



# IEEE Magnetics Society NEWSLETTER

Volume 48, Issue 3

July 2008

Pallavi Dhagat and Albrecht Jander, Editors

## Magnetic Bits from Carl

by Carl Patton, Society President

Welcome to the July 2008 issue of the IEEE Magnetics Society Newsletter. For me, April, May, and June have passed in a flash. This is also a very busy summer of activity for the Society. The Madrid Intermag at the beginning of May was a tremendous success. Kudos to General Co-Chairs Manuel Vázquez and Ron Indeck and their international team of conference organizers for an outstanding job. The Nobel Celebration/Reception and the Awards/Plenary Session were events to remember. At the Plenary Session, Ludwig Schultz and colleagues from IFW Dresden gave an exciting presentation on levitated superconducting trains with very impressive demonstrations of small model trains whizzing around horizontal as well as vertical tracks. This was one of the best plenary presentations I have ever seen at an Intermag Conference. June found me, eight other members of the AdCom, and our Past President and current Division IV Director



*continued on page 10*

## Candidate Slate Selected

by Ron Indeck, Nominations Committee Chair

The Magnetics Society Nominations Committee is pleased to announce the slate of candidates for the society-wide 2008 AdCom election to fill the eight 2008 AdCom openings. A terrific group of nominations was received in response to the Call for



Nominations that resulted in the slate below. Members should be receiving the full ballot in the mail by the end of August. Ballots are due by October 15, 2008 and results should be announced by the end of October. We appreciate the work of all the nominators and the candidates!

- |  |  |
|--|--|
| <input type="checkbox"/> Carl Che        | <input type="checkbox"/> Thomas Liew       |
| <input type="checkbox"/> Mairbek Chshiev | <input type="checkbox"/> Sara Majetich*    |
| <input type="checkbox"/> Richard Dee     | <input type="checkbox"/> Kevin O'Grady     |
| <input type="checkbox"/> Josef Fidler*   | <input type="checkbox"/> Massimo Pasquale* |
| <input type="checkbox"/> Peter Fischer   | <input type="checkbox"/> Andrei Slavin     |
| <input type="checkbox"/> Gary Friedman   | <input type="checkbox"/> John Snyder       |
| <input type="checkbox"/> Vince Harris    | <input type="checkbox"/> Hari Srikanth     |
| <input type="checkbox"/> Young Kim       | <input type="checkbox"/> Giora Tarnopolsky |

\*Denotes candidate for re-election. ❖

## INSIDE THIS ISSUE

1. Magnetic Bits from Carl
2. Candidates Slate Selected
3. INTERMAG Madrid Photo Diary
4. Participation at Intermag: Global Perspective
5. Intermag '08 Best Student Paper Awards
6. Students' Reflections on Intermag
7. Nordic Spinning
8. Membership Adding Up
9. First Summer School
10. Conference Calendar
11. Five Year Review
12. About the Newsletter

**53<sup>rd</sup> Annual Conference on  
Magnetism and Magnetic Materials**  
November 10 – 14, 2008 • Austin Texas



The 53rd Magnetism and Magnetic Materials Conference will be held at the Hilton Austin, located near the State Capitol in Austin, Texas, from Monday, November 10, through Friday, November 14, 2008. 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.

More information can be found at the conference web site:

[www.magnetism.org](http://www.magnetism.org)

# INTERMAG, Madrid, Photo Diary



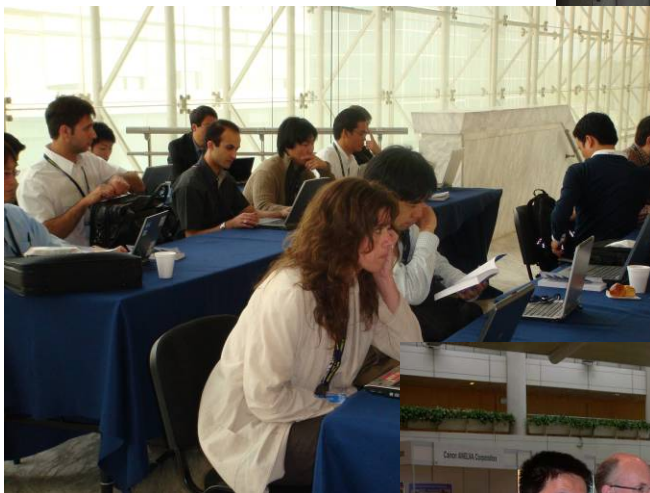
Registration in the Grand Foyer



Peter Grünberg, Manuel Vázquez



Madrid



WiFi Corner



Albert Fert

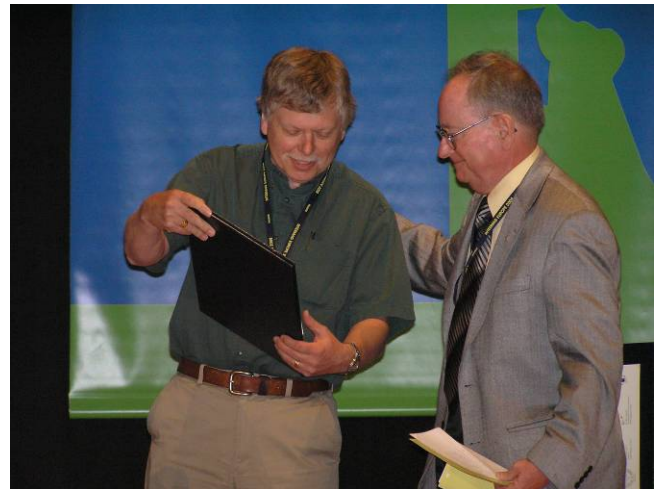
Bierstube



Levitated trains



Dr. Jack Judy received the 2008 Magnetics Society Achievement Award from Dr. Carl Patton, president of the Society.



Dr. Richard Dee was honored for his many years of service to the Magnetics Society as Chapters Chair and Membership Chair by Dr. Carl Patton, Society President.



Dr. James Daughton, Dr. Stuart Parkin, and Dr. Saied Tehrani received the IEEE Daniel E. Noble award "for fundamental contributions to the development of magnetoresistive devices for non-volatile, high density, random access memory".



Magnetics Society members elected to the grade of IEEE Fellow were recognized for their accomplishments. Shown left to right are: Dr. Hiroaki Matsuoka, Dr. Thomas Howell, Dr. Vincent Harris, Dr. Jian-Gang Zhu, Dr. Roy Chantrell, and Dr. Lalita Udpa. Not shown are Dr. John Wikswu and Dr. Jinliang He.



Dr. Stan Charap (Professor Emeritus, Carnegie Mellon University), received the 2008 Reynold B. Johnson Information Storage Device Technology Award "for quantitative prediction of the superparamagnetic limit in magnetic recording." The award was presented by Dr. Ed Della Torre, Vice President of the IEEE and Division IV director.



2007 Magnetics Society Distinguished Lecturers were thanked for the 139 lectures they delivered throughout the world. Shown left to right are Dr. Sara Majetich, Dr. Vincent Harris, Dr. Takao Suzuki, and the Distinguished Lecturer coordinator, Dr. Roy Chantrell. Not shown is Dr. Mathias Bode.

# Participation at InterMag: A Global Perspective

by Manuel Vázquez, General Co-Chair, InterMag '08

The objectives of a scientific conference include publicizing results and gaining information about latest achievements and emerging areas to evaluate new trends in research. A conference offers good opportunities to establish new contacts and, often, it represents the beginning of new common projects and long term collaborations. In addition, interesting information can be gained about the relative participation from different areas of the world just by having a careful look at the geographical origin of delegates to the conference. The organisation of a big scientific conference, as the InterMag, gives one an opportunity to extract that information.

The participation during the InterMag in Madrid, Spain, as measured by the number of delegates and digests accepted for presentation has been really outstanding. It was also a unique InterMag due to the participation of the two 2007 Nobel Laureates in Physics, Albert Fert and Peter Grünberg.

As previous organisers have done, I thought it was a good opportunity to extract a few statistics about the participation and its geographical distribution. In the following graphs, I show some interesting statistics for InterMag conferences held over the last 25 years.

Figure 1 shows the evolution of attendance over the years. As observed, there is a nearly continuous increase in the number of attendees. Two peaks are detected for InterMag in Tokyo '87 and San Francisco '98, but the author has not been able to further confirm these two figures which are not reflected in numbers of presented works. Typically,

attendance in the Joint MMM/InterMag conferences is usually higher but for the case of last InterMag in Madrid. A similar trend is also observed for the number of papers presented at each InterMag (including invited symposia, oral and poster). Again, number of works accepted for presentation is larger for Joint MMM/InterMag conferences. More works are generally accepted for presentation in InterMags held outside of the USA. Seemingly, it can be ascribed to a larger number of attendees (or maybe vice versa), although fluctuations (typically from 22 to 33%) in the rate of acceptance to received abstracts/digests may alter such correlation.

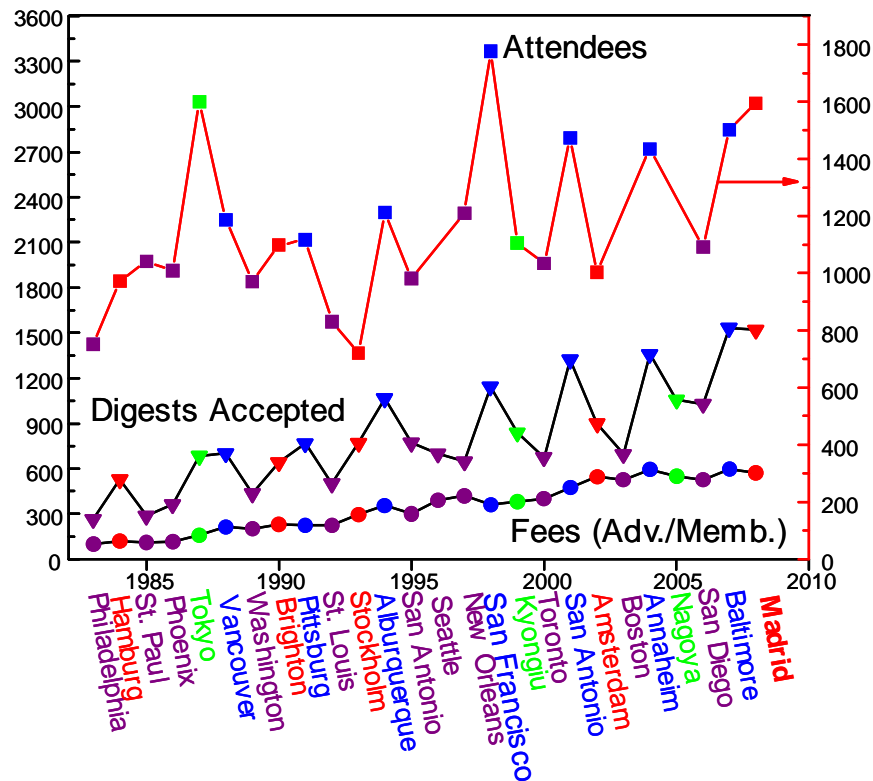


Figure 1.- Evolution of number of attendees, digests accepted for presentation, and registration fees for the last 25 InterMag conferences. Purple colour denotes US InterMag conferences, blue is for Joint MMM/InterMag conferences, green for InterMag Asia, and red for InterMag Europe.

Figure 1 also shows the evolution of advance-registration fees for IEEE Magnetics Society Members. Fees increase nearly monotonically, almost linearly with a rate of around 20-25 \$/year.

The distribution of works presented at the InterMag by countries is given in Figure 2 for the last 4 InterMags. These InterMags have been selected as an example, being the most recent conferences, and also because they represent the 4 different typical cases: USA

InterMag in San Diego, a "Joint" conference (Baltimore), and two InterMags outside the US, in Nagoya and Madrid. Let us briefly describe the differences in the distributions. At first glance, one can detect that the country where InterMag is held largely determines the geographical distribution of works presented (note the outstanding percentages of Japan and Spain in InterMag '05 and '08, respectively). In addition, a general first conclusion is that participation from Asian countries is quite large in all the four cases, and particularly that of Japan. It should be mentioned that participation from other Asian countries is also quite significant. American participation is particularly large for the case of the Joint Conferences; these attract the participation of groups different from those only attending InterMag. Finally,

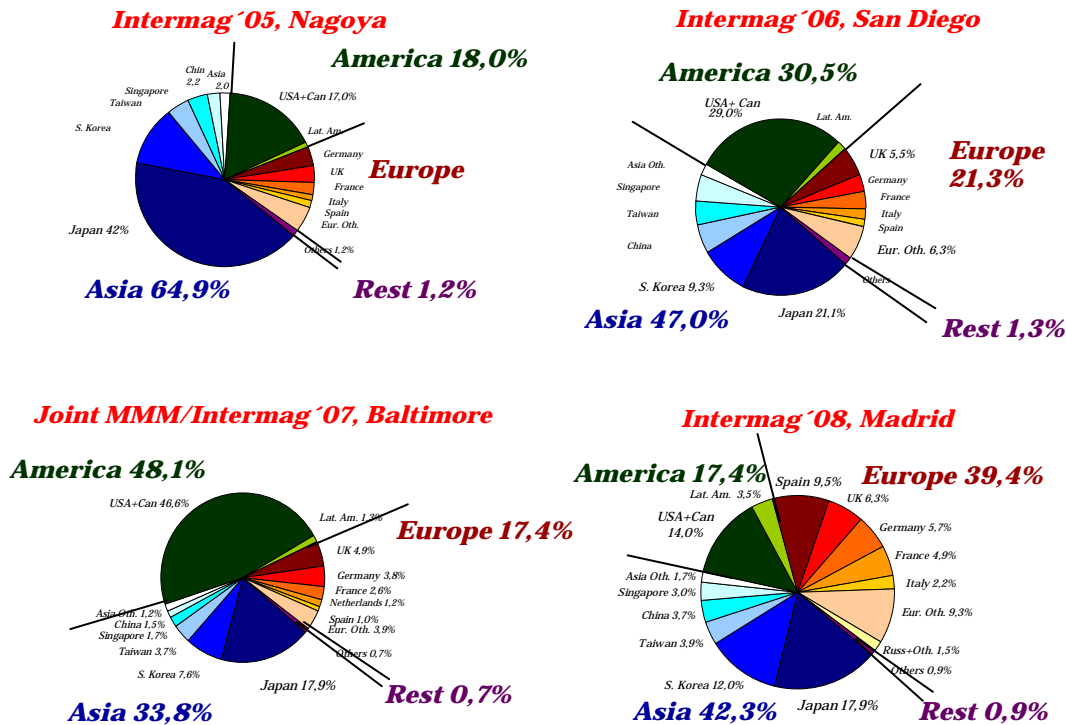


Figure 2. The global distribution of accepted works in the last four Intermag conferences.

European percentage is also significantly larger for the last Intermag'08 held in Madrid. It is my pleasure to highlight the outstanding Spanish participation.

A final set of data is shown in Figure 3, where the evolution of the relative participation of a number of significant countries from different areas in the world can be seen. Data are presented only for comparable Intermag conferences held in the USA. As observed, the number of US delegates is always the largest although its relative percentage decreases continuously in spite of the increase of its absolute number. The very noticeable participation of Japan remains practically constant, as well as that of the UK. Participation of south east Asian countries, particularly China and Taiwan is steadily increasing. Finally, participation by Brazil, selected as the Latin American country with significant potential in magnetism, is still not large enough.

There is still room for additional data collection and analysis. One should keep in mind that the given distributions do not represent a direct relationship with quality or impact of presented works, although some kind of correlation seems reasonable. The author leaves further interpretation of data for a more detailed analysis, and hopes that this statistical study can be of some interest for IEEE Magnetic Society members ❖

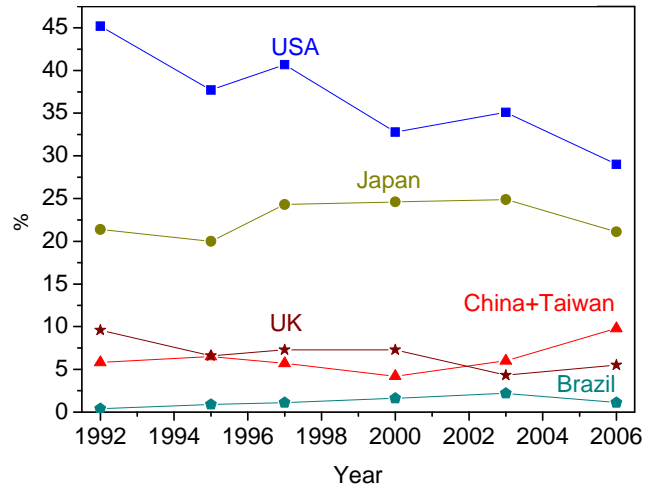


Figure 3. The evolution of relative participation (digests accepted) by selected countries.

Note.- The author thanks Diane Melton from Courtesy Associates who conveyed most data in Figure 1 from previous Intermag organisers. Completion of data in Figure 1 and those in Figure 2 and 3 have been collected by the author from Intermag booklets and digests book. He is also thankful to his coworker Karla J. Merazzo, for support in data preparation.

## Intermag 2008 Best Student Paper Finalists

Pedram Khalil Amiri  
Delft University

Integrated on chip microstrip lines for Co-Ta-Zr magnetic films.



Benoit Georges  
CNRS/Thales

Phase locking of a spin transfer oscillator to an external microwave current.

Takayushi Ishikawa  
Hokkaido University

Spin dependent tunneling in fully epitaxial  $\text{Co}_2\text{MnSi}/\text{MgO}/\text{Co}_2\text{MnSi}$  tunnel junctions.



Karen Livesey  
U. Western Australia

For contributions to signal processing for digital magnetic recording

Hiroyuki Tomita  
Osaka University

Real time measurement of spin transfer switching in  $\text{CoFeB}/\text{MgO}/\text{CoFeB}$  MTJ



## Intermag 2008 Student Reflections

Recipients of student travel awards are asked to submit a brief account of their experience. Here is a selection of their impressions:

The attendance at the InterMag Europe 2008 Conference was truly one of the most remarkable experiences of my academic career. The diversity and quality of various technical sessions coupled with the location of the conference in the vibrant city of Madrid, Spain was further highlighted with a sense of accomplishment and pride shared by all attendees in light of the 2007 Nobel Prize in Physics awarded to Professors Grünberg and Fert for the discovery of Giant Magnetoresistance (GMR).

-- Anton L. Geiler, Northeastern University

The plenary lecture of Prof. Schulz ("Riding on Magnetic Fields") on the recent developments in magnetic levitation included nice videos and demonstrations of future rail facilities which amused the audience and set it thinking of how it feels to be inside of such a "flying" train.

-- Evgeniya Tereshina, Charles University, Prague

InterMag 2008 was my first big international conference and was a great opportunity to survey the work going on all over the world, to meet and discuss with some interesting people, and to present my work for the first time in such a large forum. Madrid was also a lovely city to visit and my trip was extremely enjoyable.

-- Karen Livesey, University of Western Australia

I would like to profusely thank the Magnetism Society for the travel grant, without which this enriching experience would not have been possible. It was very enlightening to see what the scientists from worldwide are doing and meet the pioneers in field of magnetism. There was so much to learn and gain!

-- Megha Chadha, National University of Singapore

I personally appreciated the numerous invited talks giving either an overview on special topics (e.g. Multiferroics, GMR) or a recent insight into the latest applied magnetism. In this context, I especially enjoyed the highlighted GMR Nobel Prize evening preceded by the GMR symposium introduced by a superior talk of Sara Thompson and culminating in the Nobel Prize Laureate talks of Peter Grünberg and a still highly committed Albert Fert.

-- Christine Hamann, IFW, Dresden

I was simply amazed by the quality and the great interest of many of the works that has been presented. To be honest I just regret that I didn't take more time to visit the city, since there was always an interesting session going on.

-- Vincent Vlaminck, IPCMS, Strasbourg

# Nordic Spinning

by Bob McMichael, Chapters Chair

Here's what happens when a chapter thinks BIG. Johan Åkerman reports from the Sweden chapter:

"NordicSpin'08, the first Nordic workshop on spintronics and nanomagnetism, was held at Gimo Castle north of Stockholm, Sweden, on April 22-24, 2008. The Workshop celebrated both the 2007 Nobel Prize in Physics as well as the formation of the new IEEE Magnetics Joint Nordic Chapter. A total of 60 attendees listened to 32 invited talks, seven of which given by the Keynote Speakers Albert Fert, Peter Grünberg, Ivan Schuller, Roland Wiesendanger, Shinji Yuasa, Gernot Güntherodt, and Mark Reed.

"On the second evening, the attendees were treated to a highly appreciated "reenactment" of the 2007 Nobel

Banquet, with an identical menu and the actual Nobel Banquet tableware, as well as entertainment from the Stockholm Academic Male Chorus and a speech by Nobel Laureate Peter Grünberg.

"The workshop generated many new IEEE Magnetics members and a renewed local interest in the Joint Nordic Chapter. The previous Chair of the Swedish Chapter (Torbjörn Lembke), the new Chair (Johan Åkerman, also workshop organizer) and the new Vice Chair (Martti Paju) were all present at the workshop."

The Magnetics Society is ready to support the activities of its chapters around the globe. Please contact me at [bob.mcmichael@ieee.org](mailto:bob.mcmichael@ieee.org) about chapter formation in your area, or visit the IEEE new chapters website <http://www.ieee.org/portal/pages/tab/cha/newchap.html> ❖



**NordicSpin'08 Participants. Five keynote speakers can be seen in the first row: Gernot Güntherodt, Albert Fert, Ivan Schuller, Shinji Yuasa, Roland Wiesendanger and Peter Grünberg.**

# Members Adding Up

by RyusukeHasegawa, Membership Chair

New statistics on the IEEE membership indicate that in the 2006-2007 period, total membership increased by 1.8 %, whereas Magnetics Society membership increased by about 5 %. Most of the membership gain took place outside the U.S. In light of this, our membership desk activity at the last InterMag Conference in Madrid was an important one. Staffed by enthusiastic student volunteers, we added 69 new members. This committee would like to thank Tom Deakin (UK) and Karla Merazzo (Spain) who helped us realize this goal. As of May 2008, we have a total of 3,134 members.

Increasing the membership is important for the health of our society. However, more important is the quality of work we provide to our technical community. Let's continue working together and helping each other in the advancement of magnetics. In this respect, participation of our society in the GOLD (Graduate Of the Last Decade) Society activities through newly appointed Administration Committee member, John Nibarger, will help student members to achieve higher grade memberships. This is very important as student members of today will be tomorrow's leaders in advancing magnetics❖

# First Summer School

by J.W. Harrell, Education Committee Chair

The first annual IEEE Magnetics Summer School will be held August 3 through 8 at the University of Colorado at Colorado Springs. The School will be attended by about 75 graduate students from around the world. About 45% of the students will come from universities outside of the United States including England, China, Australia, Japan, Korea, Russia, and Germany.

The students will attend a week-long series of lectures covering both the fundamentals of magnetism and important topics within magnetism such as nanomagnetism, magnetotransport, spin dynamics, micromagnetics, and magnetic recording. There will be a total of about 10 different speakers including J.W. Harrell and Bill Butler from the University of Alabama, Claus Schneider from the IFF Research Center in Juelich, Martha Pardavi-Horvath from George Washington University, and Zbigniew Celinski and Bob Camley from the University of Colorado at Colorado Springs.

In addition to the lectures, students will also participate in the School by presenting posters of their own research. The students at the School are supported by the IEEE Magnetics Society and receive free room and board and significant travel support. Both the student and his or her faculty sponsor must be members of the IEEE Magnetics Society in order to qualify for the School. ❖

## 2008 CONFERENCE CALENDAR

FIRST IEEE MAGNETICS SOCIETY SUMMER SCHOOL

August 3-8, 2008, Colorado Springs, CO, USA

<http://www.ieeemagnetics.org>

8<sup>TH</sup> IEEE CONFERENCE ON NANOTECHNOLOGY

August 18-21, 2008, Arlington, TX, USA

<http://www.ieee.org/NANO2008>

SUMMER SCHOOL: NANOMAGNETISM AND SPINTRONICS

September 5-13, 2008, Pargue, Czech Republic

<http://cmd.karlov.mff.cuni.cz/Spintronics-2008/>

JOINT EUROPEAN MAGNETICS SYMPOSIA (JEMS08)

September 14-19, 2008, Dublin, Ireland

<http://www.jems08.ie/>

10<sup>TH</sup> INTERNATIONAL CONFERENCE ON FERRITES (ICF10)

October 10-14, 2008, Chengdu, China

<http://www.cnmagnet.net>

53<sup>RD</sup> CONFERENCE ON MAGNETISM AND MAGNETIC MATERIALS (MMM 2008)

November 10-14, 2008, Austin, TX, USA

<http://www.magnetism.org>

**2009 INTERMAG**

All members of the international scientific community interested in new developments in magnetism and associated technologies are invited to attend and submit their latest findings to the

**IEEE International Conference in Magnetics**

Sacramento, CA  
May 8-12, 2009

Digest Deadline  
January 4, 2009

For further information please go on the conference website at:  
[www.intermagconference.com/intermag2009](http://www.intermagconference.com/intermag2009)  
or contact [2009intermag@courtesyassoc.com](mailto:2009intermag@courtesyassoc.com)



# Five Year Review

by Carl Patton, Society President

The Magnetics Society five-year review before the Society Review Committee (SRC) held on June 19 at the Technical Activities Board (TAB) meeting series in Denver went extremely well. Randy Victora (President Elect), Takao Suzuki (Secretary/Treasurer), Doug Lavers (CEC Chair), Ron Goldfarb (Pub. Chair), Bob McMichael (Chapters Chair), John Nibarger (GOLD representative), Bruce Gurney (Honors and Awards Chair), and Liesl Folks (Finance Chair), joined me at the two hour meeting to represent the Society in force and in great style. Our well prepared 44 page report, made possible by the concerted efforts of the above individuals as well as Kevin O'Grady (Past President), Diane Melton (Executive Director), Ed Della Torre (Division IV Director and Past President), Souk Hasegawa (Membership Chair), Bruce Gurney (Honors and Awards Chair), J. W. Harrell (Education Committee Chair), Roy Chantrell (Distinguished Lecturer Coordinator), and Can Korman (Publicity Chair), served us well. Once we receive the formal SRC response to the report, the full document will be posted on the Society web site.

Even though the SRC people knew we were showing up in force, I don't think they realized the impact of such a large (and expert) presence. They were all seated around the table with empty places in between when we filed in. We filled in the empty chairs and had to pull in extra chairs. We essentially had them surrounded on all sides! As the review proceeded, we worked as a real team. As the SRC people fired questions at us, our different representatives (not me, usually) provided direct, succinct, and perceptive answers. Responses came first from one person and then from another. It was a real barrage. This collective and impressive set of responses from each of us in turn occurred, moreover, without any real planning or coordination. It just happened. Our collective and individual wisdom and experience in connection with essentially all of the affairs of the Society were in evidence from start to finish. I have sat through several SRC reviews over the past two years (getting ready for this one!) and I have never seen a maestro performance like this. It was great! It also helped that there were no formal presentations allowed. Ellen Yoffa, the new SRC Chair, wanted no presentations. That was good. We just let our report and our eloquent representatives speak for the Society. It worked well.

Some specifics: ► The SRC recommended that we update our Field of Interest (FOI). This is probably a good idea, as the FOI was last updated in 1980. It is a bit of work, as all the other Societies and Councils get to critique any new FOI for infringement on their own statements. This sometimes leads to a bit of "turf" bickering. ► There was a little bit of nitpicking over wording in our Constitution and Bylaws, but this seems to be mainly because of a lack of understanding of

the documents. ► We got a bit of heat because our Executive Director is an external contractor and not in the direct employ of the IEEE. They asked "why." I think I replied that with our current arrangement, the Society gets ten times the work (and very good work, I might add) at one tenth the cost (and kudos to Diane Melton for her dedicated service to the Society, far beyond the call of duty, for many years). ► When the SRC commented that all Societies complain about TAB and asked "How can we (e.g., TAB) help?", we gave them a lot of positive feedback: (a) Better corporate memory for their usually short lived financial people. (b) Better appreciation of ongoing conference operations, especially for our Joint Intermag/MMM Conference. (c) Better understanding of monetary issues for foreign conferences to help us from losing money over exchange rate issues, etc. (d) Need for a centralized data base on conferences to minimize redundant and onerous reporting requirements (much of which involves data the IEEE already has). ► The matter of our published papers related to conferences continues to raise the ire of the IEEE. As many times as we tell them, it seems to be nearly impossible to get the point across that the Society does not publish "conference proceedings." Rather, we publish peer reviewed papers in accord with our usual (high) standards that are related to our conferences and we collect them in a single issue. ► The SRC was highly impressed with our average Transactions time from submit to first decision (3

months), time to final decision (4 1/2 months), and to publication (8 1/2 months).

► They were impressed by our membership holding steady in the face of a declining IEEE membership. Factors include active chapters, vigorous international outreach, and an

incredibly active Distinguished Lecture (DL) program. We pointed out that our DL's are also active in promoting new chapters. ► The SRC was very impressed that we have a GOLD (Graduates of the Last Decade) representative on the AdCom and that this person was one of our spokespersons at this review. ► SRC was very impressed with our chapters activity. We pointed out that the Regional Activity Board (RAB), now called "MGA" for Membership and Global Activities Board, generally puts up obstacles to effective chapter operations, and the SRC seemed very surprised! ► We were a bit surprised ourselves with the SRC commented that we seemed to be a little short on awards. Bruce Gurney outlined some plans for new awards and expansions of current awards. One proposal before the AdCom is the establishment of an endowment under the IEEE Foundation to provide long term support for our awards. ► The SRC gave us kudos for our excellent financial management (and these go squarely to Liesl Folks).

In short, a good time was had by all. All of these good words are due to the efforts of all of you, the membership, and the bevy of volunteers that are doing dedicated and committed work for the Society and the magnetics community as a whole. My personal thanks to all of you for helping to make our society a vital and critical voice for magnetics both within the IEEE and the global technical community❖

## Comments from Ellen Yoffa, SRC Chair:

*"Very dedicated, passionate set of volunteers."*

*"You know your stuff."*

*"Wish you could help us capture that for other societies and TAB."*

# Magnetic Bits

(continued from page 1)

Ed Della Torre, at the IEEE Technical Activities Board (TAB) meeting series in Denver for the Five Year Society Review (see article on page 9). Ron Goldfarb, Publications Chair, also did the Five Year Publications Review for the Society at the same meeting series. Ron will provide a report on the Review for the next issue of the Newsletter. The first annual IEEE Magnetics Society Summer School, 3 - 8 August 2008 at the University of Colorado at Colorado Springs is about to start. Education Committee Chair J.W. Harrell and local organizers Zbigniew Celinski and Bob Camley have done a tremendous job in organizing this first school sponsored by the Society. See separate article in this issue. Planning is already underway for next summer's school, to be held in China.

**AdCom elections.** Nominations Committee Chair Ron Indeck and his committee comprised of Ching-Ray Chang, John Chapman, Ron Goldfarb, Sara Majetich, Hiroaki Muraoka, Manuel Vázquez, and Roger Wood, received a good response for their call for nominations of candidates for consideration for the ballot. They have assembled a very good slate that has just been approved by the AdCom. The ballots will go out to the membership by mail in mid-August. All votes must be in by 15 October. Note that this is our second Society wide AdCom election.

**Please vote!** ❖

Best wishes,  
Carl Patton, President  
patton@lamar.colostate.edu

## About the Newsletter

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

The Newsletter is published in January, April, July and October electronically on the Magnetics Society webpage, <http://www.ieeemagnetics.org/>

Submission deadlines are January 1, April 1, July 1, and October 1 respectively. Please send articles, letters and other contributions to the editors:

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