

Nuclear & Plasma Sciences

Number 2 • June 2006

SOCIETY NEWS

CONFERENCES

NUCLEAR and SPACE RADIATION EFFECTS CONFERENCE

NSREC 2006

Ponte Vedra Beach, Florida

July 17-21, 2006

The 2006 IEEE Nuclear and Space Radiation Effects Conference will be held July 17-21, 2006 in Ponte Vedra Beach, Florida, at the Sawgrass Marriott Resort and Spa. The conference features a Technical Program consisting of nine sessions of contributed papers that describe the latest observations and research results in radiation effects, an up-to-date Short Course offered on July 17, a Radiation Effects Data Workshop, and an Industrial Exhibit. The Technical Program includes both oral and poster sessions. Janet Barth, NASA Goddard, is General Chair.

The conference hotel is located at Ponte Vedra Beach, Florida, which is on the Atlantic coast between Jacksonville and St. Augustine. A complete technical and social program is being planned to maximize opportunities for information exchange and networking in the area of radiation effects on microelectronic and photonic devices, circuits, and systems. Supporters of the conference include the



NSREC 2006
Ponte Vedra Beach

Defense Threat Reduction Agency, Sandia National Laboratories, Air Force Research Laboratory, the NASA Electronic Parts and Packaging Program, NASA Living With a Star Program, and the Jet Propulsion Laboratory. Additional information on the conference is available on the Web at <http://www.nsrec.com>.

TECHNICAL PROGRAM

The Technical Program Chairman, Gary Lum, Lockheed Martin, and his program committee, have assembled an excellent set of contributed papers that are arranged into nine sessions of oral and poster papers, and a Radiation Effects Data Workshop.

The Workshop consists of papers emphasizing radiation effects data on electronic devices and systems and descriptions of new simulation and radiation test facilities.

In addition, there are three outstanding invited talks of general interest to both conference attendees

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Janet Barth
General Chair



Gary Lum
Technical Program
Chair



Robert Reed
Short Course Chair



Nick van Vonno
Local Arrangements
chair

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Publicity releases for forthcoming meetings, items of interest from local chapters, committee reports, announcements, awards, or other materials requiring society publicity or relevant to NPSS should be submitted to the Newsletter Editor by July 1, 2006.

CONTRIBUTED ARTICLES

News articles are actively solicited from contributing editors, particularly related to important R&D activities, significant industrial applications, early reports on technical breakthroughs, accomplishments at the big laboratories and similar subjects.

The various Transactions, of course, deal with formal treatment in depth of technical subjects. News articles should have an element of general interest or contribute to a general understanding of technical problems or fields of technical interest or could be assessments of important ongoing technical endeavors.

Advice on possible authors or offers of such articles are invited by the editor.

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and their companions.

Attendees will have the opportunity to participate in a one-day Short Course on Monday, July 17 entitled *Modeling the Space Radiation Environment and Effects on Microelectronic Devices and Circuits*. Chaired by Robert Reed, Vanderbilt University, this one-day Short Course will provide a detailed discussion of the methods used by radiation effects engineers to model the space radiation environment and some of its effects on modern devices and circuits. The remarkable advances in modern device technology offer specific challenges for high-fidelity radiation effects modeling. These include the need for improved modeling of the variability of the space radiation environment, the transport of the environment through spacecraft structures and chip packaging, and detailed single event effects modeling at the device and circuit level.

Short Course attendees will also receive a special CD-ROM containing the complete notes from all previous NSREC Short Courses (1980-2006). The notes will be electronically searchable and will include all figures and text.

INDUSTRIAL EXHIBITS

This year's Industrial Exhibit will feature the leading suppliers of radiation-hardened products, related materials, and services. The Industrial Exhibit permits one-on-one discussions between exhibitors and conference attendees on the latest in radiation-hardened electronic devices, radiation analysis and test services, and radiation test facilities and test equipment. If you would like to participate in the exhibit, or need more information on the exhibit, please visit www.nsrec.com or contact Richard Elmhurst, the 2006 NSREC Industrial Exhibits Chairman.

3-D Plus - USA

Actel
Aeroflex Colorado Springs
ATMEL
ATK Mission Research
BAE Systems
Boeing Phantom Works/SSED
Cyclotron Institute, Texas A&M
Crane Aerospace & Electronics
DMEA
Honeywell
ICS Radiation Technologies
Idaho Accelerator Center
International Rectifier

Intersil Corporation
J.L. Shepherd & Associates
Lawrence Berkeley National Lab
Maxwell Technologies
MicroSemi
Modular Devices
NASA Living With a Star
NASA-NEPP
Northrop Grumman Electronics Systems
Peregrine Semiconductor Corporation
Prairie View A&M Univ-NASA Center for Applied Radiation Research
Sandia National Laboratories
Silvaco
SVC/WSMR
Synopsys
Synplicity
Texas Instruments
US Semiconductor
Vanderbilt University
Xilinx, Inc.

SOCIAL EVENTS

Social events have been planned to give Conference attendees and their guests many opportunities to informally discuss radiation effects and to become better acquainted. Nick van Vonno (Intersil), this year's Local Arrangements Chairman, has put together an outstanding social program. The Wednesday evening social showcases Florida's varied food and culture. Attendees are invited to experience the sights, sounds, and tastes of Florida in an indoor setting at the Sawgrass Marriott Resort. While parents are dining and dancing, children can attend a parallel function at the hotel that will feature poolside games and "dive-in" movies. We strongly encourage you to register as soon as possible for the social events since some are limited in the numbers we can accommodate.

Ponte Vedra Beach, Florida

NSREC - 2006 will be held at the Marriott Sawgrass Resort and Spa in Ponte Vedra Beach, just south of Jacksonville. Jacksonville and the Beaches are fabulous Florida at its best with a dash of Southern charm added. From expansive beaches and endless saltwater marshes to a modern downtown, exciting shopping and championship golf courses, there are activities to please everyone. Jacksonville is a city adorned with fountains, parks and plazas, with neighborhoods lined with hundred-year-old oak trees draped with

Cloudy crystal ball

In the Bible there is enough clarity to enlighten the Elect, and enough obscurity to humble them.

Blaise Pascal

Heep (sic!) it on

Don't be so humble. You're not that great.

Golda Meir

All alone

The universe we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil and no good, nothing but blind, pitiless indifference.

Richard Dawkins

Spanish moss. St. Augustine is just a short drive away, and offers many attractions including Fort San Marcos, built to defend this oldest city in the United States against would be invaders. Guided tours on buses and trams and scenic boat tours are a great way to see the city. To the North of Jacksonville is Amelia Island, with downtown Fernandina Beach offering antique shopping and fine dining. The Jacksonville area features numerous Florida state parks, including Guana State Park, the Timucuan Preserve and the Fort George historical site. The parks offer opportunities for hiking, fishing, water sports and bird watching. Other Florida attractions such as the Kennedy Space Center and the Orlando attractions are a few hours' drive away.

INVITED SPEAKERS

James R. Timberlake, Progress Energy Corporation, will focus his presentation around the 2004 and 2005 hurricane responses. Dr. Theodore Dellin of Sandia National Laboratories will present "Reinventing CMOS to Stay on Moore's Law." Dr. William J. Bencze's, Stanford University, presentation

will be "Gravity Probe B: Testing Einstein at the Limits of Engineering."

HOTEL

Please call the Sawgrass Marriott Resort at 904-285-7777 and ask for the "IEEE NSREC" or "IEEE NSREC GOV" block of rooms or visit www.nsrec.com for a link to this reservation block. Reservations must be guaranteed. The cut-off date for room reservations is June 16, 2006. After that date, room accommodations will be confirmed on a space available basis and the conference room rate is not guaranteed.

ADDITIONAL INFORMATION

For the latest NSREC information (technical program, conference and social registration forms, hotel and travel information, etc.) please visit our web site at www.nsrec.com.

You can reach the General Chair, Janet Barth, at NASA Goddard Space Flight Center ; Phone: +1 301 286-5966; E-mail: janet.l.barth@nasa.gov. You can contact the Publicity Chairwoman, Teresa Farris, Aeroflex, at Phone: +1 719 594-8035; E-mail: teresa.farris@aeroflex.com.

Megagauss 2006 Santa Fe, New Mexico November 5-10, 2006

For over three decades, the Megagauss Conferences, focusing on the production and applications of ultra-high magnetic fields, and the technologies (pulsed power and especially magnetic flux compression) that produce ultra high fields have been sponsored jointly by The Megagauss Institute Inc., and laboratories in the U.S.A. and Russia. In November 2006, the IEEE Nuclear and Plasma Sciences Society will join with The Megagauss Institute in co-sponsoring the 2006 International Conference on Megagauss Magnetic Field Generation and Related topics at the Bishop's Lodge in Santa Fe, New Mexico. The dates for the conference are November 5-10, 2006 and the organizers are enthusiastic about the new, joint adventure for both the conference and the NPSS.

The Megagauss Conferences have become a major international forum for discussion of: techniques to produce multimegagauss magnetic fields in both the laboratory and in the

field; for applications of ultrahigh fields in basic and applied research in solid-state physics, chemistry, and atomic physics; technological application of ultra-high fields; and for high energy density physics. The conference has become one of the major international forums for presentation of work sponsored by DOD and DOE programs in the area of ultra high current pulse power, explosive pulsed power, power conditioning, and the transmission and handling of extremely high power densities.

In addition to the full range of technical topics from the Megagauss series of conferences, the 2006 Conference will include special sessions addressing the unique problems associated with high energy liners and their applications to high energy density hydrodynamics, plasma physics, and fusion topics, as The International Workshop on High Energy Density Liners and Applications.

Traditionally, Megagauss Conferences have

provided an opportunity to consider, simultaneously, the technological and scientific issues associated with the generation and application of ultra-high magnetic fields. Researchers, who are actively involved in ultra-high field studies or in high-energy-density research; pulsed power engineers and scientists; young engineers, scientists and students who want to get acquainted with this promising area of research, will find a opportunity for stimulating conversation and exciting cross-fertilization between the mutually complementary areas of research, applications and technology.

The Conference venue will be The Bishop's Lodge Ranch, Resort, and Spa, near the charming city of Santa Fe, New Mexico, with its rich combination of historical and modern accommodations, internationally acclaimed dining, excellent meeting facilities, numerous amenities, and American Southwestern atmosphere. The Lodge has dedicated its facilities to the Megagauss community for the week of November 5-10 with some limited pre-and post accommodations available, at conference rates, for those wishing to enjoy Santa Fe. For those traveling from outside the U.S., the American Physical Society-Division of Plasma Physics will be meeting the previous week and the two conferences together can make the trip to the U.S. even more valuable.

The range of conference technical topics includes:

- Techniques for Generating Megagauss Magnetic Fields
- Magnetic Flux Compression
- Explosively Driven Magnetic Flux

Compression Generators and High Current Sources

- Physics and Technology of High Energy Liners
- High Energy Liners for Hydrodynamics
- High Energy Liners and Controlled Fusion Applications
- High Magnetic Fields and Plasmas
- High Magnetic Fields for Electromagnetic Launch
- High Magnetic Fields for Solid State Physics
- High-Current, High-Power Switching and Power Conditioning
- Nondestructive Production of Pulsed, High Magnetic Fields
- Codes and Modeling for Generation and Application of High Magnetic Fields
- Codes and Modeling for Explosive-Driven Generators
- Diagnostics and Instrumentation for Pulsed, High Magnetic Field Experiments

ORGANIZING COMMITTEE

General Chair: Robert Reinovsky
Technical Program Chair: Peter Turchi
Administrator and Registrar: Janet Neff-Shampine
Advisors: Alita Roach, Bill Deal

LOCAL ARRANGEMENTS COMMITTEE

W.L. Baker, J.H. Degnan, R.J. Faehl, J.H. Goforth, I.R. Lindemuth, R.G. Spielman, and D.G. Tasker

Pray tell

Piety is often a substitute for knowledge and understanding.

Ian Buruma

Deep question

What good are roots if you can't take them with you?

Gertrude Stein



Megagauss 2006 organizers, from left: Peter Turchi (Technical Program Chair), Janet Neff-Shampine (Administrator and Registrar) and Bob Reinovsky (General Chair)

2006 IEEE NUCLEAR SCIENCE SYMPOSIUM, MEDICAL IMAGING CONFERENCE, AND ROOM TEMPERATURE SEMICONDUCTOR DETECTOR WORKSHOP

October 29 - November 4, 2006

Town and Country Resort & Convention Center, San Diego

<http://www.nss-mic.org/2006/>



Graham Smith,
General Chair

The 2006 IEEE conference will incorporate the Nuclear Science Symposium (NSS), Medical Imaging Conference (MIC) and Room Temperature Semiconductor Detector (RTSD) workshop, and will be held Oct 29 - Nov 4 at the Town and Country Resort & Convention Center in San Diego. The RTSD workshop, which is held every other year, used to be a totally independent meeting but recently has been held in conjunction with NSS and MIC, the last time in 2004. It is the 15th staging of the RTSD workshop. While its regular attendee numbers are not as high as those for the NSS or MIC, there is a synergism that benefits all attendees by holding these three major conferences together.

The focus, as always, is geared toward generating a first-class scientific program, with an atmosphere where original and outstanding work can be presented in an informative and comfortable manner. The Town and Country provides a suitable venue for this. It has ample lecture space, accommodation and restaurants on an attractive site that is also compact enough to permit attendees to walk leisurely from one session to another. Much of the meeting space, and many of the hotel rooms, have recently been redecorated. The delightful San Diego climate provides more than enough encouragement for discussion with colleagues over a cup of coffee beside one of the hotel's outdoor pools.

TECHNICAL PROGRAMS

The main part of the conference will begin on Monday, October 30, with opening ceremonies and the start of the NSS and RTSD workshop programs. The NSS, with several parallel sessions, will run through Thursday, November 2, while the RTSD workshop, with only single consecutive sessions, will run through Friday,

San Diego 2006



NSS•MIC•RTSD

November 3. The MIC, also with single consecutive sessions, will begin Wednesday, November 1 and run through Saturday, November 4. As an aid and incentive to young scientists, a number of trainee awards will be available to assist with hotel/registration costs, and the NSS and MIC will each make two \$500 awards for best student papers. The scientific chairs are:

NSS Program Chair

Chuck Britton
Oak Ridge National Laboratory
clbritton@ornl.gov

MIC Program Chair

John Aarsvold
Emory University
jaarsvold@emory.edu

RTSD Program Chair

Ralph James
Brookhaven National Laboratory
rjames@bnl.gov

SHORT COURSES

At least half-a-dozen short courses, relevant to the NSS, MIC and RTSD workshop attendees, will take place. Short courses with major relevance to the NSS and RTSD workshop will be held Sunday, October 29, with a mix of NSS and MIC courses on Monday, October 30, and courses with major relevance to the MIC on Tuesday, October 31.

SPECIAL FOCUS WORKSHOPS

Throughout the week, at least four special focus workshops will take place. These are being arranged by scientists wishing to bring together

Quick, quick!

Notice: The washrooms are closed 10 minutes before closing.

Sign in the Vancouver Public Library

protagonists in their field for short, intensive discussions. The workshops planned are as follows. Sunday, October 29: a one-day workshop entitled "Micro-Pattern Gas Detectors-High Energy Physics and Beyond." Thursday, November 2: a workshop entitled "Compton Scatter Imaging for Medicine, Astronomy and Industry." Friday, November 3: a one-day workshop entitled "Innovative Techniques for Hadron Therapy" and Saturday/Sunday, November 4/5: the "Third Workshop on the Nuclear Radiology of Breast Cancer," lasting 1.5 days.

INDUSTRIAL EXHIBITION

An Industrial Exhibition will be an integral part of the conference. Located close to the conference registration, the exhibition will have booths representing companies or agencies involved in a wide range of radiation detection instruments and applications, micro-electronics, data acquisition and computing. It will run from Tuesday, October 31 to Thursday, November 2. A number of oral presentations on specific topics will be given by

exhibitors during their participation.

COMPANION PROGRAM

A companion program will provide daily tours to some of the dazzling attractions in and around the San Diego area. The city has an historically diverse culture, with famous attractions, such as the zoo, science and art museums, the harbor, Balboa Park, Sea World and many more.

The city also has many exquisite dining options. Next door to the Town and Country is a multitude of shops in Fashion Valley Mall, as well as a trolley stop for transportation to much of the San Diego area, including the Mexican border. Speakers on topics of special local interest are being planned.

The conference web site at <http://www.nss-mic.org/2006/> is the best place to see up-to-date news.

Graham Smith can be reached at the Instrumentation Division, Brookhaven National Laboratory, Upton, NY 11973-5000, USA; Tel:+ 1 631 344 4253; E-mail gsmith@bnl.gov.

Report on the 15th IEEE NPSS International Pulsed Power Conference

June 13 to 17, 2005

The 15th IEEE NPSS International Pulsed Power Conference was held in Monterey, CA, June 13 to 17, 2005. This biennial conference serves as the principal forum for the exchange of information on pulsed power science and technology. PPC2005 immediately preceded the 32nd IEEE NPSS International Conference on Plasma Science, repeating the successful teaming of the two conferences that first took place in Monterey in 1999. An ICOPS minicourse "The Physics of Z Pinches" united the two conferences.

PPC2005 was attended by 590 people from 22 countries, including 75 students. Four hundred oral and poster presentations spanned the areas of Components (Pulsed Power Switches, Insulation and Dielectric Breakdown, Diagnostics, Computational Techniques, and Electro-Mechanical Design), Systems (High-Current Accelerators, Compact Pulsed Power, Repetitive Pulsed Power, Explosively-Driven Pulsed Power,

Pulsed Power Laser Drivers, and Generators and Networks), and Applications (Particle Beams, Z- and X-Pinch Sources, High Power Microwaves, Biological, Medical, Industrial, Electromagnetic Launchers, Hydrodynamic Experiments, Inertial Fusion Energy, and Space Environments).

Contributions to the field of Pulsed Power were honored with four award presentations. The Erwin Marx Award recognized Leland Schlitt's outstanding individual contributions to pulsed power technology over an extended period of time. The Peter Haas Award recognized Robert Reinovsky's outstanding contributions to pulsed power technology resulting from his continued effort to develop programs of research, education, and information exchange. The Pulsed Power Student Awards recognized outstanding students in pulsed power engineering: Joshua Leckbee from the University of Missouri, Columbia and Michael Butcher from Texas Tech University.

Plenary talks were presented on "Present



John Maenchen,
General Chair



Edl Schamiloglu,
Technical Program
Chair

and Future Pulsed Power Naval Applications” by F. Beach and “Electra, a Repetitively Pulsed E-beam Pumped KrF Laser” by J. Sethian. The Erwin Marx and Peter Haas Award recipients also presented plenary talks describing their contributions to and perspectives on the field.

A sixth Special Issue on Pulsed Power Science and Technology will be published in the *IEEE Transactions on Plasma Science* in October 2006. The purpose of this Special Issue is to augment the conference proceedings to provide the widest possible distribution of archival quality papers detailing the unique and innovative developments in the field of

pulsed power science and technology.

The **16th IEEE NPSS International Pulsed Power Conference** will be held as a fully integrated conference with the 34th International Conference on Plasma Science in Albuquerque, New Mexico June 17-22, 2007, called “Pulsed Power and Plasma Science 2007.” PPS-2007 will be held immediately prior to the Particle Accelerator Conference in the same venue to facilitate collaborations between these communities. Edl Schamiloglu, PPC2005’s Technical Program Chair, will be PPS-2007 Conference Chairman. More information can be found at www.ece.unm.edu/ppps2007/

2007 Particle Accelerator Conference PAC07 Scheduled Albuquerque, NM June 25-29, 2007



Ilan Ben-Zvi,
Chair, Particle
Accelerator Science
and Technology
Committee



How empty?

On the empty desk sat an empty glass of milk.

BBC Radio 3

The 2007 Particle Accelerator Conference on Accelerator Science and Technology (PAC’07) will be held June 25-29 2007 at the Albuquerque Convention Center in New Mexico. The web site for the conference is open at <http://pac07.org>. This will be the twenty-second conference in the biennial series that began in 1965. PAC’07 will be held under the sponsorship of the Nuclear and Plasma Sciences Society of the Institute of Electrical and Electronic Engineers, and the Division of Physics of Beams of the American Physical Society. It is because of these technical societies and the volunteers from these organizations that we are able to hold these successful series of conferences, permitting exchange of information and effective interactions. Membership in these professional societies is what keeps us strong and able to provide services for the entire accelerator community. Those who continue their memberships in

these or affiliated organizations are especially thanked for their support.

Los Alamos National Laboratories is the host for PAC’07 and will provide a tour of their high-power linac-based research facility LANSCE after the conference on Saturday, June 30, 2007.

An enthusiastic and effective team has been assembled to manage PAC’07 consisting of Stan Schriber (MSU), Chair; Bob Garnett (LANL), Scientific Program Chair; Lorraine Stanford (LANL), Conference Coordinator; Tsuyoshi Tajima (LANL), Local Organizing Committee Chair; Shirley Atencio (LANL), Treasurer; Luce Salas (LANL), Editor; and Christine Petit-Jean-Genaz (CERN), Editor. Tsuyoshi Tajima has organized an excellent local committee including Roberta Lopez (Registration), Valerie Miller (Publicity), Michael Carter (IT), Alberto Canabel-Rey (Web Master), John Eddelman (Industrial Exhibition), Peggy Vigil (Tours) and Andrea Sanchez (Companions).

We expect about 1200 attendees and about 50 industrial exhibitors, making for a suitable and useful communication and exchange opportunity. The first scientific program committee meeting to suggest possible invited

speakers will be held in Dallas, April 21, 2006 just prior to the spring APS meeting.

For further information on PAC'07 please contact Lorraine Stanford: Phone: +01 505 665-2044; E-mail: lstanford@lanl.gov .

NPSS GENERAL BUSINESS

PRESIDENT'S REPORT

Continuing my theme with President's Reports, I'm going to discuss a single topic, which is the structure of IEEE. In case you've already decided that this is a boring topic and are about to stop reading, I'll jump to the conclusion, which is that I think it is important for you to vote in the upcoming IEEE-wide elections. There is an outstanding candidate (Hal Flescher) who is running for a very important office (TAB Vice-President), and your vote can help. In addition, I think that many of us are only aware of our one little part of IEEE, and it would be useful to see a bit of its breadth and how it is organized.

So now to the IEEE organization chart: Every IEEE member has two attributes that they could be "organized" (or perhaps "sorted") by—their technical interests and the geographical area where they live. IEEE therefore has two main subunits known as the Technical Activities Board (TAB) and the Regional Activities Board (RAB). TAB's main activities are, well, technical. TAB is responsible for 388 conferences and 99 journals, which comprise almost all of IEEE's activities in these areas. TAB is made up of 39 Societies (the NPSS is one of them), each with a different area of technical interest, as well as 5 Councils, which are groups of Societies that work together in technical areas that are of common interest. Each Society usually has multiple Technical

Committees (TCs), and each TC usually organizes a conference. Within the NPSS we have eight Technical Committees, and the table below names them and the conference that they organize.

RAB activities tend to be more local and technically diverse. RAB divides the world up into ten geographical Regions, which are then subdivided into Sections. Rather than concentrating on conferences and journals, RAB tends to promote cross-disciplinary engineering activities and "networking" between engineers. For example, a Section meeting may feature a speaker giving a general interest talk followed by a chance for the audience to interact with each other and the speaker. RAB also organizes some large trade shows, such as WESCON.

Naturally, an individual member may be interested in both Regional and Technical activities, and is certainly encouraged to do both. To this end, many Societies have Chapters, which are groups of people with a common technical interest that also live in the same area. There are also other Boards within IEEE, such as Educational Activities and Standards, but TAB and RAB are the two main pillars of the IEEE organization.

So what does this have to do with voting in the IEEE elections? There is an outstanding candidate named Harold (Hal) Flescher, who



Bill Moses
NPSS President

Don't believe it

Meet up with other atheists to talk about your beliefs.

atheists.meet-up.com

Technical Committee Name	Conference Organized by the Technical Committee
Radiation Effects (RE)	Nuclear and Space Radiation Effects Conference (NSREC)
Plasma Sciences and Applications (PSAC)	International Conference on Plasma Science (ICOPS)
Particle Accelerator Science and Technology (PAST)	Particle Accelerator Conference (PAC)*
Fusion Technology	Symposium on Fusion Energy (SOFE)
Radiation Instrumentation (RITC)	Nuclear Science Symposium (NSS)
Nuclear Medical and Imaging Sciences (NMISTC)	Medical Imaging Conference (MIC)
Pulsed Power Science and Technology (PPST)	Pulsed Power Conference (PPC)
Computer Applications in Nuclear and Plasma Sciences (CANPS)	Real Time Conference (RT)

** Co-sponsored with the American Physical Society*

Huh??

Bureaucrats
tend to dumb
things down.

Merril McPeak

is running for the Vice-President of TAB. This position is the head of TAB—like large corporations, the Vice-President of Technical Activities and the Vice-President of Regional Activities come directly under the President of IEEE on the organization chart. Hal has been extremely active for two decades both in TAB and in the NPSS (he is a member of the Radiation Effects community), and is very highly thought of at the upper organizational levels of both the Society and TAB. My feeling is that if the voting members of TAB (who are mainly the Presidents of the 44 Societies and Councils) were to elect the TAB Vice-President, Hal would win in a landslide.

However, the TAB VP is elected by all the IEEE members, and quite frankly, only a small fraction of IEEE members know what TAB is or what the TAB VP does. Thus, I think that it is important for you to vote, and I give my strong personal endorsement to Hal Flescher.

As usual, if you have any thoughts on these or any other issues, please feel free to contact me.

Bill Moses, IEEE NPSS President, can be reached at Lawrence Berkeley National Laboratory, One Cyclotron Road, MS55-121, Berkeley, CA 94720-8099; Tel: +1 510 486 4432; Fax: +1 510 486 4768; E-mail:wwmoses@lbl.gov.

SECRETARY'S REPORT



Albe Dawson
Larsen
NPSS Secretary

This year AdCom held both a retreat and business meeting in Piscataway and New Brunswick, New Jersey. The first half of our retreat was held at IEEE Headquarters in Piscataway. This is a very useful experience because not only do we get to connect the faces with the names we hear of and work with, often closely, but it also gives us a chance to hear from IEEE staff and learn of the breadth and range of IEEE activities from those best able to tell us about them. We were also able to take a tour of the facility and see the new state-of-the-art computer facilities.

New members attending their first AdCom meeting (some in a new capacity) include Sandra Biedron, Class of 2006, and Dan Fleetwood, Tony Peratt, Bob Reinovsky and Craig Woody, Class of 2009. We also welcomed Dick Lanza (Radiation Instrumentation), Tom Lewellen (Nuclear Medical and Imaging Sciences), and Mark Tillack (Fusion) as new TC chairs. Their participation is appreciated by all.

Ed Lampo, our Society Treasurer, reiterates that conference treasurers can close out their accounts and turn their books over to IEEE HQ and outstanding bills will be paid by IEEE directly, thereby avoiding late closing penalties which accrue rapidly after 12 months. If you are a conference treasurer, discuss this option with Ed (e.lampo@ieee.org) or Tony Lavietes (lavietes1@llnl.gov) who is the associate treasurer with responsibility for conferences. They will be glad to help you. Ed also reports that we are overall financially healthy.

Bill Moses, the NPSS president, discussed the project begun last year of scanning all the

old issues, prior to 1988, of TNS and TPS and having them available through Xplore. This work was to have been completed in 2005, but completion is now projected to be the autumn of 2006. Bill also discussed some Technical Activities Board (TAB) finance issues including a change in the indirect infrastructure cost allocation. Earlier, societies with high reserves such as ours were hit quite hard. The new allocation is based on the income from the All Society Periodical Package (ASPP) income, with 25% of the infrastructure costs shared equally by all societies – those are the indirect costs that have proven difficult to allocate. TAB has also increased the amount allowable for new initiatives not projected in the annual society budget to \$100,000, effectively doubling the amount. Budgeted initiatives may be as much as 3% of the society's reserves. To achieve better, earlier income forecasting, conferences will be asked to submit data on accruals on a regular basis. Conference Services will send conference chairs a letter twice yearly asking for updates.

Publications are also getting more scrutiny. The goal is to publish outstanding papers more quickly. While reviewers have deadlines, authors do not. In future, if the authors can't complete revisions in a timely way, they will probably be asked to resubmit the paper. Some journals do "sit" on papers to maintain their page budgets within +/- 5% of projected to gain a bonus, but the algorithm for income distribution is changing to one based on use or "hits."

There is also, in formation, a Panel of Conference Organizers that will help to train conference chairs and society committee

chairs, and will work bidirectionally with IEEE staff to ensure that conference organizers are also getting the things they need. Other conference-related issues include proper handling of credit cards and good contracts with management companies to ensure that IEEE is not hit with charges based on the company's errors. NPSS has had experience here and these contracts are to be entered into with due diligence and the utmost caution.

The Computer Society, with 100,000 members and its own staff and offices in Washington, DC, feels it is going broke and has asked to pull out of TAB where it has three votes, including their president and two Division Directors. FinCom is analyzing the situation.

TECHNICAL COMMITTEES

Computer Applications in Nuclear and Plasma Sciences are the sponsors of the Real Time conference. The last conference, in June 2005 at AlbaNova University in Stockholm was a great success. The number of papers in areas other than high energy physics is increasing, reflecting better the many areas of interest of our society. In particular, the number of papers related to medical imaging has increased. Ed Barsotti of Fermilab was recipient of the 2005 Real Time award, which was presented at Fermilab this past February at a small ceremony. Fermilab, with Margaret Votava as general chair, will host the 2007 Real Time conference.

Mark Tillack of University of California at San Diego is the new chair of the Fusion Technology technical committee, replacing Phil Heitzenroeder of Princeton Plasma Physics Laboratory, who had completed his term. The 2005 SFE has closed, and the 2007 conference, the 22nd in the series, will be held in Albuquerque, NM, collocated with ICOPS and PPS which have a joint conference in 2007. Craig Olson is the general chair. There will be a single registration for these conferences. In 2009, SFE will collocate with ICOPS in San Diego.

Plans are going ahead vigorously for the Nuclear Science Symposium, Medical Imaging Conference and Room Temperature Semiconductor Detector Workshop, to be held in San Diego. Graham Smith, of Brookhaven National Lab, is the general chair and was able to attend this AdCom meeting and tell us in some detail about the ongoing planning. See the article earlier in this

Newsletter under CONFERENCES. The 2005 NSS/MIC had bumper attendance and was a great success. It is closing its books. The 2007 conference will be held at the Hilton Hawaiian Village, and the 2008 conference will be held in Dresden, Germany. Plans for both these conferences are going forward with committees pretty well in place.

The Particle Accelerator Science and Technology committee, Plasma Science and Applications and Pulsed Power Technical Committees are also planning for 2007 and will meet in Albuquerque, with PAC07 the week following the SFE and PPPST conference. They are hoping to use the intervening weekend for science programs and demonstrations for local K-12 students and teachers. This should be a blockbuster two weeks with four of our communities meeting over this time period.

The Pulsed Power TC is also cosponsoring this year's Megagauss Conference to be held at Bishop's Lodge, New Mexico in early November. Selected papers will appear in *Transactions on Plasma Science*.

Radiation Effects is planning for its 2006 conference at Ponte Vedra Beach, Florida. See the cover story. In 2007 they will meet at the Hilton Hawaiian Village. Other meetings are scheduled through 2009. The 2005 conference experienced problems with the production of the December issue of TNS including its very late publication and lack of inclusion of galley proof changes so there was considerable disappointment. They also had a problem with the mailing of their election ballots so in future all NPSS election mail will be sent first class with the hopes that it is delivered more efficiently and doesn't get dumped in a mailroom trash bin, which has happened at least once.

FUNCTIONAL COMMITTEES

The Transnational Committee continues to expand its membership and is working toward true world-wide membership as well as complete representation of all NPSS fields of interest. They use teleconferencing to keep in good contact.

Remember AWARDS! See the several notices below requesting nominations, and observe the deadlines. We all have colleagues worthy of special recognition!

Recruiting new members continues as a challenge. Patrick LeDû, the new Membership chair, and Jane Lehr, our Vice President, are working hard to fill the gap left

No U-turn possible

Men cannot be taught for years to think and act in terms of Force and then be expected, at the moment a superior force has won the day, to place their confidence in Reason as a more effective alternative.

*William Lyon Mackenzie King
(in 1918)*

To each his
hone!

Everyone favors
free speech in
the slack
moments when
no axes are
being ground.

Hayward Broun

by Vern Price's retirement. If you can help at our IEEE NPSS booth at meetings, contact Jane (jmlehr@sandia.gov) or Patrick (ledu@hep.saclay cea.fr). If you are a conference chair, make sure your web site links to the IEEE NPSS member page, and talk up IEEE NPSS at your plenary sessions, and use the video loops that are available during breaks between sessions. A conference reception to welcome student members of IEEE NPSS might also encourage student membership. Urge session chairs to become members, or urge a conference policy requiring membership to be a session chair!

The Distinguished Lecturer program has been revived and there is now a list of Distinguished Lecturers and summaries of their proposed talks posted on our web site, as well as a summary of procedures to enlist a Distinguished Lecturer to be the speaker at Chapter and other meetings.

Once again, NPSS did very well in the elevation of senior members to Fellow status, with 42% of the candidates proposed through NPSS chosen, as well as an additional three nominated from other societies. It is not at all too early to think of preparing nominations for 2007 since the deadline is March 1, and getting all the detail and ensuring high quality applications is not a trivial process. Contact Peter Winokur (winokup@sandia.gov), chair of the Fellow Nominations Evaluation Committee and look at the Fellows page on the IEEE web site for more information. We also have members who are Fellows who are willing to review nomination packages before they are submitted. A good application will focus on the individual's single most important achievement in the field.

In 2006 we have to elect four new AdCom members. They will come from the Plasma Science, Particle Accelerator, Radiation Instrumentation, and the Nuclear Medical and Imaging communities. AdCom will also elect a new vice president/president-elect for the society from among present elected AdCom members.

A significant event for our Publications people – the editors of our journals - is that we have hired an assistant to handle some of the administrative details that eat into the editors' time. Read about Alison Larkin below. A major goal is to get publications out on time, which means getting manuscripts in, reviewed, revised and as needed reviewed and revised again. This can be a very lengthy process and some changes are coming soon to expedite the

whole review and revision process. The chair of the publications committee and the editors in chief of our journals are also considering electronic publication of papers as they are cleared for publication. Because our papers are reviewed more rigorously than those published in some other journals, time to publication can be long. Electronic publishing would make paper availability more rapid in many cases.

The Communications Committee has literature, as well as the NPSS booth (one in the US and one in Europe) available for conferences. Contact Peter Clout (clout@vista_control.com) well in advance of when you need these. Contact me (amlarsen@slac.stanford.edu) if you would like Newsletters to distribute at your conferences. I need about 6 weeks before the publication date of an issue (March 1, June 1, and September 1) to ensure that they are ordered with the whole run.

A large number of our standards, over a dozen, have gone out for review. One of these will have to be voted again. The germanium standard is still in preparation.

LIAISONS

Our Energy Policy liaisons, Charles Neumeyer and Dick Lanza, have been keeping in touch with the IEEE-USA group that provides expert advice to the US government on energy issues. They have been very active in revising the white paper on fusion energy.

The TAB Awards and Recognition Committee, to which Igor Alexeff is liaison, may be undergoing a new birth. We're waiting to hear more.

Hal Flescher has been joined by Ron Schrimpf as liaisons to RADECS, the European Radiation Effects Conference that has worked closely with NPSS for many years. Their papers are published in TNS, and NPSS Radiation Effects people are involved heavily with the RADECS conference. The 2006 meeting is in Greece, and the 2007 workshop will be in Deauville, France. RADECS alternates between a large conference in even years and a smaller workshop in odd years. In 2008 the conference will be held in Finland.

OTHER BUSINESS

Every five years our society Constitution and Bylaws are reviewed by a committee appointed by the president. The committee presented the revised Constitution and Bylaws to AdCom for approval, but there are certain issues that

remain to be cleared with IEEE. Therefore, the revisions will not be presented to the community until the September Newsletter, so watch for them. There are items that will have an impact on the officers of conferences, guidelines for when amendments to the C&B take effect and so on. These will be outlined in detail in September.

ADCOM ACTIONS

- To increase the budget for NPSS journals to cover the salary of a half-time assistant to the journal editors. This vote was taken by e-mail and was reaffirmed by vote at this meeting.
- To provide full IEEE Sponsorship of the SCINT 2007 Conference and Technical Co-Sponsorship of future SCINT Conferences under the auspices of the Radiation Instrumentation Technical Committee. Moved, seconded, passed
- It was moved, seconded and passed that both the Young Investigator and the Edward J. Hoffman awards be given annually at the Medical Imaging Conference rather than in alternate years.
- AdCom hereby authorizes expenditures of up to \$20k per year to cover the travel and living expenses of distinguished lecturers in making presentations at NPSS Chapter meetings. This motion was seconded and passed.

- \$5000 of NPSS funds will be made available to each Technical Committee to fund travel grants to their annual or biennial conference held in 2006 for graduate students who are IEEE NPSS members. Each Technical Committee participating in this program will appoint a committee to evaluate the applications and to administer the grants. Preference in granting the funds should be given to students who are planning to present a paper, and to students with no other visible means of support. The motion was moved, seconded and passed.
- Any Officer of NPSS AdCom with conference budget approval authority may serve as a Conference Treasurer provided that he/she recuses him/herself from participating in the AdCom Approval Process for that conference's budget. This motion was moved, seconded and passed.
- The Transnational Committee Chair may nominate a Vice-Chair to be appointed by the President, and approved by the AdCom. The Vice-Chair may serve as an alternate for the Chair at AdCom meetings. The Vice-Chair has the privilege of the floor and may vote on all matters coming before AdCom. The next meeting of AdCom will be on July 22, 2006 at the Sawgrass Marriott Hotel, following the 2006 NSREC.

Capsule definition

[A free society is] a society where it is safe to be unpopular.

Adlai E. Stevenson, Jr

TECHNICAL COMMITTEES

COMPUTER APPLICATIONS IN NUCLEAR AND PLASMA SCIENCE TECHNICAL COMMITTEE

The CANPS award was granted to Edward Barsotti, formerly of Fermilab, during the RT2005 conference in Stockholm. Ed was not present at the Stockholm conference but an informal ceremony was organized at Fermilab on Feb. 22, 2006 and the award plaque and \$2000 prize was presented to Ed at that occasion. This award is to recognize outstanding technical contributions to the fields of Nuclear and Plasma Sciences. Ed has been committed during his career to data acquisition issues. He has contributed to the definition of the FASTBUS

and VME standards, and has been innovative in the design of the modern event building architecture now seen in most large experiments (scalable parallel open architecture data acquisition systems, switch networks, etc). Ed was also the first chair of the CANPS committee, when the Real Time conferences first became fully sponsored by IEEE. This was in 1984. Before that date, the Real Time Conferences were organized by ad hoc committees (RT79, RT81 and RT83),

The RT07 conference will be organized in late spring of 2007 at Fermilab, from April 29



Jean-Pierre Martin
Chair, CANPS
Technical Committee

to May 4, 2007. Margaret Votava, a member of the FNAL computing division, will be the general chairperson of the conference. Several adaptations of this “user friendly” small conference are foreseen and are under discussion amongst the CANPS committee members. For 2007, in addition to the standard Particle and Nuclear Physics real time aspects, we want to promote new fields. For example, Biomedical imaging real time data acquisition and processing is becoming a real challenge for the future. There were already a few presentations in this field at the RT2003 and more at RT2005 conferences, and the synergy with our traditional activities was greatly appreciated. Also, the decision to build ITER, the next generation of experimental fusion reactors, will generate new

challenges in real time control systems. These two examples show how rich and exciting the Real Time field will be in the near future. In addition, we have a small workgroup under the guidance of Satish Dawhan, from Yale, and Raymond Larsen, from SLAC, studying the applications of new industrial standards like ATCA. The RT conference is the perfect forum for studying the impact of new industrial standards in our field, as it has been in the past for NIM, CAMAC, FASTBUS and VME.

Jean-Pierre Martin, chair of the Computer Applications in Nuclear and Plasma Science Technical Committee, can be reached at the University of Montreal, RJA Lévesque Laboratory, Montreal (QC), Canada H3C 3J7. Phone +1 514 343 7340; e-mail: jpmartin@lps.umontreal.ca

Nuclear Medical and Imaging Sciences Technical Committee (NMISTC) Update



Tom Lewellen
Chair NMISTC

As always, it has been a busy year and, after recovering from running the NSS/MIC for 2005, I am working on the NMISTC agenda items. Even though it is likely to be redundant with other reports in this news letter, I have included some brief comments about the 2005 meeting and the upcoming meetings through 2008. We had our Fall elections last year and the new officers and board members are: vice-chair, Charles Watson; Board members: Anna M. Cellar, Magnus Dahlbom, James W. Hugg, Yuan-Chuan Tai, and Demitris Visvikis. We are now due to propose a new AdCom at-large member, and I will be contacting individuals in the next few weeks as possible candidates. We will also be setting up a slate for new board members in June, so anyone interested should contact me (tkldog@u.washington.edu).

Also included is the full text of the revised constitution and bylaws. The change is primarily in the bylaws (section 3.5). This brings our NMISTC into line with the changes in the RISC bylaws that established an executive committee to improve the coordination of the two technical committees in sponsoring the NSS/MIC annual meeting. This committee is meeting by telephone on a regular basis to keep track of matters of interest to both technical committees and to establish the oversight committee (formerly the site selection committee). I strongly believe that this new structure will improve our ability to deal with con-

ference issues and continue to improve all functions of both technical committees. The changes were approved by the NMISTC at the October 2005 meeting and have been approved by AdCom at the meeting in February. While these changes solve the immediate formal issue of the executive committee, we are going to further review the current document to identify any other improvements that should be made.

MIC 2005

The successful 2005 NSS/MIC conference was held from October 23-29, 2005 at the Wyndham El Conquistador resort in Las Croabas, Puerto Rico. The venue was not large enough for the number of papers submitted and many good papers had to be rejected due to the space limitations. However, the site also offered a relaxed and informal atmosphere that added greatly to the success of the conference. To take full advantage of the site, we organized sessions from 8 am to noon and then from 3:30 pm to 6:30 pm on social function nights and 8 pm on other evenings. The registration was 1126. There were 372 oral papers (300 NSS, 50 MIC, and 22 joint NSS/MIC). There was sufficient space to allow all of the 651 posters to be displayed for the entire conference. NSS had 284 posters, MIC 290, and there were 77 joint NSS/MIC posters. There were 6 short courses that attracted 255 attendees. The social functions

were also well attended with 325 at the NSS lunch, 390 at the MIC dinner, and over 1000 at the conference reception. The companion program was equally well attended with 580 participating. There were major logistical challenges including having to install our own wireless network for all conference functions and deal with the problem of accommodating the lack of sufficient hotel room capacity at the conference site. We originally contracted for 2600 room nights. After the Rome meeting, we increased the contract to over 3600 room nights. In late summer of 2005 we contracted additional rooms at two other hotels to a total of 5491 room nights. In the end, the conference was credited with 6333 room nights – and that does not include those who made their own arrangements for lodging. These challenges impacted our budget as we had to arrange for extra transportation and cover the larger food and beverage demands. Yet, we still expect to return between \$130,000 and \$141,000 (~ 20%) to NPSS.

MIC 2006

The 2006 IEEE conference will incorporate the Nuclear Science Symposium (NSS), Medical Imaging Conference (MIC) and Room Temperature Semiconductor Detector (RTSD) workshop, and will be held Oct 29 - Nov 4 at the Town & Country Resort & Convention Center in San Diego. The Call for

Papers, and Posters, advertising the 2006 IEEE meeting, were distributed to each attendee at Puerto Rico meeting. The 2006 Exhibitors brochure was distributed to the vendor booths at this meeting also. We have previously established May 19, 2006, as the submission deadline. The NSS, MIC and RTSD respective program chairs are all actively planning their agendas beyond submitted papers. There are three satellite workshops planned: “Micro-pattern Gas Detectors,” “Nuclear Radiology of Breast Imaging,” and “Compressed Xenon Detectors.” The short courses will continue under Steve Derenzo’s direction.

MIC 2007

This meeting will be held at the Hilton Hawaii Village, Honolulu, Oct. 26-Nov 3, 2007. The general chair for the meeting is Ben Tsui (Johns Hopkins), who is forming the organizing committee. Eric Frey (Johns Hopkins) has agreed to be the MIC chair, and Magnus Dahlbom will be the deputy MIC chair. The first planning meeting for this conference was held on October 26th in Puerto Rico.

MIC 2008

The general chair for this meeting will be Uwe Bratzler. The meeting will be held at the conference center in Dresden.

Foresight

I’ve got my faults, but living in the past isn’t one of them. There’s no future in it.

Sparky Anderson

Still true

Two contrary laws seem to be wrestling with each other nowadays: the one, a law of blood and death, ever imagining new means of destruction, and forcing nations to be constantly ready for the battle field - the other a law of peace, work and healthy ever-evolving new means of delivering man from the scourges which beset him. The one seeks violent conquests, the other the relief of Humanity. The latter places one human life above any victory; while the former would sacrifice hundreds of thousands to the ambition of one.

Louis Pasteur

Constitution and Bylaws Nuclear Medical and Imaging Sciences Technical Committee IEEE Nuclear and Plasma Sciences Society Accepted by AdCom 25 February 2006

ARTICLE- I - NAME AND OBJECT

Section 1. The organization shall be known as the Nuclear Medical and Imaging Sciences Technical Committee of the IEEE Nuclear and Plasma Sciences Society (NPSS), hereafter referred to as the Committee.

Section 2. The Committee shall strive for the advancement of theories and applications of Nuclear Medical and Imaging Sciences and of its allied arts and sciences and maintenance of high scientific and technical standards among its members.

Section 3. The Committee shall aid in promoting close cooperation and exchange of technical information among its members and to this end shall hold meetings for the presentation and discussion of original contributions, shall assist in the publication of the *Transactions on Nuclear Science* (TNS) and other IEEE publications that the committee shall deem appropriate, and shall otherwise provide for the needs of its members

ARTICLE- II - FIELD OF INTEREST

Section 1. The field of interest of the Committee is Nuclear Medical and Imaging Sciences, and their related technologies and applications. It shall foster publication or other dissemination of original contributions to the theories, experiments, educational methods and applications of Nuclear Medical and Imaging Sciences. Areas of technical activity will include, but not be limited to the following:

Section 2.

- 1) Radiation sources (including synchrotron radiation)
- 2) Detectors used for imaging and radiotherapy
- 3) Radiation standards and radiation monitoring for biomedical instrumentation and personnel
- 4) Theory, physics and instrumentation of medical imaging modalities including, but not restricted to:
 - a. Planar Nuclear Medicine (NM)
 - b. Single Photon Emission Computed Tomography (SPECT)
 - c. Positron Emission Tomography (PET)
 - d. Magnetic Resonance Imaging (MRI)
 - e. Magnetic Resonance Spectroscopy (MRS)
 - f. Magnetic Resonance Angiography (MRA)
 - g. Functional MRI (fMRI)
 - h. X-ray Computed Tomography (CT)
 - i. Digital Radiography (DR)
 - j. Related imaging systems and devices
- 5) Modeling and simulation of imaging detectors, devices, systems, and processes
- 6) Image analysis techniques
- 7) Image reconstruction algorithms
- 8) Quantitative imaging methods

ARTICLE- III - MEMBERSHIP

Section 1. Members of the Committee are members of the IEEE NPSS having an interest in Nuclear Medical Imaging.

Section 2. Affiliates may participate in the activities of the Society as provided by the IEEE Bylaws and subject to the applicable IEEE rules and regulations and to any additional limitations imposed by the Society Bylaws.

ARTICLE- IV - ADMINISTRATION

Section 1. The Committee shall be managed by a Nuclear Medical and Imaging Sciences Council (NMISC) consisting of elected members-at-large, plus certain ex-officio members as specified herein and in the Bylaws. The number of elected members-at-large shall be 15 members.

Section 2. The terms of office of the elected members-at-large shall be three years. Members-at-large elected to a full term may not succeed themselves, and at least one year must elapse before an individual may be reelected to the NMISC. Election of members-at-large shall be held annually to fill vacancies for the coming year. The terms of office of the ex-officio members shall be specified in the Bylaws.

Section 3.

- (a) The affairs of the Committee shall be managed by a Chairperson, as directed by the NMISC and in accordance with the powers and duties as defined thereunder and in the Bylaws. In the event of the Chairperson's absence or incapacity, his/her duties shall be performed by a Vice-Chairperson.
- (b) The Chairperson shall appoint a Secretary for the NMISC. The Secretary need not be chosen from among the elected members at large.

Section 4

- (a) On alternate years a Vice-Chairperson (who shall be the Chairperson elect) is elected by the voting members of the NMISC from the eligible members-at-large of the NMISC. The term of office for the Vice-Chairperson shall be two years as Vice-Chairperson, followed by two years as Chairperson, and two years as the Most Recent Past Chairperson.
- (b) Only those members-at-large having one year or more of their term as elected member-at-large remaining shall be eligible for election as Vice-Chairperson. In the event that a Vice-Chairperson is elected to take office at the beginning of the second or third year of their term as member-at-large, said term shall automatically extend until he vacates the office of Most Recent Past Chairperson. During this extension, that individual shall be considered an ex officio member with voting rights. No individual may serve two successive terms as Vice-Chairperson or two successive

terms as Chairperson.

- (c) In the event that neither the Chairperson or the Vice-Chairperson is able to take office as prescribed in the Bylaws, or if both are incapacitated or if both offices become vacant, the NMISC shall promptly elect an Acting Chairperson from among the members-at-large to assume the duties of Chairperson until either a Chairperson or Vice-Chairperson takes office or resumes their duties.
- (d) The Vice-Chairperson will, except under circumstances deemed unusual by a majority of the voting members of NMISC, become the sole nominee for the succeeding Chairperson election.

Section 5 The Chairperson shall be an ex-officio member of all subcommittees of the NMISC.

Section 6 The Chairperson, as soon as expedient after their election, shall appoint the Chairpersons of the subcommittees provided for in the Bylaws.

ARTICLE V - NOMINATIONS AND ELECTION OF NMISC MEMBERS-AT-LARGE

Section 1. Nominating procedures shall be as prescribed in the Bylaws and shall include provision for nomination by NMISTC members.

Section 2. Election of the members-at-large of the NMISC shall be as prescribed in the Bylaws.

Section 3. If a member of the NMISC does not complete their term, the NMISC Chairperson shall appoint a replacement to fill the unexpired portion of the term. When an NMISC member is appointed for a partial term, that person is eligible to run for the next full-term election to the same position.

ARTICLE VI - MEETINGS

Section 1. The Committee may hold meetings, conferences, symposia or conventions either alone or in cooperation with other organizations subject to applicable IEEE and NPSS rules and regulations.

Section 2. Eight voting members of the NMISC shall constitute a quorum. No member shall have more than one vote by reason of multiple offices or Committee responsibilities.

Section 3. A majority of the legal votes cast by those members of the NMISC attending a meeting shall be necessary for the conduct of its business except as otherwise provided in this constitution.

Section 4. Business of the NMISC may be handled by any written means which includes (but is not limited to) correspondence, fax or e-mail if, in the opinion of the Chairperson, matters requiring prompt action can be adequately handled in that manner. A majority of the voting members of NMISC is

required to take action in such a case. Such actions are to be promptly confirmed in writing by the Chairperson to NMISC.

Section 5. The NMISC shall meet as required to conduct business and in accordance with the Bylaws.

ARTICLE VII - AMENDMENTS

Section 1. Amendments to this Constitution may be initiated by petition submitted by a two-thirds vote of the NMISC, such petition being submitted to the Ad Com of the NPSS for approval. After such approval, the proposed amendment shall be publicized in the IEEE TNS or Medical Imaging (TMI), and/or the NPSS Newsletter, with notice that it goes into effect unless 20 Committee members object within 90 days of the date of mailing of the notice. If such objections are received, a copy of the proposed amendment shall be mailed with a ballot to all members of the Committee at least 30 days before the date set for the return of the ballots; the ballots shall carry a statement of the deadline for their return to the IEEE office. When a mail vote of the entire Committee membership is made necessary, approval of the amendment by at least two-thirds of the ballots returned shall be necessary for its enactment.

Section 2. As an alternative to the procedure outlined in Section 1 above, 10 members of the Committee may submit a petition to the Ad Com of the NPSS. If approved by the NPSS Ad Com and after notification of the NMISC, the proposed amendment shall be submitted to the membership by mail ballot as described above.

Section 3. Committee Bylaws, and amendments thereto, may be adopted by two-thirds vote of the NMISC, provided that notice of the proposed Bylaw or amendment has been sent to each member of the NMISC at least a week prior to such meeting. Alternatively, a Committee Bylaw or amendment may be adopted by a two-thirds mail vote of the members of the NMISC, provided a 30-day period is provided for such responses. In either event, the proposed Bylaw or amendment shall be publicized in the NPSS TNS or TMI, and/or the NPSS Newsletter. No Bylaw or amendment shall take effect until it has been approved by the Ad Com of the NPSS.

ARTICLE VIII - REVISION

Section 1. The Chairperson of the NMISC shall appoint a five-person subcommittee no later than January 1, 2007, and every five years hence to evaluate the effectiveness of this Constitution and Bylaws, to study the rules of governance required by the activities of the Committee at that time, and to consider writing a new Constitution and Bylaws appropriate to the existing and anticipated needs of the NMISC.

Bylaws

1. NMISC: Article IV of the Constitution provides that the NMISC shall consist of a number of elected members-at-large plus certain ex-officio members. The ex-officio members of the NMISC shall be (unless they are already elected members-at-large), the Chairpersons of the Functional Sub-

Committees, the Chairperson of the Radiation Instrumentation Technical Committee, the Secretary, the Editors and Associate Editors of the IEEE TNS and other publications as deemed appropriate by the NMISC and such other ex-officio members as are provided for in the

Constitution and Bylaws of the NPSS.

1.1 The voting members of the NMISC shall be the elected members-at-large, the Chairperson, Vice-Chairperson, and Most Recent Past Chairperson.

1.2 The NMISC shall meet at least once per year, upon dates determined by the Chairperson at least three weeks in advance of the meeting. Additional meetings may be called at the discretion of the Chairperson or upon request of at least eight voting members of the NMISC with at least three weeks notice.

1.3 The last regularly scheduled meeting in the calendar year shall be considered the Annual Meeting of the NMISC.

1.4 The Annual Meeting of the NMISC will be open to all Committee members.

2. Nomination and Election of NMISC Members: Articles IV and V of the Constitution specify the number of NMISC members-at-large, as well as the term length and restrictions. One third of the NMISC members-at-large posts are to be filled each year by election of the general membership of the Committee.

2.1 The Chairperson of the NMISC is responsible for ensuring that at least one nomination is made for each vacant post. Nominations may be made by any member of the NMISC or any member in good standing of the Committee. Self nominations are allowed.

2.2 The Individual making a nomination must determine in advance that the nominee is willing to serve if elected.

2.3 If there are more nominations than posts to be filled, those nominees receiving the highest number of votes will be elected to the vacant posts.

2.4 The Chairperson of the NMISC shall assure, before April 1, that a call for nominations is conveyed to the whole membership. Additional nominations may be submitted to the nominating committee by July 1 by members of the Committee or by members of the NMISC. Such nominations must include an expression by the nominee of willingness to serve if elected.

2.5 All nominees must be either members in any grade of IEEE and of the Nuclear Medical and Imaging Science Technical Committee or must have submitted applications for membership at the time the nominations are forwarded to IEEE Headquarters.

2.6 The Secretary shall annually arrange for the distribution to the members of the Committee on or about July 31, a ballot to elect the candidates to fill vacancies on the NMISC. The ballot shall be accompanied by a short biographical sketch of each nominee with an indication of their Nuclear Medical and Imaging Science activities and former or present IEEE activities.

2.7 Sixty days after distribution of the ballots, the IEEE Headquarters shall count and tabulate the votes received and report the results to the NMISC.

2.8 The NMISC shall submit to the Secretary of the NPSS Ad Com the names of the candidates with the largest number of votes to fill the designated vacancies.

3. Functional Committees: The Chairperson of the Committee, in concurrence with the NMISC, shall appoint

the Chairpersons of the following Functional Subcommittees:

- The Medical Imaging Conference Program Committee.
- Award committee for the MIC award.
- Other Subcommittees as shall be required for the operation of the Committee.

3.1 The term of office of a Chairperson of a Functional Subcommittee shall be one year, but a Functional Subcommittee Chairperson may be re-appointed to the same position.

3.2 The Chairpersons of Functional Subcommittees must be members of the NMISC.

3.3 The membership of the Functional Subcommittees shall be appointed by the Chairperson of that Functional Subcommittee. The membership and activities of the Functional Subcommittees should be publicized to the membership of the Committee via the NPSS Newsletter, and suggestions for Subcommittee membership should be invited from Committee members.

3.4 Each of the Functional Subcommittees shall submit a written report of its activities to the NMISC prior to or at the Annual Meeting. The Nuclear Science Symposium and Medical Imaging Conference Oversight Subcommittee shall be a Joint Subcommittee of the RISC and NMISC. Its Chairperson shall be appointed by a Joint Executive Subcommittee of the RISC and NMISC consisting of the current Chairpersons, the Most Recent Past Chairpersons, and Vice Chairpersons of the RISC and NMISC. The Chairperson of the Oversight Subcommittee must be a member of either the RITC or the NMISTC. The Chairperson of the Oversight Subcommittee shall appoint the committee's membership, subject to the approval of the Joint Executive Subcommittee. The charge of the Oversight Subcommittee shall be to provide for the continuation and long term planning of the NSS/MIC conference, including the selection of the sites and General Chairpersons of future conferences. The General Chair of a given year's conference shall, in consultation with the Oversight Subcommittee, the RISC and the NMISC, also select the NSS Program Chair and MIC Program Chair for that year's conference. The term of office of the Chairperson of the Oversight Subcommittee shall be one year, but the Chairperson may be reappointed to the same position for no more than one additional term.

4. Ballots: All ballots, whether for purposes of election or changes in the Constitution, shall be issued to the voting members by the Secretary pursuant to action by the NMISC. No ballot shall be counted unless unambiguously marked by a qualified voter to indicate their choice, and sent in a sealed envelope bearing the voter's name on or before the specified deadline date. This specified deadline date shall be at least thirty days subsequent to the date of the mailing of the ballots. The distribution and counting of the ballots shall be entrusted to IEEE Headquarters. The IEEE Headquarters will report the results of the election to the Secretary of NMISC, in turn, shall report the results to the NMISC.

5. Beginning of Terms of Office: All terms of office of elected Members-at-Large of the NMISC shall begin January 1 of

the year immediately following their election.

6. Election of the Vice-Chairperson of NMISC: The Vice-Chairperson of NMISC shall be nominated and elected from among the eligible members-at-large of the NMISC. A minimum of one month before the annual meeting of the NMISC, the NMISC Secretary will notify all current NMISC members of the upcoming election and solicit nominations (self-nominations are allowed). The nominations will be closed two weeks before the annual meeting of the NMISC, and the Chairperson of the NMISC is responsible for ensuring that at least one nomination for Vice-Chairperson is received by this time. The Secretary of NMISC shall announce to all voting NMISC members-at-large the identities of the candidates at least one week before the annual meeting, and also inform them of the procedure for casting a ballot if they are unable to attend the NMISC annual meeting. The vote will occur during the annual meeting of the NMISC. If there is only one candidate, then that candidate will be elected at the Annual Meeting by those NMISC members in attendance. If there is more than one candidate, a secret ballot will be taken during the annual meeting and the Chairperson shall designate tellers to immediately count the ballots. Voting NMISC members-at-large who are not attending the annual meeting of the NMISC may submit a ballot by notifying the NMISC Secretary of their choice. The results of the vote shall be announced and the nominee receiving a majority of votes cast shall be

declared elected. In the event that no candidate receives a majority of votes cast, runoff elections shall be conducted by secret ballot at the Annual Meeting of NMISC among the candidates receiving the two highest number of votes until one candidate receives a majority of the votes cast. For these runoff elections, only those NMISC members in attendance may cast a vote.

7. Records: The secretary shall maintain a permanent record of all nonroutine motions passed by the NMISC, written minutes of the Annual Meeting of the NMISC, a roster of all NMISC members, and a membership roster of all NMISC subcommittees. The secretary must provide a tabulation of the most recent five years of motions and a copy of the NMISTC constitution and bylaws to each newly elected member-at-large to the NMISC.

8. Alternates:

8.1 Members-at-Large: An elected Member-at-Large may designate any member in good standing of the NMISTC to represent the Member-at-Large at the NMISC meeting. The representative shall have the privilege of the floor, but may not vote on any matters coming before the NMISC.

8.2 AdCom Representation: If the NMISC Chairperson is unable to represent the NMISC at the NPSS AdCom, the Chairperson may designate the Vice-Chairperson or the Most Recent Past Chairperson as his/her alternate. This alternate has the privilege of the floor and may vote on all matters coming before AdCom.

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Call for Award Nominations



Igor Alexeff

Plan Ahead – the deadline for 2006 Society Awards closed on May 15, but May 15, 2007 is the deadline for next year's Society Awards.

Check with your conference or technical committee for the award deadlines for those awards, and see below for their descriptions.

The NPSS Awards comprise the following.

1. The Richard F. Shea Distinguished Member Award.

Description: To recognize outstanding contributions through leadership and service to the NPSS and to the fields of Nuclear and Plasma Sciences.

Prize: \$ 2,000, plaque, and Certificate.

Funding: Funded by the IEEE Nuclear and Plasma Sciences Society.

Eligibility: Any member of the IEEE and NPSS who has contributed to the fields of nuclear and plasma sciences through leadership and service.

Basis for Judging: Selection criteria are:

- a. Leadership roles and leadership quality;
- b. Innovative and important contributions to Society activities;
- c. Service and dedication to the NPSS;
- d. Technical achievements.

Presentation: One award presented annually at Nuclear Science Symposium (Or at any other IEEE NPSS meeting that the awardee chooses.)

2. The NPSS Merit Award.

Description: To recognize outstanding technical contributions to the fields of Nuclear and Plasma Sciences.

Prize: \$ 2,000, Plaque and Certificate.

Funding: Funded by the IEEE Nuclear and Plasma Sciences Society.

Eligibility: Any individual who has made technical contributions to the fields of Nuclear and Plasma Sciences.

Basis for Judging: Selection criteria, in order of importance are:

- a. Importance of individual technical contributions;
- b. Importance of technical contributions made by teams led by the candidate;
- c. Quality and significance of publications and patents;
- d. Years of technical distinction;

- e. Leadership and service within the fields of nuclear and plasma sciences and related disciplines.

Presentation: One award presented annually at Nuclear Science Symposium or at an NPSS sponsored meeting chosen by the nominee.

3. The NPSS Early Achievement Award

Description: To recognize outstanding contributions to any of the fields making up Nuclear and Plasma Sciences, within the first ten (10) years of an individual's career.

Prize: \$ 1,800, plaque, and certificate.

Funding: Funded by the IEEE Nuclear and Plasma Sciences Society.

Eligibility: Member of the IEEE NPSS who at the time of nomination is within the first ten (10) years of his or her career within the field of interest of NPSS.

Basis for Judging: Three (3) letters of recommendation, publications and/or reports, patents, etc. which demonstrate outstanding contributions early in the nominee's career.

Presentation: At any major NPSS sponsored conference chosen by the awardee.

4. The NPSS Graduate Scholarship Award

Description: To recognize contributions to the fields of Nuclear and Plasma Sciences.

Prize: \$500, certificate, and one – year paid membership in the NPSS.

Funding: Funded by the IEEE Nuclear and Plasma Sciences Society.

Eligibility: Any graduate student in the fields of Nuclear and Plasma Sciences.

Basis for Judging: Evidence of scholarship such as academic record, reports, presentations, publications, research plans, related projects and related work experience, Participation in IEEE activities through presentations, publications, student Chapter involvement, etc., will also be considered.

Presentation: Up to four (4) awards presented annually. Check and certificates sent to nominator to be presented at a special occasion at the winner's institution.

5. Paul L. Phelps Award

Description: The Paul L. Phelps award is different, in that its objective is to permit people

to attend short courses at IEEE NPSS meetings by giving them travel grants.

Prize: Several travel grants per NPSS conference.

Funding: Funded by the IEEE Nuclear and Plasma Sciences Society.

Eligibility: Any graduate student in the fields of Nuclear and Plasma Sciences. Also members of the IEEE who are unemployed or have trouble obtaining travel funds. Each grantee must attend a short course.

Basis for Judging: Each conference shall have an appointed chairman to handle Phelps travel grants. The amount of funding per conference is determined by the short course attendance at the previous conference. (Consult the IEEE NPSS Treasurer.) This amount may then be subdivided at the discretion of the appointed chairman to accommodate several recipients. Application for the grant is by a letter to the appointed chairman (Or the conference chairman, who will forward it to the proper person.) well in advance of the conference date. The letter will convey the need for the grant, as well as biographical and scientific information to demonstrate the scientific capability of the potential grantee.

Presentation: A check will be sent to each grantee, preferably well before the conference, but as soon as possible in the case of late application.

6. The NPSS Student Paper Awards (Established in 2005)

Description: For outstanding student poster or oral papers as desired by each of the technical committees of NPSS that organizes a conference. The purpose of these awards is to encourage both outstanding student contributions and greater student participation as principal or sole authors of papers as well as to acknowledge the importance of student contributions to the fields embraced by the NPSS umbrella. These conferences include the Real Time Conference; The International Conference on Plasma Sciences; The Radiation Effects Conference; The Pulsed Power Conference; The Medical Imaging Conference; The Particle Accelerator Conference; The Symposium on Fusion Engineering; and The Nuclear Science Symposium as well as any other conferences that may in the future come under IEEE NPSS sponsorship.

Prize: The best two papers (two awards) will

receive cash awards of \$500 each and a Certificate. The two runners-up will receive a certificate only.

Funding: Funded by each conference's budget as determined by each of the individual conferences sponsored by IEEE NPSS.

7. The IEEE NPSS Technical Committee Awards:

Description: Most of the Technical Committees under the IEEE NPSS umbrella have their own awards. These awards are in general funded from the committee's conference returns. These awards are tabulated below. Details are obtainable from the IEEE Web page, www.ewh.ieee.org/soc/nps/.

Summary of Committee Awards:

- (1) Computer Applications in Nuclear and Plasma Sciences Award.
- (2) Radiation Effects Award.
- (3) Radiation Instrumentation Early Career Award.
- (4) Radiation Instrumentation Outstanding Achievements Award.
- (5) Fusion Technology Award.
- (6) Particle Accelerator Science and Technology Award (PAST Award).
- (7) Plasma Science and Applications Award.
- (8) Edward J. Hoffman Medical Imaging Scientist Award.
- (9) Young Investigator Medical Imaging Science Award.
- (10) Erwin Marx Award
- (11) Peter Haas Pulsed Power Award.
- (12) Outstanding Pulsed Power Student Award.

THE IEEE AWARDS PROGRAM

There is an abundance of high - level awards obtainable directly from the IEEE. In general, our society has ignored these awards. To my knowledge, the NPSS has only received TWO such awards in its 30 - year history.

Prize: Download the IEEE Award Manual from the web at IEEE AWARDS and be amazed at what is available! And get to work!

Contact Igor Alexeff, Nominations Chairman, Ferris Hall 315, Middle Drive, Knoxville, TN 37996-2100; Phone: +1 865-974-5467; Fax: +1 865 974 5483 E-mail: alexeff@utk.edu

Who? Us??

The danger is, however, that scientists working within more or less democratic societies are inclined to abdicate responsibility by assuming their democratically elected leaders know what is best.

John Cornwell

YOUNG INVESTIGATOR AND HOFFMAN MEDICAL IMAGING SCIENTIST AWARDS NOW GIVEN ANNUALLY

Deadline: 15 July 2006



Paul Kinahan,
NMISC Awards
Committee Chair

Starting with the 2006 IEEE Medical Imaging Conference* both the NMISC Young Investigator and Edward J. Hoffman Medical Imaging Science Awards will now be given annually instead of only in odd/even-numbered years as has been done previously.

Both awards are sponsored by the IEEE-NPSS Nuclear and Medical Imaging Sciences Council (NMSIC), which is the steering committee for the annual Medical Imaging Conference. At the 2004 meeting, the NMISC a motion was made to request permission from NPSS AdCom to award the Young Investigator and Medical Imaging Scientist awards every year. The motion was passed with overwhelming support given the number and caliber of applicants for both awards.

The deadline for application for both awards is July 15, 2006 for the 2006 awards. More details and application forms are available on the NPSS awards website: <http://www.ewh.ieee.org/soc/nps/awards.htm>

IEEE NPSS NUCLEAR AND MEDICAL IMAGING SCIENCES COUNCIL (NMISC) The Young Investigator Medical Imaging Science Award

Deadline: July 15, 2006

DESCRIPTION:

This award is given annually (previously only in odd-numbered years) to a young individual in recognition of significant and innovative technical contributions to the field of medical imaging science. The award, consisting of \$1,000, a certificate, and a plaque, is presented at the IEEE NPSS Medical Imaging Conference.

SELECTION CRITERIA:

Nominees will be judged according to their contributions to medical imaging science as

demonstrated by the technical merit and creativity of their research. Priority will be given to nominees whose research has been published in peer-reviewed journals, especially if the nominee is the first author.

ELIGIBILITY:

Graduate students or other individuals, whose highest degree was awarded no more than six years prior to the date of nomination.

The Edward J. Hoffman Medical Imaging Scientist Award

Deadline: July 15, 2006

DESCRIPTION:

This award is given annually (previously only in even-numbered years) to an individual in recognition of outstanding contributions to the field of medical imaging science. The award, consisting of \$2,000, a certificate, and a plaque, is presented at the IEEE Medical Imaging Conference.

SELECTION CRITERIA:

In selecting the recipient of this award, primary consideration will be given to the impact and innovativeness of a nominee's research in the field of medical imaging science. Other factors include a nominee's research contributions over a career and his/her influence on medical imaging science through education.

ELIGIBILITY:

The nominee is not required to be a member of the NPSS or IEEE but, where candidates have otherwise equal qualifications, preference shall be given to the candidate who is a member of the IEEE.

Paul Kinahan, Chair, NMISC Awards Subcommittee, can be reached at kinahan@u.washington.edu

Watch out!

You can discover what your enemy fears most by observing the means he uses to frighten you.

Eric Hoffer

* Held in conjunction with the Nuclear Science Symposium Oct 31 - Nov 4th in San Diego: <http://www.nss-mic.org/2006>.

AWARD NOMINATIONS SOLICITED 2007 PLASMA SCIENCE AND APPLICATIONS

Deadline: 15 September 2006

Established in 1988, this award recognizes “outstanding contributions to the field of plasma science.” The recipient need not be a member of the Nuclear and Plasma Sciences Society or the IEEE, but where candidates have otherwise equal qualifications, preference shall be given to the candidate who is an IEEE member. The award includes a cash prize, a plaque, and the privilege of presenting a plenary address at the annual International Conference on Plasma Science (ICOPS).

The nomination package should include: a nominating letter (5 page limit); biographical material for the person nominated (3 page limit); a publication/citation/patent list (5 page limit); 3 to 5 letters of support; and proposed text for the award citation (50 words or

less). Please also include an e-mail address for the nominator where receipt of the package will be confirmed.

Nominations should be submitted to David Abe at the address given below by 15 September 2006. A sample nomination form and checklist may be obtained on request by sending an e-mail to david.abe@ieee.org.

Information about other awards sponsored by the IEEE Nuclear and Plasma Sciences Society are described on the NPSS website at <http://ewh.ieee.org/soc/nps/>.

Dr. David K. Abe, PSAC Awards Subcommittee Chair, can be reached at the Naval Research Laboratory, Code 6841, 4555 Overlook Ave SW, Washington, DC 20375 USA; Phone: +1 202 767 - 0033; Fax: +1 202 767 - 1280; E-mail: david.abe@ieee.org.



David K. Abe

NPSS FELLOW CANDIDATE EVALUATION COMMITTEE

KEEP THE HIGH-QUALITY NOMINATIONS COMING!

An IEEE Fellow has been judged to have made extraordinary contributions in any of the IEEE fields of interest that are of significant value to the profession and society. That’s pretty heady stuff, but the entire evaluation process is predicated on identifying a candidate’s primary contribution and its significance and impact. In 2006, the following NPSS members met these lofty standards and were elected to the grade of IEEE Fellow: Paul Bernhardt, Christopher Deeney, Ronald Gilgenbach, Ian McNab, William Moses, Marek Moszynski, Edward Petersen, and David Townsend. Congratulations to our new fellows!

Each year, the NPSS FEC is asked to evaluate nominations from our eight diverse technical areas, e.g., pulsed power, nuclear medical imaging, radiation effects, etc. Individual members of the NPSS FEC are expert in these technical areas, but each member of the committee is asked to evaluate all NPSS nominations as a generalist. This may seem daunting, but the committee quickly comes to a consen-

sus about the top candidates for that year. These evaluations are forwarded to the national IEEE FEC where the final decisions are made. I served on the national IEEE FEC for three years and know that the society evaluations often carry the day. After all, who knows how to evaluate and rank candidates better than the societies?

There are many deserving nominations that don’t make the cut each year because IEEE limits the number of newly-elected fellows to one-tenth percent of the total voting Institute membership; this number is typically about 250. In general, about 40% of the nominations the NPSS FEC evaluates are elevated to fellow grade. Last year, it was 42%, which is considerably higher than other societies that typically average 30-35%. I’d like to believe it’s because of the high-quality nominations we receive and the careful work done by the NPSS FEC to present our candidates in the strongest possible light. With respect to the latter, the NPSS FEC provides a summary form for each nomination that includes a ranking, but also a



Peter Winokur
*Chair Fellow
Candidates
Committee*

And we're glad...

In the competition between prohibition and bootlegging, the bootlegger will win.

Edward Teller

Economy

The best way to keep one's word is not to give it.

Napoleon Bonaparte

synopsis of the candidate qualifications for fellow grade.

Almost anyone can serve as a nominator of a candidate for IEEE Fellow grade; you do not even have to be an IEEE member. But, for perhaps obvious reasons, the following cannot be nominators: members of the IEEE Board of Directors, members of the IEEE Fellow Committee, chairs and members of IEEE Technical Society/Council Fellow Evaluating Committees, or IEEE Staff.

A nomination must be supported by at least five, but no more than eight references from active IEEE Fellows. A list of IEEE Fellows can be found at the IEEE Fellow Program Web Site or in the current IEEE Membership Directory. In addition, a Fellow Nomination Resource Center (FNRC) was established. The purpose of the Center is to assist nominators in locating the required number of references to support a nomination to IEEE Fellow Grade. The Center will operate on an experimental basis for a three-year period. It is a volunteer support group comprised of a Chair and Case Managers, all of whom must be IEEE Fellow grade members. Nominators desiring assistance from the FNRC must initiate a request by sending an e-mail to FNRC@ieee.org.

The biggest stumbling point for nominations is getting five references. If possible, nominators should list eight references. That way, if one or two references can't meet the deadline, the nomination still has the required five references. It is also important for nominators to communicate with the references and verify that they actually sent in the reference. This is the third year for the IEEE Electronic Fellow Nomination Process, which no doubt makes it easier to submit references.

The IEEE Board of Directors recently approved changes to the process for nominating and electing IEEE members to Fellow Grade. The goal of these changes is to increase the number of nominations received for members from industry and to make the process more receptive to nominations received for application engineers or engineering practi-

tioners who have made contributions of unusual distinction to the profession. Specifically, the changes established a new nomination category for individual contributions, "Application Engineer/Practitioner." This category recognizes significant contributions in "product development, advancement in system, application or operation, project management or construction activity, process development, manufacturing innovation, codes or standards development, or other application of technology."

Also, the existing designation; "Engineer/Scientist" was changed to, "Research Engineer/Scientist." The other existing categories, "Educator" and "Technical Leader" remain the same. So, the IEEE now recognizes contributions in four distinct categories.

The deadline for receipt of the Fellow Nomination Forms and Reference letters is the 1st of March, 2007. Nominating forms, detailed instructions, and frequently asked questions can be found at the IEEE Fellow Program Web Site at www.ieee.org/fellows. Don't wait to get started. Each year, several nominations just make the deadline.

Who is eligible to be nominated? The following requirements are from the IEEE Fellow Program Web Site: "To be nominated, the candidate must meet the following three basic qualifications: hold Senior Member grade at the time the nomination is submitted; be an 'active' member (that is, dues must be current); and must have completed five years of service in any grade of IEEE membership. Note: IEEE affiliate membership within an IEEE society does not apply."

Recognizing the achievements of its members is an important part of the mission of the IEEE. On behalf of the NPSS Fellows Evaluation Committee, we urge you to consider making an IEEE Fellow nomination this year!

Peter S. Winokur, Chair, NPSS Fellow Candidate Evaluation Committee, can be reached at the National Nuclear Security Administration, Washington, DC; Phone: +1 202 586-5480; E-mail: p.winokur@ieee.org.

DISTINGUISHED LECTURER PROGRAM LAUNCHED

The reinvigorated IEEE/NPSS Distinguished Lecturer Program (DLP) is now up and running. The primary purpose of this program is to provide stimulus for NPSS chapter meetings via high quality technical and scientific lectures by distinguished experts from the NPSS technical communities. The secondary purpose is to provide a vehicle for outreach by the technical communities within NPSS to further their work via presentations to non-IEEE entities such as universities, or other IEEE groups, to stimulate interest,

encourage support, and attract entry level engineers into the field. Lecturer visits to chapter meetings are fully sponsored by the NPSS. For more information please visit the new Distinguished Lecturer web site at http://ewh.ieee.org/soc/nps/NPSS_DLP.html. Talk abstracts are on the web, but are included below. See the web for new talks and abstracts as they are added.

Charles Neumeyer, Chapters and Distinguished Lecturers chair, can be reached by e-mail at neumeyer@pppl.gov



Charles Neumeyer,
Distinguished
Lecturers and
Chapters Chair

Characteristics of an Economically Attractive Fusion Power Plant

During the past ten years, the ARIES Team has studied a variety of tokamak power plants with different degrees of extrapolation in plasma physics and technology from present database. Continuation of research has allowed us to apply lessons learned from each ARIES design to the next. The results of ARIES tokamak power plant studies provide a large body of data that highlight the tradeoffs and relative leverage of advanced plasma physics and fusion technology directions. Our results indicate that for the same plasma physics (e.g., first-stability) and technology extrapolation, steady-state operation is more attractive than pulsed-plasma operation. Dramatic improvement over first-stability operation can be obtained either through utilization of high-field magnets (e.g., high-temperature superconductors) or operation in advanced-tokamak modes (e.g., reversed-shear). In particular, if full benefits of reversed-shear operation are realized, as is assumed in ARIES-AT, tokamak power plants will have a cost of electricity competitive with other sources of electricity. In the technology area, emerging technologies such as advanced Brayton cycle, high-temperature superconductor, and advanced manufacturing tech-

niques can improve the cost and attractiveness of fusion plants. For blankets, liquid breeder/coolants are the most attractive because most of neutron power is directly deposited in the coolant. This property can be exploited to arrive at a blanket design with a coolant outlet temperature higher than the structure temperature in the radiation zone. The high coolant temperature leads to high thermal conversion efficiency (as in ARIES-ST and ARIES-AT blankets). The dual-cooled (He and LiPb) ARIES-ST blanket using ferritic steel structural material represents a near-term option for fusion systems and achieves a thermal efficiency of 45%. Development of high-performance SiC composites leads to the high-performance ARIES-AT blanket (SiC composite/LiPb coolant) that achieves 59% thermal conversion efficiency as well as the full potential safety and environmental features of fusion power.

*Professor Farrokh Najmabadi
University of California, San Diego
Professor of Electrical and Computer
Engineering
Deputy Director, Center for Energy Research
IEEE Senior Member
<http://www-ferp.ucsd.edu/NAJMABADI/BIO/bio.shtml>*



Farrokh Najmabadi

Advanced Accelerator Research at SLAC



Robert Siemann

An overview of the advanced accelerator research at the Stanford Linear Accelerator Center (SLAC): Experiments are being conducted with the goal of exploring high gradient acceleration mechanisms. One line of research is devoted to plasma wake-field acceleration where a plasma wave is excited by a beam. Accelerating gradients of over 30 GeV/m have been generated, and particles have gained more than 10 GeV of energy. The other line of research is devoted to laser-driven dielectric accelerators. These linacs, shrunk down to the micron scale,

are concepts based on laser and photonic developments. The concepts and experimental results are described

Professor Robert H. Siemann, Ph.D.

Stanford Linear Accelerator Center

Professor of Applied Physics

IEEE Senior Member

AAAS Fellow

APS Fellow

<http://www.slac.stanford.edu/slac/faculty/hep-faculty/siemann.html>

Vacuum Electronics Technology



Baruch Levush

Vacuum electronics technology is both old and new. Its legacy of useful devices is outstanding, and it is still evolving with inventions that take advantage of new materials, new electromagnetic structures, and new approaches to achieve record levels of performance and reliability. Although some view it as a stodgy remnant of an old technology, soon to be supplanted, it has been and, as new requirements emerge, will continue to be the enabling technology for entire classes of high-power, high-frequency amplifiers with the most demanding specifications for use in both military and commercial systems. This presentation will explore the history and diversity of this

remarkable technology, with emphasis on advances in vacuum electronic amplifiers, including the Microwave Power Module (MPM), Gyroamplifiers and spatially distributed beam amplifiers, such as Multiple Beam and Sheet beam amplifiers that have been enabled by the ongoing development of physics-based modeling and simulation tools.

Dr. Baruch Levush

Naval Research Laboratory

Head of Vacuum Electronics Branch

IEEE Fellow

<http://www.nrl.navy.mil/pao/pressRelease.php?Y=2001&R=7-01r>

Plasma and Megagauss Fields



Peter Turchi

Megagauss magnetic fields interact with plasma both in the generation of high energy-density states of matter and in the use of magnetized plasma in multi-megampere pulsed power devices. The presentation provides a brief theoretical framework, in the limits of high magnetic Reynolds number and high magnetic pressure compared to plasma pressure, for subsequent discussions of several

applications. These applications include imploding plasma liners, the Plasma Flow Switch and Radiator, and controlled thermonuclear fusion. We consider issues of energy transport, surface interactions, stability, and technology choices.

Dr. Peter J. Turchi

Los Alamos National Laboratory

IEEE Fellow

Radiation Effects in Silicon-Based Heterostructure Device Technologies

Band-gap engineering is a power tool for electronic and photonic device optimization, but until recently it has been the exclusive domain of III-V technologies such as

GaAs or InP. The advent of robust epitaxial growth techniques in the silicon material system, however, is generating worldwide interest, because it enables band-gap engineering on far-

more-manufacturable silicon wafers. The most mature of the Si-based heterostructure electronic device platforms is the Silicon-Germanium Heterojunction Bipolar Transistor (SiGe HBT). At the present state-of-the-art, SiGe HBTs with frequency response above 300 GHz have been demonstrated, on CMOS foundry-compatible 200 mm wafers, and is being practiced commercially around the world. The combination of ultra-high-speed SiGe HBTs with scaled silicon CMOS, to form SiGe HBT BiCMOS technology, represents a unique opportunity for highly-integrated, low-cost, silicon-based system-on-a-chip or system-in-a-package solutions for emerging high-frequency wireless and wireline applications ranging from RF as high as mm-wave frequencies (e.g., to 100 GHz).

Interestingly, SiGe HBTs have been shown to have a built-in tolerance to total-ionizing dose radiation, and are also well-suited for operation down to very low-temperatures (to 4.2 K), and up to very high temperatures (to 300 C), making them very appealing for a wide-variety of emerging extreme environment electronics applications, which might be

needed, for instance, in space exploration.

This presentation will focus primarily on radiation effects in SiGe HBT devices and circuits. After an introduction to band gap engineering, SiGe strained layer epitaxy and its use in SiGe HBT design and fabrication, a detailed assessment of the impact of radiation on SiGe materials, devices, and circuits is presented, including: radiation tolerance; basic damage mechanisms; the effects of different radiation types; technology scaling issues; single event upset mitigation approaches; cryogenic operation; and the future directions of SiGe technology. Finally, recent developments in other Si-based band gap-engineered electronic devices, including strained-Si CMOS will be discussed, as well as the possibilities of Si-based photonic devices.

Dr. John D. Cressler
Byers Professor
School of Electrical and Computer Engineering
Georgia Institute of Technology
IEEE Fellow
http://www.ece.gatech.edu/faculty/fac_profiles/bio.php?id=123



John Cressler

Brookhaven National Laboratory's R&D on Advanced Sensor Technology for Homeland Security Applications

The need to harness advanced sensor technology to detect chemical, biological, radiological and nuclear, and explosives (CBRNE) agents is now in vivid focus. This presentation discusses Brookhaven National Laboratory's new sensor approaches designed to obtain and deliver fast and accurate information to intercept CBRNE materials and respond to a variety of homeland security threats. The talk will cover basic research related to the development of advanced detector

materials, applied development of prototype instruments, and the deployment of technology in real-life environments.

Dr. Ralph B. James
Associate Laboratory Director
Energy, Environment and National Security
Brookhaven National Laboratory
APS Fellow, SPIE Fellow, IEEE Fellow, AAAS Fellow
http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=04-109



Ralph B. James

Editor's Note: *In addition to the Distinguished Lecturers and talk abstracts presented above, the following talks are also available: Dr. Ralph B. James: Nuclear Radiation Detectors – Past, Present and Future, and Solid-State Cadmium-Zinc-Telluride Gamma Ray Detectors; Dr. J. Pace VanDevender: Ball Lightning – New Physics, New Energy Source, or Just Good Entertainment?; and, Dr. Charles H. Stallings: Pulsed Power – What Is It and Why Should You Care. Abstracts for these talks will be provided in the September Newsletter. Contact Charles Neumeyer (neumeyer@pppl.gov) with suggestions for other Distinguished Lecturers from our community.*

NEW IEEE NPSS FELLOWS

Ed. note: Each year IEEE NPSS honors its new Fellows by presenting their biographies in the Newsletter. In the March Newsletter we included those nominated and elevated through NPSS except for Edward Petersen. His biography is included here, as well as those of two other NPSS members nominated through other societies. Dr. Harrison Barrett was also elevated to Fellow for contributions to medical imaging, image processing and optics. We are very proud of our Fellows and again congratulate the entire class of 2005.

Edward Petersen



Edward Petersen

Edward Petersen received his B.S. and M.S. degrees in physics from Oregon State in 1954 and 1956, and his Ph.D. in nuclear physics from UCLA in 1966. From 1963 through 1969, he taught at San Fernando Valley State College and Oberlin College. In 1969, he joined the Naval Research Laboratory (NRL) cyclotron branch as a research physicist. He has 25 publications in nuclear physics. In 1980, he transferred to the NRL Radiation Effects branch as a research physicist. He was a section head of the Satellite Survivability Section from 1983 until he retired in 1993. Since that time, he has continued to be active as a consultant.

As Defense Nuclear Agency (DNA) (now the Defense Threat Reduction Agency (DTRA)) program area reviewer for Single Event Effects (SEU) Research from 1983 to 1993, he gained a broad overview of radiation effects research. Dr. Petersen led efforts under DNA sponsorship to impart importance of single event phenomena to the space community and to the VHSIC manufacturers in 1982 to 1985. During the peak of the SDI efforts (1985-1992), he was program manager for research in Neutral Particle Beam Radiation Effects in Electronics for the Survivability and Lethality Programs. He was also an advisor to the VLSI Radiation Hardening Program. He was program chairperson for the semiannual SEU Symposium from 1982 to 1994. Dr. Petersen was guest editor of a Single Event Upset Special Issue, and for two issues of the HEART Conference proceedings, for the *Journal of Radiation Effects* R&E.

Dr. Petersen has primarily attacked the engineering problem of estimation of upset rates in proposed satellite systems. This enables system designers to determine the severity of the error problem, and the necessity and choice of error toleration or elimination techniques. He has performed several critical reviews of the problems of both proton and heavy ion upset rate predictions and originated or studied various calculational approaches. His work has shown that measurements of space-upset rates are consistent with predictions based on laboratory experiments. He has presented general recommendations for data requirements in ground and space experiments. He has over 30 papers on radiation effects, the majority dealing with various aspects of the single event problem.

Dr. Petersen has been active in the IEEE Nuclear and Space Radiation Conference (NSREC). He has often served as a reviewer and has served as session chairperson and on the awards committee. He was an elected member at large on the NSREC Steering Committee from 1990 to 1993. He presented Single Event Effect Tutorials at the NSREC Short course in 1983 and 1997. Dr. Petersen was awarded the IEEE Nuclear and Plasma Sciences Society Radiation Effects Award in 1998.

Citation: For pioneering contributions to the understanding of upset rate calculations for microelectronics in space environments.

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Jeffrey Fessler

Jeff Fessler received the BSEE degree from Purdue University in 1985, the MSEE degree from Stanford University in 1986, and the M.S. degree in Statistics from Stanford

University in 1989. From 1985 to 1988 he was a National Science Foundation Graduate Fellow at Stanford, where he earned a Ph.D. in Electrical Engineering in 1990.

To our detriment

Practical politics consists in ignoring facts.

Henry Adams

From 1991 to 1992 he was a Department of Energy Alexander Hollaender Post-Doctoral Fellow in the Division of Nuclear Medicine at the University of Michigan. From 1993-1995 he was an Assistant Professor in Nuclear Medicine and the Bioengineering Program of the University of Michigan. Since 1995 he has been with the Department of Electrical Engineering and Computer Science, with secondary appointments in the Department of Biomedical Engineering and the Division of Nuclear Medicine of the Department of Radiology.

He is an IEEE Fellow, a past Associate Editor of the *IEEE Transactions on Image Processing* and the *IEEE Signal Processing Letters*, and a current Associate Editor for the *IEEE Transactions on Medical Imaging*. His research interests are in statistical aspects of medical imaging.

Citation: For contributions to theory and practice of image reconstruction.

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Jeffrey Fessler

Douglass E. Post

Douglass E. Post has been developing and applying large-scale multi-physics simulations for almost 35 years. He is currently the Chief Scientist of the DoD High Performance Computing Modernization Program and a member of the senior technical staff of the Carnegie Mellon University Software Engineering Institute. He also leads the multi-institutional DARPA High Productivity Computing Systems Existing Code Analysis team. Doug received a Ph.D. in Physics from Stanford University in 1975 in experimental molecular physics where he held Fellowships from the NSF, the Woodrow Wilson Foundation and the Fannie and John Hertz Foundation. He was a principal research physicist at the Princeton University Plasma Physics Laboratory and led the tokamak modeling group there from 1975 to 1993. He was the US physics and impurity control delegate to the International Tokamak Reactor (INTOR) Project from 1980 through 1987. He served as head of International Thermonuclear Experimental Reactor (ITER) Joint Central Team Physics Project Unit (1988-1990), and head of ITER Joint Central Team In-vessel Physics Group (1993-1998). More recently, he was the A-X Associate Division Leader for Simulation at the Lawrence Livermore National Laboratory (1998-2000) and the Deputy X Division Leader for Simulation at the Los Alamos National Laboratory (2001-2002), positions that involved leadership of major portions of the US nuclear weapons simulation program. He has published over 230 refereed papers, conference papers and books in computational, experimental and theoretical physics and software engineering that have received over 5000 citations. He is a Fellow of both the American Physical Society and the American Nuclear Society. He was elected a fellow



Douglass E. Post,
Machu Picchu, Peru

of the Institute of Electrical and Electronic Engineers this year “for contributions to fusion science and modeling, and related software engineering.” These included the development of computational tools for predicting the behavior of tokamak plasmas and the radiation losses from plasmas, leadership of fusion projects (especially the International Thermonuclear Experimental Reactor physics project unit from 1988 through 1990), leadership in the simulation of nuclear explosives, and the development of software engineering and software project management practices for large-scale computational science and engineering projects. He serves as an Associate Editor-in-Chief of the joint AIP/IEEE publication *Computing in Science and Engineering*. His current research interests focus on software engineering for large-scale computational scientific and engineering projects.

Citation: For contributions to fusion science and modeling, and related software engineering.

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Me too!

I'd like to achieve immortality - not through my work, but through not dying.

Woody Allen

TAKING THE INITIATIVE IN AMERICAN COMPETITIVENESS



Kenneth F. Galloway,
Dean, Vanderbilt
School of
Engineering

In his State of the Union Address, President Bush called for a sharpening of America's competitiveness and highlighted the need to pick up the pace of innovation in order to thrive on the playing field of global commerce.

The President touched on it, but recent books (e.g., *The World is Flat*) and national reports (e.g., *Rising above the Gathering Storm*) have been more explicit on the challenge: The world is catching up with the U.S. in engineering, science, and information technology – areas that directly impact economic competitiveness. In the past decades, we have watched as our nation's manufacturing base has eroded and many operations, along with thousands of jobs, have migrated to foreign countries with cheaper labor. We have tolerated this, encouraging workers to retrain for the new information economy and to obtain more education to keep up with the changes.

As the dean of engineering at Vanderbilt University, I am a great believer in education – particularly education in science, technology, engineering and mathematics (STEM). But now we are seeing significant international competition at some of the highest levels, with international firms hiring engineers from other countries at lower salaries than they must pay U.S. engineers. Is getting a strong education and specialized technical training enough for the next generation to secure their future?

Indeed, that would be a significant start! A disturbing fact is that the number of U.S. students capable of and interested in pursuing careers in engineering, science and technology is flat or dropping. These are the students that will invent the new products, create future innovations, and make us competitive in the global economy. Meanwhile, in many other nations, the STEM numbers are growing. There is no question that bringing our K-12 students up to speed in math and science is a vitally important component of any strategy to enhance our economic competitiveness in the world.

But I believe we have to do more. The best way to keep jobs here in the U.S. is to show that we can get the job done better – we must do as Larry the Cable Guy says – “Git-R-Done.”

Sen. Lamar Alexander (R-TN) and Sen. Jeff Bingaman (D-NM) as initiators of the NAS/NAE study *Rising above the Gathering Storm* have stressed our need as a nation to make significant investments in science and engineering. These investments must be in money, in people, and in national willpower.

To successfully tackle these issues, we must leverage both our technical expertise and our characteristically American ability to sweep aside conventional thinking and traditional, limited mindsets. As a nation we are all about frontiers. This new phase of world development is a new frontier. We must approach this mission of keeping our economy healthy and thriving as the challenge of a new frontier and as an adventure rather than some dire emergency. We will need a spirit of adventure to deal not only with foreign competition but the increasingly unwieldy complexity in our world.

We all face the problem of managing the knowledge explosion in all of the science and engineering disciplines. In order to solve many of the technological challenges that confront us – whether they be in energy, the environment, medicine, national security, or industrial production – we must build cross-disciplinary teams. In many of our universities, we have truly come a long way in learning how to break down traditional barriers between academic disciplines so that we can attack these problems and create better solutions. It is vitally important that our government understand that innovative breakthroughs come largely from science and engineering research, U.S. research universities are major performers of this research, and that this research is well worth the investment of federal dollars.

Also at the universities, we need to teach students to effectively and creatively tackle big problems. Many of us are using research about how people learn to develop a very different approach in teaching our students. And, we are working to make these teaching strategies available to K-12 teachers, so that students' natural curiosity and interest about technology and science will be encouraged.

We need participation in the adventure of

Food for thought

Laws are like sausages. It's better to not see them being made.

Bismark

innovation from a new generation of scientists and engineers that includes the strength that comes from diversity. We want to ensure that a STEM education is both attractive to and within reach of many more of our students.

Americans are an inventive, resourceful people. We roll up our sleeves when it's clear there is a need. But we can also be complacent and not respond to danger until it is very nearly too late. My hope is that the President's comments will encourage the Congress and the American people to address this multi-faceted challenge and to embrace the adventure of innovation and the new frontier of global competitiveness.

OTHER NEWS

John F. Osborn 1915 - 2006

Ed. note: Jack Osborn, known to many of you, edited this Newsletter for almost 26 years before passing the reins to Ken Dawson. Even in retirement, Jack continued to be interested in and involved with the Newsletter, helping Ken to track down articles and get hold of delinquent contributors. His contributions, devotion and energy expended to ensure the life and quality of this publication were immeasurable. Our community has lost another pioneer

John F. Osborn (Jack) 91, a Sacramento resident since 1991, and previously of San Jose, died March 4, 2006. Eleanor, his wife of 63 years preceded him in death in 2003. Jack was born in Montmartre, Saskatchewan, Canada, and graduated from the University of Manitoba with a degree in electrical engineering. He married Eleanor Stacey of Peterborough, Ontario, Canada in 1940 and the couple remained in Peterborough, while Jack worked for Canadian General Electric. In 1948, Jack accepted a job in San Francisco with the USA branch of GE and moved to Piedmont, California. He moved to Willow Glen in San Jose in 1963, after transferring to GE's nuclear energy division in SJ. In 1991, Jack and Eleanor moved to Sacramento to be near their grandchildren. He was a loving father of Dr. John M. Osborn of Sacramento (wife, Dr. Katie Osborn) and Dr. Jane Osborn of Los Altos (husband, Jonathan Shores). He was a devoted grandfather to John's children, Staci and Mike Osborn. He is survived by his sister and brother-in-law, Marjory and Ward English of London, Ontario. Jack worked for

REFERENCES

The World is Flat: A Brief History of the Twenty-First Century, Thomas L. Friedman, Publishers: Farrar, Straus, and Giroux, NY, 2005.

Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future, a report of the NAS/NAE/IOM, National Academies Press, 2005 (see www.nationalacademies.org/cosepup).

A version of this Op-Ed piece appeared in The Nashville Tennessean on February 3, 2006. Ken Galloway is a long-time member of the IEEE Nuclear and Plasma Sciences Society and a Fellow of the IEEE. He received the IEEE NPSS Radiation Effects Award in 2002.

Musclebound

His strength is his only weakness.

Thomas King



John F. Osborn

GE for 45 years, as an electrical and nuclear engineer, before retiring in 1983. During WW2, Jack designed the electrical systems for the minesweepers used by the Canadian Navy. He was Editor in Chief of the Institute of Electrical and Electronic Engineers (IEEE) Nuclear and Plasma Sciences Society Newsletter for 26 years until 1994. He was the recipient of the IEEE divisional professional leadership award for outstanding service and leadership in 1992, and the IEEE-NPSS R.F. Shea distinguished member award in 1994. He was a member of IEEE, the California Writers Club, and the First Congregational Church of Oakland and San Jose. Jack will be remembered as an intelligent, kind, talented and handy person, who could design, build and repair just about anything. He enjoyed diverse interests, including photography, woodworking, reading and writing. Plans for a memorial service are still pending.

Written for the San Jose Mercury News by Dr. Jane Osborn, who will write a more personal piece on Jack for the September Newsletter.

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