utilized as read heads in high-density magnetic recording and nonvolatile magnetic storage only a few years after the original discovery. In this talk, I will describe several new topics in magnetic nanostructures from inception to realization to potential applications. Most magnetoelectronic properties are the results of the spin polarization of the constituent materials. The ultimate spin-polarized material with 100% spin polarization is called the half-metal. For example, magnetic tunnel junctions with half-metal electrodes would have the largest possible effect, switching between conducting and insulating states. The unique characteristics of halfmetals, the experimental identifications, and the confirmation of half-metals to date will be described. Since electrons have spin in addition to charge, a spin-polarized current carries angular momentum. For a large current density, the angular momentum can exert a substantial torque onto a receiving magnetic entity to excite spin waves or even to switch its magnetization. The spin torque effects are accomplished in the absence of an external magnetic field. The salient aspects of the spin torque effects in different contexts, such as switching and magnetic recording without a magnetic field, will be described. Nanorings are small entities with special attributes. A magnetic nanoring can support vortex state despite its very small size. The two chiralities of the vortex state can be exploited for magnetic recording purposes. Multilayered nanorings have also been proposed as vertical random access memory (VRAM) units. However, fabrication of nanorings using e-beam lithography has considerable limitations in the number of rings, ring size, and areal density. We have developed a new method with which a large number (10^9) of small (100 nm) rings can be fabricated with a very areal density of 45 rings per square micrometer. The magnetic and other characteristics of such arrays of nanorings will be described.



Chia-Ling Chien received the B.S. degree in physics from Tunghai University, Taichung, Taiwan, R.O.C., in 1965 and the Ph.D. degree in physics from Carnegie Mellon University, Pittsburgh, PA, in 1972. He has been a Member of the faculty in the Department of Physics and Astronomy of Johns Hopkins University, Baltimore, MD, since 1976, where he is the Jacob L. Hain Professor in Arts and Sciences. He currently directs the Material Research Science and Engineering Center on Nanostructured Materials at Johns Hopkins. His recent research focuses on magnetic nanostructures including magnetic granular solids, nanowires, multilayers, and arrays of rings and dots, and the exploration of GMR, exchange bias, half-metals, spin torque effects, Andreev reflection, and point-contact spectroscopy. He has written more than 300 journal articles and holds several

patents. He is one of the ISI's 1120 most cited physicists. He has served as Meeting Chair and Chair of the Advisory Committee of the Conference on Magnetism and Magnetic Materials. He has been awarded honorary professorships at Nanjing, Lanzhou, and Fudan Universities in China. Dr. Chien is a Fellow and the 2004 recipient of the David Adler Award of the American Physical Society.

Contact: Prof. C. L. Chien,

Department of Physics and Astronomy,
Johns Hopkins University, Baltimore, MD 21218 USA;
telephone: (410) 516-8092; ax: (410) 516-7239;
e-mail: clc@pha.jhu.edu

Micro-Fabrication Techniques for Magnetic Information Storage Devices: From Bubbles to Thin-Film Recording Heads to Nanomagnetic Structures

Robert E. Fontana, Jr.

Hitachi Global Storage Technologies

This lecture examines magnetic device structures from the perspective of thin-film processing. Techniques for forming magnetic device structure minimum features will be compared with semiconductor processing. Future storage density growth in both magnetic memories and magnetic recording will be projected using semiconductor roadmaps. The “nano” characteristics (thickness and length scale) of next-generation magnetic thin-film heads and magnetic memory devices will be compared with solid-state semiconductor designs. In the past 25 years, the bit cell size for storage products incorporating magnetic device structures decreased from 156 μm^2 bit cells (IBM 3390 disk drive) to 0.007 μm^2 (Hitachi Travelstar 5K100 mobile disk drive). For the same period, the bit cell size in nonvolatile memory products incorporating magnetic device structures decreased from 625 μm^2 (TI 100 kb bubble memory) to 1.6 μm^2 (Motorola 4Mb magnetic random access memory). These 10 to 10 increases in information storage densities resulted from increased understanding in the physics of magnetic phenomena, from advances in materials science and engineering for magnetic thin films, from development of new magnetic modeling techniques, and from dramatic improvements in the capability to fabricate magnetic device structures with smaller minimum features. The manufacture of cost-effective magnetic device based information storage products requires high-yield processing technologies for the magnetic transducer or memory element in these products. Such processing technologies are now producing devices with 120 nm features (80 Gb/in storage densities) and these same processing technologies are extendable to 30 nm features (1 Tb/in storage densities). The lecture will conclude with discussions on nanoscale processing challenges.



Robert E. Fontana, Jr. received the B.S., M.S., and Ph.D. degrees in electrical engineering from the Massachusetts Institute of Technology, Cambridge, in 1969, 1971, and 1975, respectively. He is a Research Staff Member within the recording head processing function of the San Jose Research Center, Hitachi Global Storage Technologies (GST), San Jose, CA. His technical activities have concentrated on developing and improving thin-film processing techniques for fabricating magnetic device structures, first at Texas Instruments from 1975 to 1981 with magnetic bubbles, then from 1981 to 2002 at IBM with thin-film heads, and from 2003 to the present at Hitachi GST with novel flux detecting sensors and nanostructure fabrication with e-beam lithography. During his career, he has transferred processing methodologies for magnetic bubbles, magnetoresistive thin-film heads, spin-valve giant magnetoresistive thin-film heads, and tunnel-valve thin-film heads from

research concepts to manufacturing realizations. He has authored 37 papers on magnetic devices and processes and has 55 patents in thin-film magnetic structures. Dr. Fontana was named an IEEE Fellow in 1996 and he received the IEEE Cleo Brunetti Award for excellence in the art of electronic miniaturization in 2000. He was elected to the National Academy of Engineering (NAE) in 2002 for his contributions in magnetic device processing. He has served as President of the IEEE Magnetics Society (2001, 2002), as General Chair of the 1996 Magnetism and Magnetic Materials Conference, as General Chair of the 2004 Joint International Magnetics Conference and Magnetism and Magnetic Materials Conference, and is serving as an NAE member on the National Research Council's (NRC) Board on Manufacturing and Engineering Design (2003–2005).

Contact: **Robert E. Fontana, Jr.,**

San Jose Research Center, Hitachi GST, 650 Harry Road, San Jose, CA 95120 USA;

telephone: (408) 323-7234; fax: (408) 927-2100;

e-mail: robert.fontana@hitachigst.com

Dynamics in Magnetic Micro- and Nanostructures

Burkard Hillebrands

Technische Universität Kaiserslautern

For applications in sensors and in data storage, the dynamic properties of microstructures and nanostructures have gained increasing attention. The fundamental excitations in these objects are confined spin waves, and it is useful in particular to understand their properties in view of the noise spectrum in sensor and magnetoresistive random access memory (MRAM) applications. The lecture addresses the dynamics in homogeneously and inhomogeneously magnetized objects starting with an introduction to spin waves and the effects of finite dimensions. In inhomogeneous systems the excitation spectrum is complex, and new phenomena, such as localization and tunneling of modes, are discussed. The key points are illustrated by results obtained by space- and time-resolved Brillouin light scattering, which allows one to follow experimentally the propagation of spin-wave packets and to present the results in an animated format. To conclude the lecture, the analysis of ultra-high-frequency dynamic properties (2–100 GHz) of small magnetic elements with spatial resolution in the 300 nm range is presented.



Burkard Hillebrands received the diploma and Ph.D. degrees in physics from the University of Cologne, Cologne, Germany, in 1982 and 1986, respectively. After a postdoctoral stay at the Optical Sciences Center, Tucson, AZ, he received the habilitation from the RWTH Aachen, Aachen, Germany, in 1993. He was an Associate Professor at the University of Karlsruhe, Karlsruhe, Germany, in 1994. Since 1995, he has been a Full Professor at the University of Kaiserslautern, Kaiserslautern, Germany. He is the coordinator of the German priority program “Ultrafast Magnetization Processes,” the vice coordinator of the German research unit “New Materials with High Spin Polarization,” and he coordinates a European network on “Ultrafast Magnetization Processes in Advanced Devices.” He is currently the head of the Material Research Center for Micro- and Nanostructures (MINAS) at the University of Kaiserslautern. He is a member of the granting board for collaborative research centers (SFB) of the senate of the Deutsche Forschungsgemeinschaft and a member of the Editorial Board of the *Journal of Physics D: Applied Physics*. His research field is mostly in magnetoelectronics. His special interests are in spin dynamics, material properties of thin magnetic films and multilayers, exchange bias, as well as in elastic properties of layered structures. In the field of spin dynamics, he is particularly interested in dynamic magnetic excitations in confined magnetic structures, magnetic switching, and nonlinear magnetic phenomena using space- and time-resolved Brillouin light scattering spectroscopy and time-resolved Kerr effect techniques. He has published more than 170 articles, five patents and patent applications, seven book contributions, and he is co-editor of the Springer-Verlag book series on “Spin Dynamics in Confined Magnetic Structures.”

Contact: Prof. Burkard Hillebrands,

Fachbereich Physik, TU Kaiserslautern, Erwin-Schrödinger-Strasse 56,

67663 Kaiserslautern, Germany;

telephone: +49 631-205-4228; fax: +49 631-205-4095;

e-mail: hilleb@physik.uni-kl.de

CALL FOR NOMINATIONS

2006 IEEE Reynold B. Johnson Data Storage Device Technology Award

The **IEEE Reynold B. Johnson Data Storage Device Technology Award** is presented for outstanding contributions to the advancement of information storage with emphasis on technical contributions in computer data storage device technology.

The award may be presented to an individual, team, or multiple recipients up to three in number. The recipient of the award receives a bronze medal, certificate, and cash honorarium.

The nomination **deadline is 1 July 2005.**

For nomination forms, visit the IEEE Awards Web Site,
www.ieee.org/portal/pages/about/awards/sums/johnsondsdt.html,
or contact

IEEE Awards Activities,
445 Hoes Lane, Piscataway, NJ, USA, 08855-1331;
tel: +1 732 562 3844;
email: awards@ieee.org

There are two awards:

The ***Reynold B. Johnson Information Storage Systems Award*** is

Φ sponsored by **IBM**

Φ NOMINATION DEADLINE is 31 January

Φ WEB PAGE

Φ http://www.ieee.org/portal/site/mainsite/menuitem.818c0c39e85ef176fb2275875bac26c8/index.jsp?&pName=corp_level1&path=about/awards/sums&file=johnsondsdt.xml&xsl=generic.xsl

Φ AWARDED Yearly, starting in 2005

The ***Reynold B. Johnson Information Storage Device Award*** is

Φ sponsored by **Hitachi Global Storage Technologies**

Φ NOMINATION DEADLINE is 1 July

Φ WEB PAGE

Φ http://www.ieee.org/portal/site/mainsite/menuitem.818c0c39e85ef176fb2275875bac26c8/index.jsp?&pName=corp_level1&path=about/awards/sums&file=johnson.xml&xsl=generic.xsl

Φ AWARDED Yearly, starting in 2006

IEEE News

Φ SENIOR MEMBERSHIP *Elevate your membership!*

Requirements for elevation to IEEE Senior Member

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

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

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

For full information visit the [IEEE Senior Member Web pages](#)

- Once you determine that you fulfill the [requirements](#) for Senior Member (SM) grade, identify your three references who must be IEEE Senior Members or Fellows.
- If you have difficulty in locating individuals to serve as your references, contact your local Section or Chapter for assistance. For help in contacting your Section/Chapter Chair, email Denise Howard at senior-member@ieee.org.
- If you have been notified by a Section officer that they intend to nominate you for Senior Member grade, the nominator serves as one reference as long as he/she is a Senior Member or Fellow. Otherwise, the required number of references is still three in addition to the nomination.
- Alternatively, contact your Section Chair and ask if they can nominate you. This will help your Section earn a rebate at the end of the year through the [Nominate a Senior Member Initiative](#).

Φ The INSTITUTE online

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

IN THE **APRIL** ISSUE:

report on news around the IEEE, from the editors of The Institute. The most current version of The Institute can always be found at [<http://www.ieee.org/theinstitute>](http://www.ieee.org/theinstitute)

1. Members are Mostly Satisfied, Survey Shows

2. IEEE Responds to Survey Feedback
3. Help-Wanted Notices on Job Site Set Record
4. IEEE Fellow Strives for Equality in Engineering Education
5. Exploring the Complex World of Electronic Design
6. Communications, Circuits, and Systems Conference Papers Now Online
7. Send in News of Your Awards and Recognitions
8. Nominations Sought for Standards Association Awards

Φ IEEE-USA Today's Engineer A Monthly webzine

<http://www.todaysengineer.org> -

1. Latest *IEEE-USA TODAY'S ENGINEER* Webzine Covers Leadership, the Hubble Telescope, Fostering Innovation, Grokster, Productivity, Engineering a Better Future
2. Survey Respondents Cite Offshoring as Second-Highest Cause of Technical Unemployment
3. Free IEEE-USA Brochure Lists Career Products, Programs, Services for IEEE Members
4. Engineering Symposium to Explore R&D Outlook, 4-5 April
5. Hill Forum Focuses on Energy Independence
6. Two U.S. IEEE Members Receive National Medal of Technology at White House

The **IEEE** is the world's largest technical professional society with approximately 360,000 members in 170 countries. Through its members, the IEEE is a leading authority on areas ranging from aerospace, computers, and telecommunications to biomedicine, electric power, and consumer electronics. The IEEE produces 30 percent of the world's literature in the electrical and electronics engineering and computer science fields, and has developed more than 900 active industry standards. The organization also sponsors or cosponsors more than 300 international technical conferences each year. Additional information is available at www.ieee.org.

Contact: **Marsha Longshore**

732 562 6824 908 217 3594 (cell)

m.longshore@ieee.org

MagNews

For all you vertical recording fans :

http://www.hitachigst.com/hdd/research/recording_head/pr/PerpendicularAnimation.html

HITACHI LAYS GROUNDWORK FOR 20-GB MICRODRIVE WITH CENTURY-OLD TECHNOLOGY

*Company Demonstrates 230 Gigabit Per Square Inch Data Density on Perpendicular Recording;
Industry Luminaries Make History as Part of Worldwide Field Test Program*

TOKYO – April 4, 2005 – Hitachi Global Storage Technologies is today announcing new advancements to a 100-year-old magnetic recording technology that will set the stage for ultra-high capacities such as a 20-gigabyte* Microdrive or a one terabyte 3.5-inch hard drive.

To achieve this, Hitachi has demonstrated the industry's highest data density at 230 gigabits per square inch (Gb/in²) on perpendicular recording. Hitachi believes 230 Gb/in², which represents a doubling of today's highest longitudinal recording densities, will be implemented in commercial hard drive products in 2007. When fully realized over the next 5-7 years, perpendicular recording could enable a 10-fold increase in data densities over longitudinal recording, paving the way for new heights in capacity such as a 60 GB one-inch drive.

Perpendicular recording has its roots in the late 19th century work of Danish scientist Valdemar Poulsen, who is generally considered the first person to magnetically record sound using perpendicular recording. The technology gets its name from the vertical alignment of data bits on the plane of the disk, which takes less room in contrast to the horizontal orientation of today's longitudinal recording technology. To be accurately recorded and read, the more closely-packed perpendicular bits also require a closer association between the read/write head and the recording media. Hitachi achieved the 230 Gb/in² density by manipulating the head and media so that the distance between them is a mere 10 nanometers or 1/10,000th of a human hair.

While the hard drive industry has been using longitudinal recording successfully for five decades, it is now within two product generations of reaching its practical limit. Researchers are finding that longitudinal recording is losing its ability to maintain data integrity at areal densities much beyond 120 Gb/in².

“We are at the cusp of the most significant hard drive technology transition of the past decade, and it's one that holds so much promise for the hard drive and consumer electronics industries,” said Jun Naruse, CEO, Hitachi Global Storage Technologies. “As the biggest supplier of small-form-factor hard drives, 2.5-inch and below, consumers' demand for storing more data on smaller devices has provided a strong impetus for us to pursue perpendicular recording with a greater sense of urgency.”

While the transition to perpendicular recording will start as early as the next product generation, Hitachi believes the true potential will be realized in the 200+ Gb/in² range -- the point of technology maturation when meaningful advancements in storage capacity will ensure full-scale adoption of perpendicular recording technology.

Perpendicular Recording Field Test

As the hard drive industry approaches the crossroad of this major transition in data recording technology, Hitachi is prepared to lead the charge with new achievements on perpendicular recording and a worldwide field test program. Testers have been using computing systems with perpendicular recording hard drives as part of their daily routine since December 2004. The program has revealed encouraging data about future mass-market adoption of the new technology, which Hitachi believes will gain momentum in 2006. Hitachi is taking the necessary steps to ensure a smooth transition to perpendicular recording through this extensive field test program and long-term reliability tests.

Professor Shun-ichi Iwasaki, president and chief director of Japan's Tohoku Institute of Technology, is considered to be the father of modern perpendicular recording and is among the early testers of Hitachi's perpendicular recording hard drives.

"I have been engaged in magnetic recording research since 1951 and found that the most important subject in this field is high-density recording," said Professor Iwasaki. "Around 1975, I began to feel that the vertical direction was the right way to go to attain high-density recording, and began leading the activities to make perpendicular recording a practical technology. I am very glad to see that the technology will come into use soon."

Participants in Hitachi's field test program are making history as one of the first people to write data vertically on a hard drive. These testers represent notable academia, industry luminaries and customers worldwide. Field testers are using notebook systems from various manufacturers with the Hitachi Travelstar 2.5-inch drive. The data gleaned from this program will help Hitachi prepare for the eventual full-scale production of perpendicular recording hard drives. Hitachi expects to ship its first perpendicular recording product in 2005 on a 2.5-inch hard drive, used in notebook computers and handheld consumer electronics.

"The health of this industry over the next 5-10 years is critically tied to the successful implementation and transition to perpendicular recording technology," said Jim Porter, hard drive industry analyst and historian, owner of DISK/TREND. "Hitachi is taking a responsible approach in assuring that it proceeds smoothly with extensive testing programs."

In addition to the field test program, Hitachi has implemented a long-term reliability and stress testing regimen, involving hundreds of perpendicular recording drives over many months.

Pushing Back the "Superparamagnetic Limit"

With longitudinal recording, the hard drive industry is quickly approaching a physical barrier called the "superparamagnetic limit," which occurs when the microscopic magnetic grains on the disk become so tiny that they are not strong enough to resist the various factors tending to demagnetize them. The result is that, over several years, the information written onto these magnetic grains can fade and become corrupted, rendering the storage device unreliable and unusable. Simplistically, the data bits can be thought of as little dominoes. Longitudinal recording, as its name indicates, lays these dominoes (data bits) horizontally, taking up more space. In contrast, perpendicular recording sets up the dominoes on their edges, allowing more bits per square inch of disk surface, resulting in higher storage capacity overall.

Additional information on perpendicular recording can be found at the following web site:

http://www.hitachigst.com/hdd/research/recording_head/pr/index.html.

* 1 gigabyte = 1 billion bytes

About Hitachi Global Storage Technologies

Hitachi Global Storage Technologies was founded in 2003 as a result of the strategic combination of Hitachi's and IBM's storage technology businesses. By the end of 2003, Hitachi GST became the industry's second largest hard disk drive manufacturer in revenue, and maintained that position into 2004.

The company's goal is to enable users to fully engage in the digital lifestyle by providing access to large amounts of storage capacity in formats suitable for the office, on the road and in the home. The company offers customers worldwide a comprehensive range of storage products for desktop computers, high-performance servers and mobile devices. For more information on Hitachi Global Storage Technologies, please visit the company's Web site at <http://www.hitachigst.com>.

About Hitachi, Ltd.

Hitachi, Ltd. (NYSE: HIT), headquartered in Tokyo, Japan, is a leading global electronics company, with approximately 326,000 employees worldwide. Fiscal 2003 (ended March 31, 2004) consolidated sales totaled 8,632.4 billion yen (\$81.4 billion). The company offers a wide range of systems, products and services in market sectors, including information systems, electronic devices, power and industrial systems, consumer products, materials and financial services. For more information on Hitachi, please visit the company's Web site at <http://www.hitachi.com>.

These materials contain forward-looking statements within the meaning of the federal securities laws, including statements about the following: the future demand for hard disk drives, the potential development of future products, projections for future investment in manufacturing capacity, and projections for future demand for consumer products. These statements are subject to risks and uncertainties that could cause actual results and events to differ materially, including the following: possible fluctuations in the demand for our products; the introduction of new products by competitors or the entry into the market of new competitors; possible delays in developing new products, and the possibility of legal disputes. A detailed discussion of other risks and uncertainties that could cause actual results and events to differ materially from forward-looking statements is included in Hitachi, Ltd.'s most recent filings and reports with the Securities and Exchange Commission. Hitachi, Ltd. and Hitachi GST undertake no obligation to update forward looking statements to reflect events or circumstances occurring after the date of this press release.

###

Contact:

Kim Nguyen
Hitachi Global Storage Technologies
408-717-7589
kim.nguyen@hitachigst.com

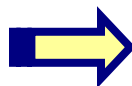
QUIZ

What has this statue do with magnetism?



Solution

Go to the **END**



Conference announcement 1

HMM 2005



5th International Symposium on Hysteresis and Micromagnetic Modeling

May 30 – June 1, 2005

Budapest, Hungary

<http://www.HMM2005.bme.hu>

Organized by the

Budapest University of Technology and Economics

in cooperation with the

Hungarian Academy of Sciences

Research Institute for Technical Physics and Materials Science

Pollack Mihaly College of Engineering, University of Pecs

Call for Papers

The **5th International Symposium on Hysteresis and Micromagnetic Modeling (HMM-2005)** will be held at Budapest, Hungary. The previous Symposia were held at The George Washington University, Virginia Campus. Ashburn, VA, USA (1996), University of Perugia. Perugia, Italy (1999), The George Washington University, Virginia Campus. Ashburn, VA, USA (2001), and at the University of Salamanca. Salamanca, Spain (2003). The 5th International Symposium on Hysteresis and Micromagnetic Modeling is devoted to the 100 year anniversary of birth of Hungarian scientist F. Preisach, the creator of the hysteresis model, bearing his name.

Venue: Hungarian Academy of Sciences, Budapest, Hungary, Roosevelt Sq. 9.

Topics of the Symposium

- General hysteresis and coupled problems, mathematics of hysteresis, statistical aspects, etc.
- Preisach modeling.
- Vector hysteresis modeling.

- Hysteresis experiments and measurements.
- Barkhausen noise, disorder, chaotic behavior.
- Nonmagnetic hysteresis.
- Classical spin models, random-field models, domain wall models, etc.
- Dynamic hysteresis, thermal relaxation, aftereffects.
- Micromagnetics, theory.
- Micromagnetics, numerical techniques, field calculations, standard problems.
- Micromagnetics, applications, hysteresis properties of nanoparticles,
- spin dynamics of coherent structures, etc.

Abstract Book

Authors are invited to send 2 pages short contribution to the Abstract Book. After reviewing, the accepted papers will be presented in oral and poster sessions at the Symposium. The full version of the papers after second review will be published in *Physica B*.

Important dates

- ***Submission of Abstracts, January 10, 2005.***
- ***Notification of acceptance, February 10, 2005.***
- ***Pre-registration and hotel reservation, till March 30, 2005.***
- ***Submission of full papers, May 30, 2005.***
- ***Symposium, 30 May --1 June 2005***

Preisach Memorial Book

As the 5th International Symposium on Hysteresis and Micromagnetics Modeling (HMM-2005) will be devoted to the memory of the 100 year anniversary of the birth of Ferenc Preisach, whose hysteresis model is bearing his name, on this occasion a memorial volume on the Preisach model and its different modifications will be published, where researchers, working in the field of Preisach models are cordially invited to submit manuscripts.. After a peer review process the papers will be published in Preisach memorial book.

Correspondence

Co-Chair, **Dr. Amalia Ivanyi**

Executive Secretary, **Mr. Miklos Kuczmann**

Technical Secretary, **Mr. Peter Kis**

Department of Broadband Infocommunication and Electromagnetic Theory

Budapest University of Technology and Economics, Egrý J. 18.

H-1521, Budapest, Hungary,

Tel: +36-1-463-2817, + 36 1 463 1049, Fax: +36-1-463-3189

E-mail: secretariat@hmm2005.bme.hu

<http://www.HMM2005.bme.hu>

Conference announcement 2



First Call for papers

The conference “**Moscow International Symposium on Magnetism**” (MISM) was held in Moscow State University in 2000 and 2002. Last time more than 400 scientists from USA, Canada, Great Britain, France, Germany, Spain, The Netherlands, Brazil, Poland, Turkey, Czech, Japan, Korea, Russia and Former Soviet Republics participated in MISM-2002. Proceedings of MISM-2002 were published in Journal of Magnetism and Magnetic Materials, vol.258-259, 2003. Taking into account the success of these meetings and numerous requests of participants the International Advisory Committee decided to organize MISM on regular basis, every three years. The MISM is the largest international conference on magnetism, which takes place in Russia. This time the Organizing Committee decided to focus on the most actual topics of modern magnetism and to strictly limit the total number of participants. Besides of plenary talks of tutorial character and invited talks of leading scientists the only original and top-level contributions will be considered by the Program Committee. The Organizers have very restricted funding and cannot support participants, including the members of International Advisory Committee, plenary and invited speakers but we will try to do our best to arrange useful, pleasant and not expensive stay in Moscow.

MAIN TOPICS

1. Magnetotransport and Spintronics
2. High Frequency Properties
3. Magnetophotonics (linear and nonlinear magneto-optics, magnetophotonic crystals)
4. Magnetic Semiconductors
5. Metamaterials
6. Magnetic Nanostructures and Low Dimensional Magnetism
7. Magnetic Soft Matter (magnetic polymers, complex magnetic fluids and suspensions)
8. New Magnetic Materials
9. Biomagnetism
10. Miscellaneous

IMPORTANT DATES in 2005

Deadline for registration March 15
Deadline for submission of abstracts March 15
Deadline for submission of visa application April 1
Deadline for submission of manuscripts May 5
MISM starts June 25

Conference Office and Address:

Alexander Granovsky, Nikolai Perov, Anna Radkovskaya:

MISM, Magnetism Department,

Faculty of Physics M.V. Lomonosov Moscow State University, Moscow

119992, Russia

phone/fax: +7 095 939-4787

e-mail: mism@magn.ru

URL: <http://mism.magn.ru>

Conference announcement 3

16th Magnetic Recording Conference

TMRC 2005

August 15-17, 2005

Stanford University, Stanford, California, USA

TMRC 2005 will focus on **magnetic recording heads and systems**. About thirty-six 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:

- Advanced Read Heads (CPP and CIP)
- Perpendicular Recording Technology
- Slider Fabrication Technology
- Head Disk Interface and Head Reliability
- Recording System and Channel Integration
- Preamps, Interconnects, Microactuation

Nominations for speakers should be directed to the Program Chairs, preferably by e-mail, before February 19, 2005. Please contact Dr. Hasegawa for heads, and Dr. Barndt 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 Posters Chair by July 15, 2005 for selection purposes. The full program booklet of TMRC 2005 will be available in May 2005.

Conference Chairman Dr. Harry Gill

Harry.gill@htihachigst.com

Program Co-chairmen

Dr. Naoya Hasegawa

hasegawa@alps.co.jp,

Dr. Rick Barndt

Rick_barndt@Maxtor.com

Local Chairman Prof. Shan Wang

sxwang@ee.stanford.edu

Publications Chairman Dr. Sining Mao

Sining.mao@seagate.com

Publicity Chairman Dr. Moris Dovek

Moris.dovek@headway.com

Treasurer Dr. Joost Mortelmans

mortelma@stanfordalumni.org

Poster Chairman Dr. Sharat Batra

sharat_batra@seagate.com

Current information on TMRC 2005 can be found at

<http://tmrc.nanointernational.org>

Conference announcement 4



International Symposium on Physics of Magnetic Materials 2005

14th September ~ 16th September, 2005
 Grand Copthorne Waterfront Hotel, Singapore
 Hosted by Data Storage Institute, Singapore

The 6th International Symposium on Physics of Magnetic Materials 2005 (ISPMM 2005) will be held at the Grand Copthorne Waterfront Hotel, Singapore, from September 14 to September 16, 2005. The ISPMM 2005 is a forum where scientists and engineers can discuss new developments in the field of physics and applications of magnetic materials. Selected presented papers will be published in the Journal of Magnetism and Magnetic Materials.

Topics of the Symposium

A. Magnetic Recording Materials, Physics & Devices

- AA. High Bs Materials and Write Head Technology
- AB. GMR Sensors and Read Head Technology
- AC. Recording Media and Materials (including MO media)
- AD. Magnetic Nano-particles and Nano-structured Films
- AE. Head Disk Interface and Tribology
- AF. Advanced Storage Systems, Recording Physics and Modeling

B. Spintronics

- BA. Magnetic Semiconductors
- BB. Half Metal and CMR Materials
- BC. Spin-dependent Transport
- BD. Spintronic Devices and Physics

C. Biomagnetics

- CA. Nano-particles for Cell Separation, Bio-detection, etc
- CB. Magnetic Sensors for Bio-applications, DNA Labeling, etc
- CC. Magnetic Drug Delivery
- CD. Magnetic Bio-imaging

D. Hard/Soft Magnets and Applications

- DA. Nano-structured Hard Magnets
- DB. Hard Magnet Processing and Applications
- DC. Magnetic Oxide and Applications
- DD. Amorphous/Nano-crystalline Magnetic Materials

Important Dates of ISPMM 2005

Digest submission opens	26 th Apr. 2005
Digest submission deadline	20 th May 2005
Full paper submission deadline	10 th Aug. 2005
Advance registration deadline	20 th Aug. 2005
Conference date	14 th ~16 th Sept. 2005

For more details of the ISPMM 2005, please visit the conference website:

<http://ispmm2005.dsi.a-star.edu.sg/>

<http://ispmm2005.dsi.a-star.edu.sg/>

Conference announcement 5

ISMST-8
8th International Symposium on Magnetic Suspension Technology
September 26 - 28, 2005,
Dresden, Germany

Dear Colleague,

we are pleased to announce the **8th International Symposium on Magnetic Suspension Technology, ISMST-8**. The symposium will be held from September 26 - 28, 2005 in Dresden, Germany. It will bring together experts from all over the world to present and to discuss the latest developments in magnetic suspension technology. The ISMST-8 will cover all areas of magnetic suspension by actively controlled and superconducting, passive magnetic bearings including the related magnetic and superconducting materials. The topics addressed are such promising applications as flywheels for the energy storage and magnetically levitated transportations systems, but include also other applications of magnetic bearings, e.g. in electric machines, control and guiding systems as well as modelling.

Important dates to remember:

- February 14, 2005 : On-line Abstract Submission Open
- March 1, 2005 : Deadline for On-line Abstract Submission
- May 31, 2005: Deadline for Advanced Registration

We are looking forward to hosting you in Dresden at ISMST-8.

Günter Fuchs (Conference co-chairman)

Ludwig Schultz (Conference co-chairman)

ISMST-8 secretariat

IFW Dresden

P.O. Box 270116

D-01171 Dresden, Germany

Web site: <http://www.ifw-dresden.de/imw/ISMST8>.

Phone: +49 351 4659 405

Fax: +49 351 4659 541

E-mail: ISMST8@ifw-dresden.de

Conference announcement 6



50th ANNUAL CONFERENCE ON MAGNETISM AND MAGNETIC MATERIALS

San Jose, California ● October 30-November 3, 2005

FIRST CALL FOR PAPERS

Abstract Deadline: June 24, 2005

The 50th Annual Conference on Magnetism and Magnetic Materials will be held at The Fairmont San Jose from Sunday, October 30 through Thursday, November 3, 2005. Members of the international scientific and engineering communities interested in recent developments in magnetism and associated technologies are invited to attend the Conference and contribute to its technical sessions.

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

PROGRAM: The program will consist of invited and contributed papers falling broadly within the scope of the categories listed at the end of this Call for Papers. Some of the invited papers will be tutorial in nature, while others will review recent work in specialized fields. The Program Committee is chaired by Juan Fernandez-de-Castro and Daniel Reich.

NOMINATIONS FOR SYMPOSIA AND INVITED PAPERS: Nominations for Symposia and Invited Presentations will be accepted via the web at the following URL:

<http://www.ssel.montana.edu/MMM/>

Instructions for submitting nominations may be found at this site.

- **DEADLINE** for nominations: **April 25, 2005.**

ABSTRACT SUBMISSION REQUIREMENTS:

- Abstracts must be submitted prior to the **June 24, 2005, deadline**. This deadline will be strictly observed.
- The presenting author *must* be a paid registrant. The Conference does not provide support for any contributed papers.
- All abstracts must be submitted via the **WEB submission system ONLY**. Abstracts sent via e-mail, fax, or regular mail, will not be processed or acknowledged.
- Submit all abstracts electronically, using the link found at the MMM Home Page (<http://www.magnetism.org>). The link will be available starting **June 1, 2005**.

Further information at:

<http://www.magnetism.org>

Conference announcement 7



IEEE SENSORS 2005
The 4th IEEE Conference on Sensors



Hyatt Regency Irvine
Irvine, California
Oct. 31st - Nov. 3rd, 2005

Organized by the IEEE Sensors Council

General Chair

Andrei Shkel, University of California, Irvine, USA

The conference will be held at the Hyatt Regency Irvine, within 15 minutes of Disneyland, California Adventure, Knott's Berry Farm, South Coast Plaza Mall, Fashion Island, Newport Beach, Huntington Beach, Oak Creek and Pelican Hill Golf Courses, Edison Field (Anaheim Angels) and Arrowhead Pond (Anaheim Mighty Ducks).

Orange County Attractions: <http://www.visitorangecounty.net/attractions.html>

Abstract Submission Deadline April 20, 2005

Topics of Interest:

1. **Sensors Phenomena and Modeling** (theory, characterization, CAD modeling, and testing of sensors)
2. **Sensor and Actuator Systems** (sensor electronics, actuator systems, sensor-actuator systems, multiple-sensor systems, intelligent sensing, sensor arrays, "electronic nose" technology, sensor buses, sensor networks, voting systems, telemetering, internet-based and other remote data acquisition, and control of sensors)
3. **Chemical and Gas Sensors** (devices, materials, and technology)
4. **Biosensors** (sensor arrays, lab-on chip, online monitoring, process control, test kits, materials, and technology)
5. **Optical Sensors** (radiation sensors, optoelectronic/photonic sensors, and fibers)
6. **Mechanical sensors** (inertial, pressure, and tactile)
7. **Physical Sensors** (thermal, **magnetic**, and mass-sensitive devices)
8. **Applications** (automotive, medical, environmental monitoring, consumer, alarm and security, military, nautical, aeronautical and space sensor systems, robotics, and automation)

<http://ewh.ieee.org/tc/sensors/sensors2005/index.html>

Conference announcement 8



ICST 2005 is intended to provide a common forum for researchers, scientists, engineers and practitioners throughout the world to present their latest research findings, ideas, developments and applications in the area of sensing technology. ICST 2005 will include keynote addresses by eminent scientists as well as special, regular and poster sessions. All papers will be **peer** reviewed on the basis of a full length manuscript and acceptance will be based on quality, originality and relevance. The review process will be **double blind** and author details will not be divulged to the reviewers. Accepted papers will be published in the conference proceedings.

Topics will include, but are not limited to, the following:

- Vision Sensing
- Sensors Signal Processing
- Sensors and Actuators
- Sensors Phenomena and Modelling
- Sensors Characterization
- Smart Sensors and Sensor Fusion
- Electromagnetics Sensors
- Chemical and Gas Sensors
- Physical Sensors
- Electronic Nose Technology
- Biological Sensors
- Electro-optic Sensors and Systems
- Mechanical sensors (inertial, pressure, and tactile)
- Nano Sensors
- Acoustic, Noise and Vibration Sensors
- Wireless Sensors
- Optical Sensors (radiation sensors, optoelectronic/photonic sensors, and fibres)
- Lab-on chip
- Sensor Arrays
- Intelligent sensing
- Telemetry
- Online monitoring
- Applications of Sensors (automotive, medical, environmental monitoring, consumer, alarm and security, military, nautical, aeronautical and space sensor systems, robotics, and automation)
- Solid State Sensors
- Internet-based and other Remote Data Acquisition

Paper Submission

Authors are invited to submit the full manuscript (4 to 6 pages including references) of their technical paper, for oral or poster presentation, in **MS Word format** using web (<http://icst.massey.ac.nz/>)

For further details, please **contact**: Subhas Mukhopadhyay
S.C.Mukhopadhyay@massey.ac.nz

Conference announcement 9

Seventh Latin-American Workshop on Magnetism Magnetic Materials and their Applications (LAW3M05)

Reñaca (Chile) December 11-15, 2005

<http://www.law3m.cl>

Reñaca 2005

VII Latin American Workshop
on Magnetism, Magnetic Materials and Their Applications
Reñaca, Chile December 11-15, 2005

APS
American Physical Society

CEMEN

GECS

CONICYT

INICIATIVA CIENTIFICA MILLENNIO
• ICM •

Nucleo Milenio

SOCHIFI

UAPAP

<http://www.law3m.cl/>

law3m@ufro.cl

Description: Latin-American Workshops on Magnetism, Magnetic Materials and their Applications are held every two years in different Latin-American countries and open to participants from all over the world. Sessions include: invited talks, oral contributions, poster contributions, advanced topic discussions, round table on collaborations and others. Working language is English. Proceedings will be published as a special but consecutive number of Physica B.

Main topics:

Cooperative phenomena in magnetism
 Artificially structured materials
 Spintronics: spin injection and detection
 Magnetic nanostructures
 Transition metal oxides
 Magnetic multilayers
 Low-dimensional magnetism
 Spin glasses and frustrated systems
 Giant and colossal magnetoresistance
 Molecular and cluster magnetism
 Computer simulations of magnetic systems
 Applications and interdisciplinary topics

Submission of abstracts will be on-line in a format to be defined on May 31 2005. Each fully registered participant will be entitled to submit contributions according to the following rules: (1) There is no limitation in the number of contributions submitted as posters (Acceptance of each abstract is decided by the Organizing Committee). (2) Only one contribution can apply for consideration as an oral presentation (Acceptance is decided by the Organizing Committee). (3) Only one of the actually presented papers (oral poster) can be submitted for the Proceedings in Physica B, following peer review.

Deadlines:

31 July 2005	Abstracts, pre-registration and beginning of hotel reservation.
31 August 2005	Announcement of abstract acceptance
30 September 2005	Deadline for discount registration fee
31 October 2005	Full paper reception for the Proceedings (to be published in Physica B)
11 December 2005	Venue at hotel Conference Town, Reñaca and beginning of LAW3M-05 (www.ctown.cl) There is no deadline for hotel registration but it will be handled on the basis of "first come first served".

Registration:

Regular	US\$ 300.-
Discount fee	US\$ 250.- (if paid before September 30, 2005)
Student	US\$ 150.-

Magnetics Society Publication news

Members who would like to volunteer their services as technical reviewers may create an account on Manuscript Central, <http://transmag-ieee.manuscriptcentral.com/>. First check if you already have an account. If you do, you may "edit your information."

Society members with ideas for new books may contact:

John T. Scott,
Magnetics Society Book Publishing Liaison
john.t.scott@verizon.net

For **Classic Re-Issues**, the contact is

Stan Charap
charap@ece.cmu.edu

For **new books in data storage**, the contact is

Gordon F. Hughes
gfhughes@ucsd.edu

For **new books in other areas**, the contact is

John T. Scott
john.t.scott@verizon.net

IEEE XPLORE(R) RELEASE 2.0:

provides free abstract/citation records for guests and enhanced linking to complete abstract/citation records for IEEE members and subscribers, as well as:

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

In addition, through IEEE Xplore 2.0, subscribers to the IEEE Member Digital Library can now sort information in their personal file cabinets by publication name, primary author and original filing date.

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

All papers published in IEEE TRANSACTIONS ON MAGNETICS are available at IEEE Xplore.

Ron Goldfarb
Publications Chair
r.goldfarb@ieee.org

QUIZ – Solution

The equestrian statue of **Francesco Sforza** (the father of Ludovico “Moro” Sforza) is located in the courtyard of the Nagoya Convention Center, the **venue of INTERMAG 2005**.

Height 8.3m
Width 3.6m
Length 8.8m



Leonardo da Vinci, the grand master of the Italian Renaissance, was commanded by Ludovico Sforza of Milan to create the world's largest statue, a work which was to depict **General Francesco Sforza** mounted on horseback. By November of 1493, Leonardo had completed a clay model of the horse alone which measured 7.2 meters in height. Unfortunately, war interrupted his work at that point: the planned bronze casting was discontinued, and the clay model was destroyed.

The reconstruction of the "phantom statue" began with the construction of a two meter clay model, based upon the study by Prof. Tanaka of the Madrid manuscripts, discovered in 1967, as well as a number of preparatory sketches. This model was enlarged using computer technology, and the final version of the statue was molded in plastic (FRP), as the legs would not be able to support the weight of a bronze casting. It is the only of its kind in the world, brought into existence at last by Japanese research and technology.

Supervising/planning	Hidemichi Tanaka (Tohoku University)
Model creation	Hideo Asou, Masato Kageyama, Akio Ishizuka (Tokyo University of Fine Arts and Music)
Donation	Tokai Bank Ltd.

The details of the fascinating renaissance story of this statue can be found at <http://www.lairweb.org.nz/leonardo/equestrian.html>