

Nuclear & Plasma Sciences

Number 3 • September 2003

SOCIETY NEWS

CONFERENCES

2003 NUCLEAR SCIENCE SYMPOSIUM AND MEDICAL IMAGING CONFERENCE

Including the
Symposium on Nuclear Power Systems
and
13th Room-Temperature Semiconductor X-Ray and
Gamma-Ray Detectors Workshop

DoubleTree Jantzen Beach
DoubleTree Columbia River
Portland, Oregon
October 19-25, 2003
<http://www.nss-mic.org/2003>

The 2003 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC) will be held from October 19-25, 2003 in Portland, Oregon at the DoubleTree Jantzen Beach and Columbia River facilities. The NSS and MIC meetings will be chaired by Uwe Bratzler and Michael King, respectively. Scientists and engineers in the field of Nuclear Science and Medical Imaging will participate and present original work in a variety of subject areas. On October 22nd, the Symposium on Nuclear Power Systems, chaired by Jay Forster,

will continue the tradition of meeting in conjunction with the NSS/MIC. From October 20-24 Ralph James and Paul Siffert will host the 13th Room Temperature Semiconductor X-Ray and Gamma-Ray Detectors Workshop. Satellite workshops, such as Hadron Therapy, Global Detector Network, Compton Camera, and others will take place during the week. The entire week should be technically stimulating and foster collaboration among the nuclear science and medical imaging communities.

continued on page 3



Ralph James
NSS/MIC General
Chair



Uwe Bratzler
NSS Program Chair



Michael King
MIC Program Chair



Jay Forster
SNPS Program 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 January 15, 2004.

CONTRIBUTED ARTICLES

News articles are actively solicited from contributing editors, particularly related to important R&D activities, significant industrial applications, early reports on technical break-throughs, 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.

Committee Chairpersons, Liaison Representatives, and other Ad Com members are particularly reminded that reports, award announcements, or observations on society interests are needed and should be submitted where possible before the copy deadline of January 15, 2004.

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CONFERENCES (cont'd)

Portland has much to offer. The Pacific shore to the west offers a spectacular, rugged coastline, sport fishing, and great opportunities for beachcombing. Wineries and tasting rooms dot the landscape. The Cascade Mountains provide extraordinary skiing (year-round at Mt. Hood), climbing, fishing, and picnicking. The Columbia River Gorge to the east of Portland offers stunning scenery of waterfalls and numerous opportunities to sample the fruits and wines produced in the region. You might consider seeing Mount St. Helens and take notice of nature's splendor and its ability to recover from catastrophic volcanic emissions, or visit Crater Lake to the south, Oregon's brilliantly blue showpiece and national park. The parks beckon visitors from around the world with hiking, photography, river rafting, camping, and a long list of other outdoor activities. The conference will arrange a selection of programs for you and your companions that will provide an attractive shopping bag of alternative activities.

Nuclear Science Symposium (NSS)

The Nuclear Science Symposium offers an outstanding opportunity for scientists and engineers interested or actively working in the fields of nuclear science, radiation instrumentation, software and their applications to meet and network with colleagues from around the world. In addition to the regular NSS program there will be a number of dedicated Workshops and Educational Courses (Short Courses) on specialized NSS topics. The NSS is running together with the MIC, SNPS and RTSD and one important aspect is to further communication and discussions among these different disciplines.

Having received a record number of over 600 contributions from colleagues working on numerous NSS topics from around the world (and 1,200 contributions for the overall NSS/MIC), we have decided to expand the NSS program this year both in terms of days and content. While the traditional NSS Parallel and Poster Sessions, Workshops and Short Courses offer the opportunity for very detailed, dedicated and highly specialized presentations and discussions by world experts in the corresponding fields, Plenary Sessions have been added to provide overview and help to integrate the NSS program as events where all attendees may participate, and also

meet with each other. The NSS Poster Sessions are given special attention this year as there will be no scheduled NSS oral sessions during the 2-hour poster sessions. All conference participants are invited to the Poster Sessions with poster authors present and available for discussions. Joint NSS/MIC and NSS/RTSD events will also be offered.

This year's NSS will start on Monday, October 20 and will run through Friday, October 24, 2003. One of the true highlights will be the traditional Tuesday NSS Opening Session (9:00-12:00) that includes very prominent experts and leaders in our fields for exciting plenary presentations on the most outstanding current and planned research projects. The speakers will be Prof. Yoji Totsuka, Director General of KEK Japan; Prof. Keith Hodgson, Director of the Stanford Synchrotron Radiation Laboratory USA; and Prof. Edward Kolb, founding head of the NASA/Fermilab Astrophysics Group at the Fermi National Accelerator Laboratory and a Professor of Astronomy and Astrophysics at the University of Chicago, USA. The Opening Session is then followed by the NSS Luncheon (12:00-14:00) during which Prof. Hitoshi Murayama of the University of California, Berkeley, will tell us about the "Mysteries and Future Directions in Particle Physics".

General information, including an online version of the detailed NSS program, can be found on our conference website, www.nss-mic.org/2003, but please feel free to contact us at any time for feedback, suggestions, questions or advice, and in particular if you feel that we can be of help to you – our e-mail address is nss2003@cern.ch.

Uwe Bratzler is the NSS Program Chair and Maxim Titov the NSS Deputy Program Chair.

Medical Imaging Conference (MIC)

The MIC program, chaired by Michael King and Stephen Glick from the University of Massachusetts starts on Wednesday, October 22 with an MIC Plenary session at which Dr. Roderick Pettigrew, Director of the new National Institute of Biomedical Imaging (NIBIB), will discuss the future of medical imaging in relation NIBIB. This will be followed by plenary talks given by Dr. Benjamin Tsui and Dr. Edward Hoffman, who will discuss the



Maxim Titov
*NSS Deputy Program
Chair*

Meeting of minds

Committee: A group of people who individually can do nothing, but as a group decides that nothing can be done.

Fred Allen

state-of-the-art and future directions for SPECT and PET imaging. Following the tradition of the 2002 MIC, the second plenary session on Wednesday morning will be held jointly with NSS and RTSD. At this session Dr. William Moses will provide us with an update on scintillation detectors and their use in medical imaging, and Dr. Harrison Barrett will discuss semiconductors and medical imaging.

Following these plenary sessions there will be seven oral sessions and six poster sessions. The oral sessions will continue to be in single session format. Due to the phenomenal growth of MIC, the posters will only be able to be up for approximately two days each. Posters 1 through 177 will be placed in numerically ascending order in the DoubleTree Ballroom of the Columbia River Hotel between 6 p.m. on Tuesday, October 21, and 10 p.m. on Thursday, October 23. Similarly, posters 178 through 354 will be in the Salon 1 East Ballroom of the Jantzen Beach Hotel between 6 p.m. on Thursday, October 23, and 9 p.m. on Saturday, October 25. Posters are assigned to sessions such that every third poster should have a presenter present during a session. The poster hall will be open 24-hours per day to allow off-hour viewing.

On Friday afternoon a third plenary session will be held. Dr. Steve Webb, author of *From The Watching Of Shadows*, will review the fascinating historical foundations of tomographic imaging. This will be followed by an open business meeting of the Nuclear Medicine and Imaging Sciences Technical Committee (NMISTC) which sponsors MIC. At this meeting the 2003 Young Investigator, Student Travel, and other awards will be announced, and plans for future MIC's will be discussed.

Friday night the MIC banquet will be a Columbia River cruise on board the beautiful "Portland Spirit". The ship will meet guests at the Jantzen Beach DoubleTree boat dock and cruise up-river with a buffet dinner, wine tasting, and music. We encourage all interested to buy their tickets early as seating will be limited.

There are also four exciting MIC short courses that will be held before the official start of the MIC. Additionally there will be two joint oral sessions with NSS and RTSD on Tuesday.

Michael King is the MIC Program Chair and Stephen Glick the Deputy MIC Program Chair.

13th Room Temperature Semiconductor X-ray and Gamma-Ray Detectors Workshop

It is our great pleasure to announce to you the 13th International Workshop on Room-Temperature Semiconductor X-Ray and Gamma-Ray Detectors. This bi-annual conference represents the largest forum of scientists and engineers working to develop new solid-state radiation detectors and imaging arrays. As Chairs for the workshop, we are particularly delighted to make the acquaintance of new contributors, as there are many challenges that lie ahead, some of which will be solved by those who are now relatively new to the subject area.

It is our sincere hope that this conference will facilitate cross-fertilization of research and spawn creative ideas, and that these ideas will be incarnated into knowledge, lending to new directions and thrusts. We urge you to take time at this meeting to build on the commonality of your work with colleagues within the RTSD, NSS and MIC conferences, and to share your data, energy and experience, and explore ways to enhance cooperation and collaboration with others.

We have chosen to hold this meeting in conjunction with the IEEE NSS and MIC meetings for the purpose of encouraging information exchange between a much larger body of scientists and engineers who have an in-depth knowledge of detectors, instrumentation, nuclear science and technology, and medical imaging. Joint sessions between the NSS and Satellite on Interconnect Technology are planned to help bring people together with common interests and offer the right environment for the creation of new and fruitful associations.

Ralph B. James and Paul Siffert are the RTSD Program Co-Chairs

Symposium on Nuclear Power Systems (SNPS)

The 2003 Symposium on Nuclear Power Systems (SNPS) will again be held in conjunction with the Nuclear Science Symposium and Medical Imaging Conference. The Technical paper sessions on nuclear power systems cover subjects currently of major interest to the operation of nuclear power stations and supporting services and suppliers, including:

- Upgrading digital technology for reactor protection, I&C, and other systems
- Reliability-based maintenance and plant modernization



Stephen Glick
*MIC Deputy Program
Chair*

Solution, Please!

But the difficulty of sustaining enthusiasm without giving militants excessive power has been one of the perennial problems of democratic government.

Roy Jenkins

- New aspects on equipment qualifications
- A special annual overview report of major importance to nuclear power utilities
- A panel session of major importance to operating NPGS
- And more

For further information please call Jay Forster, SNPS Program Chairman, GE Nuclear Energy, M/C 334, 175 Curtner Ave., San Jose, CA 95125; Phone: +1 408 925-5090; Fax: +1 408 925-2923; E-mail jay.forster@gene.ge.com

Short Courses

An excellent set of short courses will be given at the start of the NSS/MIC program, covering a wide range of nuclear and medical technology. The titles and lengths of these courses are:

- GEANT4 (8 hr)
- Nuclear Science for Homeland Security (8 hr)
- Fundamentals of Medical Imaging (8 hr)
- Integrated Circuit Front Ends for Nuclear Pulse Processing (8 hr)
- Dosimetry in Nuclear Medicine — Importance and Necessity (8 hr)
- Dynamic Imaging in Emission Computed Tomography (4 hr)
- Statistical Image Reconstruction Methods (4 hr)

All courses include refreshments, lecture notes, and a certificate of completion as part of the registration fee. Full day courses also include lunch. Detailed descriptions of the courses may be found at www.nss-mic.org/2003/SC2003.html.

Steve Derenzo, Short Course Chair

Registration

This year, in addition to discounted registration fees for students, we are offering discounted fees for the Continuing Education Program. Please check the NSS/MIC web site, www.nss-mic.org/2003/nsshome2003.html, for details about the courses, dates and fees. Note that the early registration deadline is September 26. The special hotel conference rates are available up to and including October 1. Advance registration savings are \$110 for regular registration, \$50 for students, and \$50 for retired or unemployed IEEE members. Of course, there are the special rates for IEEE members, which are up to \$110 less than those

for non-members. Student travel awards will also be available, with preference given to those who are presenting at the NSS and MIC.

Judy Sanders, Registration Chair

Social Events

Welcome, Companions and Attendees! Treat yourself to our scenic day tours and experience the autumn beauty of the Pacific Northwest! One trip has been planned for each day from October 19 – 25, including:

- Tour of Mt. Saint Helens
- Tour of Multnomah Falls, Columbia Gorge and Mt. Hood
- Tour of Wine Country
- Tour of Portland
- Tour of Astoria and the Oregon Coast
- Tour of Old-Town Aurora and outlet shopping
- Tour of Edgefield, a microbrewery and outlet shopping

Detailed descriptions can be found at the NSS/MIC web site.

You are also cordially invited to attend the two general interest talks that we have arranged for the meeting:

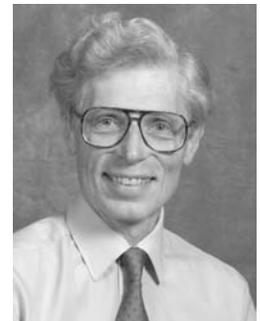
- Wednesday, 5:45pm - Professor Kathy Cashman, Univ. Oregon: **Mount St. Helens And Modern Studies Of Active Volcanoes: Volcanology For Beginners**
- Thursday, 5:45pm - Professor Stephen Dow Beckham, Lewis and Clark College: **The Lewis And Clark Expedition: The First Commitment Of The United States To Federally Funded Scientific Research**

Some of the trips into the mountains could be chilly and rainy so it is advisable to bring along raingear, such as a raincoat, hat and umbrella. Bring along a sweater, jacket, scarf and gloves. If you find that you don't need them, you can leave them on the bus during the tour. Wear sturdy walking shoes or sneakers.

If you register for the tours during pre-registration you will receive a five-dollar discount for each tour selected.

Marie James, Companion Program Chair

Other activities to be held during the week include an Exhibition Program that will be open from Tuesday afternoon through Thursday afternoon. Many companies involved in Nuclear Science and Medical Imaging Instrumentation will be present to discuss the technical details of their products. Tuesday evening



Stephen Derenzo
Short Course Chair

Right on!

All peoples have the right to misgovern themselves, and it is a right that has been exercised more often than most.

Robert Blake

the exhibitors will host an opening reception from 5:00pm – 7:00pm.

On Wednesday evening from 6:00pm to 9:00pm, the conference will host the General Welcome Reception for all attendees in the Mt. St. Helens Ballroom; and, weather permitting, use of the outside deck adjacent to the boat dock will also be available. The view you will see from this area of the hotel is that of Mt. St. Helens, which is breathtaking, especially at dusk.



Vernon Price
*Chair, NPSS
Membership
Committee*

Are you a member of IEEE?

Now is the time to join the IEEE and the Nuclear and Plasma Sciences Society (NPSS). Why? First of all, as an IEEE member, you get to be a member of the largest professional engineering society in the world. NPSS is one of 38 societies within IEEE. About half of the attendees at the Nuclear Science Symposium are IEEE members and most of those are also members of NPSS. Full membership in IEEE costs \$146 per year. NPSS membership is \$20 per year. NPSS members receive a free subscription to NPSS News and to Spectrum. Further, our members have an opportunity to purchase subscriptions to the Transactions on Nuclear Science, the Transactions on Plasma Science and the Transactions on Medical Imaging. These publications (separately subscribed to) are available in print form or they may be subscribed in electronic form at www.ieee.org/ieeexplore on the Web. For the electronic version the subscriber arranges with IEEE to obtain a 'web account' for access with a PIN number. With a subscription to IEEE Xplore, members can search and view digital copies of papers in the subscribed journals published since 1989.

You can join IEEE and NPSS on line by going first to the NPSS home page located at: <http://ehw.ieee.org/soc/nps>

By selecting 'Join NPSS' you will jump to the page with options for joining or renewing either as regular members or as students. Students planning to come to the conference are particularly advised to join IEEE/NPSS prior to registering for the conference. Considerable money will be saved by doing so. Students need the endorsement of their IEEE member faculty advisor for acceptance as an IEEE Student Member.

Non-member registrants at the conference who wish to join IEEE will be given a promotional benefit of \$50 toward their 2004 IEEE membership fee, membership in NPSS for 2004 and a subscription to either TNS or to TMI for 2004.

What are you waiting for? Apply for membership today! See Vernon G. Price, the NPSS Membership Committee Chair, at the IEEE membership desk.

Conference Website

Information on registration, travel awards, conference sessions, publication in the IEEE Transactions on Nuclear Science, the local educational outreach program and other information are available on our website, <http://www.nss-mic.org/2003/nsshhome2003.html>.

Ralph B. James, General Chair, can be reached at Bldg. 460, Brookhaven National Laboratory, 40 Brookhaven Avenue, Upton, New York 11973; Phone: +1 631-344-8633; Fax: +1 631-344-5584; E-mail: rjames@bnl.gov; or Bonnie Sherwood, Conference Coordinator, also at Brookhaven National Laboratory; Phone: +1 631-344-7250; Fax: +1 631-344-5584; E-mail: sherwood@bnl.gov ☐

Travel Alert for Visitors to the USA

Note that as of October 1, 2003, machine-readable passports will be required of all persons entering the USA from countries with Visa-Waiver Programs. If you are from one of these countries and do not have a machine-readable passport, a visa will be required. Obtaining a visa requires a personal visit to a

US Embassy. Visa processing has been slow. If you plan to attend an NPSS conference it is advisable to either get a new, machine-readable passport, or begin your visa application process as early as possible. For more details and up-to-the-minute information, see <http://unitedstatesvisas.gov/visanews/index.html> ☐



ICALEPCS 2003

9TH INTERNATIONAL CONFERENCE ON ACCELERATOR AND LARGE EXPERIMENTAL PHYSICS CONTROL SYSTEMS

Gyeongju, Korea
October 13-17, 2003

The ninth International Conference on Accelerator and Large Experimental Physics Control Systems (ICALEPCS2003) will be held in October 13-17, 2003 at Hotel Hilton in Gyeongju, Korea.

We are pleased to invite all those involved worldwide in the field of controls and having an interest in the challenging aspects of Experimental Physics Control Systems, i.e. control systems for sophisticated facilities such as particle accelerators, particle detectors, telescopes and nuclear fusion devices. Both hardware and software aspects of control systems will be addressed. ICALEPCS2003 will provide a unique opportunity to hear about the latest developments, the latest technologies, to exchange experiences and to discuss with experts in this field from world's major laboratories.

ICALEPCS2003 is organized by the Pohang Accelerator Laboratory, POSTECH, and co-organized by the European Physical Society (EPS) Interdivisional Group on Experimental Physics Control Systems (EPCS) under auspices of the International Federation of Automatic Controls (IFAC), the Institute of Electrical and Electronics Engineers (IEEE) through its Nuclear and Plasma Science Society (NPSS), and the Association of Asia Pacific Physics Societies (AAPPS). The conference is also co-organized by the Korea Basic Science Institute, the Korea Atomic Energy Research Institute, and the Center for High Energy Physics at Kyungpook National University.

The scientific program of the conference consists of invited and contributed talks, all in plenary sessions from Monday to Friday morning, and poster sessions with some live demos. An industrial exhibition will be held concur-

rently. On Friday afternoon, technical visits to the Pohang Accelerator Laboratory and POSCO, the world second largest steel producer, are planned.

Gyeongju is located in the southeastern area of the Korean peninsula. It is placed 360 km from Seoul, the Capital city of Korea, and 30 km away from Pohang. On a fertile plain surrounded by mountains, Gyeongju was the capital of the Silla Dynasty (57 BC - 935 AD). It has a great concentration of historic buildings, temples, grottos, royal tombs, and artifacts. Thus, this area is called a "Museum without Walls." The UNESCO declared this area as a "Human Heritage." A conference tour as well as a companion program is planned on Saturday, October 18 to visit many of these places.

Highlights of the Conference as well as the details of the program are provided at: <http://icalepcs2003.postech.ac.kr>.

Program

ICALEPCS2003 will emphasize the following topics:

- Internet enhanced operations and automations
- Safety/high reliability critical operations
- Wireless technologies in control
- Distributed knowledge management
- Project management
- Status reports of various facilities in the world
- Middleware/componentware
- Advances in hardware design
- Evaluation and use of industrial control systems



Axel Daneels
ICALEPCS2003
Co-Chair



In Soo Ko
ICALEPCS2003
Co-Chair

- Process tuning and feedback system
- Evolution of a control system, maintenance, upgrading, and re-engineering
- Front end technologies
- Beam instrumentations
- Software engineering
- Industrial Exhibition

There will be at least seven companies in the industrial exhibition.

Social Program

A welcome reception and a Banquet at Hotel Hilton have been planned to give Conference at-

tendees a chance to get better acquainted. After the Banquet, Korean traditional performance will take place to give more understanding of Korean culture to all participants. In addition, local tours in Gyeongju and vicinities have been arranged for the companions of attendees.

Additional Information

For the most updated information (registration, program and industrial exhibition, conference and social program, hotel and travel information, etc.), please visit the ICALEPCS2003 website. 

2004 NSREC GEARING UP!



The 2004 IEEE Nuclear and Space Radiation Effects Conference will be held July 19-23, 2004 in Atlanta, Georgia, at the Renaissance Waverly Hotel. The conference features a Technical Program consisting of ten sessions of contributed papers that describe the latest observations and research results in radiation effects, a Short Course focusing on hardness assurance and photonics challenges for space systems that will be presented on July 19, a Radiation Effects Data Workshop, and an Industrial Exhibit. The Technical Program includes oral and poster sessions.

The conference hotel is conveniently located in northwest suburban Atlanta at the intersection of I-75 and I-285. 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 Defense Threat Reduction Agency, Sandia National Laboratories, Air Force Research Laboratory, and the NASA Electronic Parts and Packaging Program.

Technical Program

Papers to be presented at this meeting will describe the effects of space, terrestrial (yes, radiation effects have reached the desktop!), or nuclear radiation on electronic or photonic devices, circuits, sensors, materials and systems, as well as semiconductor processing technology and techniques for producing radiation-tolerant devices and integrated circuits. The Conference will be attended by engineers, scientists and managers who are concerned

with radiation effects. International participation in the Conference is strongly encouraged.

We are soliciting papers describing significant new findings in the following or related areas:

Basic Mechanisms of Radiation Effects in Electronic Materials and Devices

- Ionizing radiation effects
- Displacement damage effects
- Radiation effects on materials
- Single-event charge collection phenomena and mechanisms
- Processing-induced radiation effects
- Radiation transport, energy deposition and dosimetry

Radiation Effects on Electronic and Photonic Devices and Circuits

- MOS, bipolar and advanced technologies
- SOI and SOS technologies
- Optoelectronic and optical devices, and optical systems
- Novel devices structures, such as MEMS
- Single-event effects
- Modeling of effects on devices, circuits and systems
- Methods for hardened design and manufacturing
- Radiation effects at cryogenic temperatures
- Particle detectors and associated electronics at high-energy accelerators

Space, Atmospheric and Terrestrial Radiation Effects

- Characterization and modeling of radiation environments
- Space weather effects

My kind of boss

I am the Director but I don't direct.

**Gerhard Herzberg
(Nobel Laureate)**

- Spacecraft charging

Hardness Assurance Technology and Radiation Testing

- Testing techniques and guidelines
- Hardness assurance

Radiation Effects on Commercial Space Systems

New Developments of Interest to the Radiation Effects Community

Radiation Effects Data Workshop

The Radiation Effects Data Workshop is a forum for papers on radiation effects data on electronic devices and systems. Workshop papers are intended to provide radiation response data to scientists and engineers who use electronic devices in a radiation environment, and for designers of radiation-hardened or radiation-tolerant systems. Papers describing new simulation facilities are also welcomed.

Paper Submittal

Information on the submission of summaries to the 2004 NSREC for either the Technical Sessions or the Data Workshop can be found at www.nsrec.com. The deadline for submitting summaries is February 6, 2004.

Short Course

Attendees will have the opportunity to participate in a one-day Short Course on Monday, July 19. We are currently putting together a short course that focuses on hardness assurance and photonics challenges for space systems. It will consist of tutorial presentations that begin with basic material, and develop a thorough understanding of how advanced microelectronics and photonics are affected by radiation, as well as ways to select advanced microelectronics for space applications. The course will be of interest both to radiation effects specialists and newcomers to the field alike.

Industrial Exhibit

An Industrial Exhibit will be included as an integral part of the Conference. The exhibit will be held on Tuesday and Wednesday. It will include exhibits from 35-40 exhibitors that represent companies or agencies involved in manufacturing electronic devices or systems for applications in space or nuclear environments, modeling and analysis of radiation effects at the device and system level, and radiation testing.

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Help, Dr. Freud

You certainly wouldn't call him normal. He's consistently abnormal, but that's maybe what makes him more normal than the rest of us.

*Nancy Nicholds
(of Roger
Neilson)*

Announcement of the 2004 IEEE NSS/MIC/SNPS and RTSD Congress

Rome, Italy - October 16-22, 2004

The Nuclear Science Symposium, Medical Imaging Conference, Symposium on Nuclear Power Systems and 14th International Workshop on Room Temperature

Semiconductor X- and Gamma-Ray Detectors will be held for the first time in Italy, in the prestigious city of Rome, on October 16-22, 2004. This conference represents a unique oc-

casation for scientists and engineers from all over the world to participate and present their original works in a variety of subjects related to nuclear science and medical imaging.

The Nuclear Science Symposium offers an outstanding opportunity for scientists and engineers interested or actively working in the field of nuclear science, radiation instrumentation, software and their applications to meet and network with colleagues from around the world.

The Medical Imaging Conference is the most productive international scientific meeting on the physics, engineering, and mathematical aspects of nuclear medicine based imaging. In addition, significant contributions in X-ray and other imaging modalities involving ionizing radiation are an emerging area of the Medical Imaging Conference.

The Symposium on Nuclear Power Systems will again be held in conjunction with the Nuclear Science Symposium. The Technical paper sessions on nuclear power systems cover subjects currently of major interest to the operation of nuclear power stations and supporting services and suppliers.

The Room Temperature Semiconductor X- and Gamma- Ray Detectors workshop represents the largest forum of scientists and engineers working to develop new solid-state radiation detectors and imaging arrays.

The venue of the conference is the Ergife Palace Hotel, one of the largest exhibition and congress areas in Europe. Its complex is unique, combining the largest hotel in Italy with one of the most extensive exhibition facilities in Europe on the same site. This provides a remarkable opportunity to make the congress activity pleasant and relaxing, saving time and avoiding such things as the stress of traffic in the city. The Ergife Palace Hotel is located in a residential area of the capital in a key position near S. Pietro and within a short distance of the historical center of the city. It is only 4 kilometers from the main Ring Road, and only 26 kilometers from Fiumicino's Leonardo da Vinci International Airport. It is within walking distance of the underground station. Regular bus services provide connections with all of the important cultural sites and commercial centers in Rome. Taxi services are constantly available to guests and a shuttle service is provided by the hotel on demand.

Additional information can be obtained by contacting Alberto Del Guerra, the 2004 IEEE NSS/MIC General Chair. He can be reached at the University of Pisa, Department of Physics "E.Fermi", Via Buonarroti 2, I-56127 Pisa, ITALY; Phone: +39-0502214942; Fax: +39-050 2214333; E-mail: alberto.delguerra@df.unipi.it



Alberto Del Guerra
General Chair
2004 NSS/MIC

Our self-imposed fate

We live at a time when man believes himself fabulously capable of creation, but he does not know how to create. Lord of all things, he is not lord of himself. He feels lost among his own abundance. With more means at its disposal, more knowledge, more technology than ever, it turns out that the world today goes the same way as the worst of worlds that have been: it simply drifts.

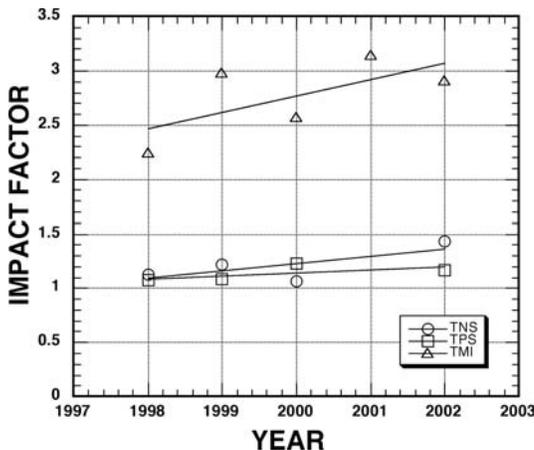
José Ortega y Gasset

PRESIDENT'S REPORT

The Nuclear and Plasma Sciences Society underwent the IEEE 5-year review this spring. The final report will come out later, but the informal feedback is that we did very well. One area that was of concern is our lack of a defined methodology for the succession of editors and associate editors. There was concern that some editors held their positions for too long, then again, they realized that we have quite a few special issues and these editors held their posts for too short a time. The publications committee of the AdCom is working on a response to this criticism.

In the meantime the outstanding editor of this Newsletter, Ken Dawson, has decided that it is time for someone else to take over the reins of the NPSS Newsletter. As you will note elsewhere in the Newsletter, we are looking for individuals interested in helping with the Newsletter. In addition, we would like to identify individuals who might be willing to work at some level on our other publications. As we consider the concerns expressed in the 5-year review, we need to know if the manpower exists to implement a plan for editorial succession.

One area of concern was a low impact factor in 2001, which was right in the middle of our review period. I checked the ISI Web of



Impact Factors for the NPSS Transactions as a function of year. The IF is the total number of citations seen in one year for articles in a journal for the previous 2 years divided by the number of articles. (e.g., If the IF is 1.0, then the average citation per article is 1.0 per year.)

KnowledgeSM, where the various evaluations for almost all journals can be found. It seems the Impact Factors (IF) for both TPS and TNS had anomalous lows in 2001 and if we plot the IFs as a function of year and do a linear fit we get a nice progression the value of the IF, if we ignore 2001. TPS is improving by 3% per year and TNS by 7% per year. Our star is TMI which is improving at a rate of 15% per year.

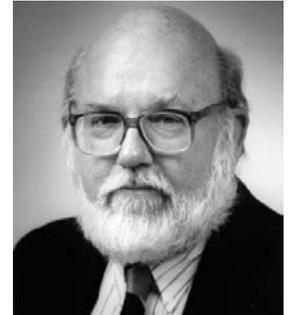
In the table below components of the IFs for 2001 and 2002 are listed for TNS, TPS and TMI. The numbers in parentheses are citations originating in the same journal. The 2002 IFs are outstanding for TMI and good for TNS and TPS.

	2001		
	Number of Citations	Number of Articles	Impact Factor
TNS	615	798	0.771
TPS	548	489	.892
TMI	663	211	3.142
	2002		
	Number of Citations	Number of Articles	Impact Factor
TNS	1191(530)	832	1.431
TPS	502(125)	429	1.170
TMI	687(89)	236	2.911

We cannot compete with other journals on the total number of citations. Our Society and its fields of interest are too small. We must compete at the level of the IF. One way to help ourselves is to be sure we do cite NPSS articles appropriately, not only in NPSS papers but in manuscripts for other journals as well. As the editor of TNS:NMIS, I see many submissions where the authors only cite their own work or very few papers.

As you can see from the table, the total number of citations is small enough, that appropriate due diligence in citation can make a significant difference.

Ed Hoffman can be reached at the UCLA School of Medicine, 10833 Le Conte Avenue, B2-096 CHS, Los Angeles, CA 90095-6948; Phone +1 310 825-8851; Fax: +1 310 825-4517; E-mail: E.Hoffman@mednet.ucla.edu



Edward J. Hoffman
NPSS President

Full coverage

[Election campaigns are] the graveyard of real ideas and the birthplace of empty promises.

Teresa Heinz Kerry

SECRETARY'S REPORT

The AdCom met on 26 July 2003 at the DoubleTree Hotel, Fisherman's Wharf, Monterey, California, following the very successful 2003 NSREC conference. We welcome Ron Schrimpf of Vanderbilt University as the new Radiation Effects Steering Group chair, and thank Dale Platteter for his service in this capacity. We also welcomed Tony Lavietes of LLNL, an active participant, sometime treasurer and general chair of NSS/MIC, and Ralph Wyndrum, IEEE-USA vice president Technology Policy Activities.

Our Treasurer, Ed Lampo, once again exhorted us to close conference accounts quickly. Loans should be repaid, available bills should be paid, but outstanding bills, especially those from, for example, IEEE Publications, can be paid directly by IEEE. Get the bank accounts reconciled and closed, and submit your reports within 6 months of the conference. Time is still needed for an audit! Remember that fines for late closures really do kick in and escalate pretty quickly.

Ed did note that we are making real progress in getting conferences closed in a more timely way, so keep up the good work. Don't let those outstanding bills stand in your way. IEEE really can handle them. Talk with Ed if you are concerned (e.lampo@ieee.org).

We lost \$496.2K in 2002. A large IEEE infrastructure charge and lower conference and periodicals income than expected are the cause of much of the problem. While we are transitioning to a system of payment for services rendered, we are still picking up slack from less fiscally responsible societies. This is being adjusted year by year so that we should reach a point where we really are paying for what we ourselves get/use, and are no longer subsidizing some of our butterflies. IEEE itself is working hard toward a consistently balanced budget. Our 2003 budget projections will include some income from jointly sponsored publications. For 2004, we hope to break even. There will be some changes in subscription rates, especially for paper copies of journals. Note that these increases still do not cover production and distribution costs. We are working toward a system where costs are covered.

Our president, Ed Hoffman, noted that there was a large drop in both conference attendance and income, much due to SARS and the Iraqi war, and sales of publications to non-

members have also dropped faster than projected. Hal Flescher, our finance chair and Division IV director, noted that HQ has readjusted spending for the second half of 2003 to compensate for these decreases. He also noted that the new program in relation to interest income has changed. If the market income is greater than 5%, we will see that portion above 5% on our reserve. He also noted that IEEE administrative and infrastructure charges from 1997-1999 were abnormally low because these charges were absorbed by the high stock market income.

Ed Hoffman, in his President's report, noted that he had attended the PAC meeting at Bruce Brown's invitation. He presented several awards, and had several positive experiences, but also learned that NPSS is still being vilified by the PAC organizing committee, and treated unequally in terms of member recruiting space and so on. Remember, NPSS members, this is the conference that NPSS ran for 30 years, when APS wanted nothing to do with it. APS has been a partner for the last 8 years only, and wants the whole ball of wax on APS terms. Is something wrong here?

Ed also attended the Editors' Meeting in Washington, DC with Paul Dressendorfer and Steve Gitomer. The top brass of IEEE Pubs met with Ed, Paul, and Steve, and are serious in wanting to resolve our publications problems, which include late and erratic delivery dates and quality control. Publication delivery has improved, but the June TNS was a month late again.

Ed noted that ICOPS, RT and PAC all suffered to greater or lesser degree from the SARS outbreak.

The Publications and Society reviews were held by telephone, which was not wholly satisfactory. The principal criticism of our publications is that we have no editorial depth. We need editors in training for all positions. We also need conference editors who are willing to accept more than a "one-shot" assignment. The impact factor for our journals has increased steadily. TNS publication is still not sufficiently reliably on time to reapply for Index Medicus listing, which should greatly increase the TNS impact factor. On the society front, we are again faulted on no formal process for strategic planning. In general, the AdCom has found our retreats and the out-



**Alberta Dawson
Larsen**
NPSS Secretary

Really!

The California crunch really is the result of not enough power-generating plants and then not enough power to power the power of generating plants.

George W. Bush

come from them to work very well for planning the society's future.

Ed announced that Mike Unterweger has been appointed co-liaison with Jay Forster to the Standards Board.

Hal Flescher, as Division IV Director, reviewed the structure of IEEE – TAB, RAB, EAB, Standards, and IEEE-USA, and the paid HQ staff. Each has its mission, but standards and TAB are the principal entities that earn money for IEEE. IEEE Publications, which publishes society intellectual property as journals and conference records, is also a large revenue source; the income from these has gone to societies since some time in the 1980s, although it had originally gone into the IEEE General Fund, which was exhausted in 1999 when it was used to meet IEEE's unbalanced budget in a year when expected stock market revenues did not materialize. In the same time frame, dues were not increased and costs for membership items were heavily subsidized. IEEE still needs restructuring, especially in regard to financial matters and to "entitlements" expected by entities with no income stream. The Budget Committee of the Board of Directors is addressing some of these matters.

Hal also noted that IEEE conferences tend to be good value for the charges, compared with many competitive conferences. We tend to price conferences on breakeven, not on the value or potential revenue stream. He also noted that there are a number of journals that are poorly cited – have low impact numbers – and there is activity in the Publications department to eliminate some of these.

Technical Committee Reports

The CANPS Committee chairman, Christian Boulin of EMBL-Heidelberg, noted that the Real Time conference is the committee's major undertaking. The 2003 RT conference was held in May in Montreal, where the CANPS Committee, with some new members, met. Christian is eager to make this committee more proactive and is developing a plan to approach other small conferences with overlapping interests to bolster the community.

Christian and Jean-Pierre Martin of University of Montreal, chair of RT2003 noted that this conference had been planned "by the book" and that it received the highest number of abstracts in many years. Based on the number of abstracts and prior meeting attendance statistics, an attendance of about 200 was pro-

jected. The conference then was struck by both the SARS outbreak, with Toronto being a problem city that, even though 400+ miles from Montreal, discouraged overseas and US attendance, and the 17% drop in the value of the US dollar vs. the Canadian dollar, where many charges, such as those from IEEE Conference Service were in US dollars, had a big impact on the projected costs. The organizers are to be commended highly in using strategies to contain costs, and they have, most efficiently, already issued a CD of the Conference Record. I think this may be a record. Paper proceedings are in process.

They also used a detailed questionnaire at the end of the conference to assess attendees' views. Overall, the conference got high marks for venue, for quality and for a new session on medical real-time computing. Poor marks (really beyond control and plaguing all our conferences) were for poster no-shows, which is also expensive since the price for renting poster boards is substantial, and for the low vendor turnout. Patrick LeDû, chair of the Beane conference in 1997, noted that 60% of the papers were from the HEP community. Diversification is definitely needed and papers from the medical, plasma fusion and astrophysics communities should be actively sought.

Richard Callis of GA reported for the Fusion Technical Committee. Rich will chair the 2003 Symposium on Fusion Engineering in San Diego this October. There have been 220 abstracts received, which is twice expectation. There are 98 non-US submittals and Rich noted possible problems with the new US requirement for machine-readable passports, or for visas, even from countries for which no visas had been required for many years. To get a visa, one must visit the US Embassy in person, which also creates a time problem. The issuance of visas has also been very slow – so slow that an award winner at one of our conferences, who had applied for a visa several months before the travel date, received a visa so late that conference attendance was impossible. TELL YOUR COLLEAGUES about this!!! And check the US Department of State web site <http://unitedstatesvisas.gov/visanews/index.html> for further information. Also, be careful about requests for letters of invitation. Don't send these until the conference registration fee has been received and the credit card number validated or the funds actually deposited by electronic transfer. There has been considerable fraud in this arena with requests coming from

Too true

The difference between a team and a committee is that a team is made up of people with diverse views but a common goal, whereas a committee is generally comprised of representatives whose job is to make their voices heard.

Margot Northey

The devil one knows...

Still it is difficult to say which is worse: a secret police chief with a predictable twist of vice, or one who has no vices whatsoever.

Richard Lourie

individuals with no affiliation to our conferences or areas of technical interest.

Ron Keyser of ORTEC, chair of the Nuclear Instruments and Detectors (read Standards) technical committee is working to reactivate this group which has played an important role in NPS history. Look for his note elsewhere in this Newsletter.

Ron Jaszczak of Duke University Medical Center, chair of the Nuclear and Medical Imaging Sciences technical committee, noted that the revised NMIS constitution and bylaws had been published in the June NPSS Newsletter. These should become official shortly. The International Symposium on Medical Imaging has requested NSS/MIC to send a notice of this conference to its attendees. This was, pending agreement to a reciprocal arrangement for NSS/MIC, agreed by AdCom.

A question has arisen again about the NSS/MIC exhibit days. In general, MIC starts on Thursday, and the exhibits close on Thursday. This year MIC opens on Wednesday so there will be two days of exposure for the MIC community. More MIC-relevant exhibitors are needed. Effort is being expended by several people to identify appropriate companies and to woo them.

Bruce Brown of Fermilab, chair of the Particle Accelerator Science and Technology technical committee, reported that PAC03 had 1135 registered attendees, just short of the midline projection of 1150. Of the 1467 abstracts received, it is expected that 1147 papers will be published in the conference record. He reported that the exhibit space in the Portland, OR downtown Hilton was in a converted garage and was not adequate. Many exhibitors complained. Ceilings were too low and so forth.

The PAC01 audit is in progress. Money has been set aside for the electronic archiving project. The folks in Knoxville made a media event of the contract signing for PAC05, to be chaired by Norbert Holtkamp of SNS, and the PAC07 hotel contract has been signed.

Bruce is working hard, and needs all the help he can get, to increase the number of IEEE NPSS participants at PAC, and to encourage those to join as senior members or, if possible, to move their status from member to senior member. Remember, senior members are eligible to become IEEE fellows!

Tom Hussey from the Air Force Research Lab, Kirtland AFB, chair of the Plasma Science and Applications technical committee reported

that ICOPS 2003, held on Jeju Island, Korea, suffered from the SARS epidemic. Although conference abstract submittal was very high, with 678 abstracts, actual attendance was only about 450, half of whom were students. The normal student attendance is about 10%, so income was substantially reduced. By scaling back social events, it was possible to break even, but without fully covering administrative costs. Two special issues of the Transactions on Plasma Science will be forthcoming – one containing plenary and invited papers, and the other containing selected contributed papers.

ICOPS 2004 will be in Baltimore, Maryland and 2005 will be in Monterey, California, once more at the Fisherman's Wharf DoubleTree and in sequence with Pulsed Power.

Bob Reinovsky of Los Alamos, chair of the Pulsed Power technical committee, reported that the 2003 meeting had 584 registrants with 69% from the US. The 477 abstracts represent a 100% increase since Pulsed Power became an NPSS conference in the early 1990s! Good going. The drop in foreign participation was related to the long delays by US embassies in issuing passports. While there are usually about 50 Russian delegates, there were only 22 this time, even though letters of invitation had been sent in February and personal attempts were made to speed the visa process. We need IEEE's help in dealing with the State Department and FBI to get visa clearances processed speedily.

For the 2005 conference, Edl Schamiloglu will be program chair, so he'll serve apprenticeship before taking on chairmanship of the combined ICOPS/Pulsed Power conference in 2007 in Albuquerque, where this joint conference will be sequential with PAC07.

Steve Gitomer, editor of Transactions on Plasma Science, has been asked to join the Pulsed Power technical committee as a nonvoting member to provide publications advice.

The committee is also looking toward affiliation with several non-IEEE conferences and also toward making Pulsed Power an elected technical committee. Committee terms and rotations, and an effort to attract younger members are part of the strategy toward the latter.

Ron Schrimpf of Vanderbilt University, the new chair of the Radiation Effects Steering Group, introduced Alan Johnston, chair of the 2003 NSREC that finished its last sessions on Friday. There was a 7% increase in attendance over 2002, although the foreign attendance declined. There was also a drop in sponsorships,

but the increased attendance offset that. The short course attendance represented 73% of the conference attendees, possibly spurred by the excellent Quick-time CD of last year's course distributed to attendees.

Ron reported that the 2004 conference will be held from 19-24 July in Atlanta with Dan Fleetwood as chair. The 2005 conference will be at the Sheraton Hilton Towers, Seattle, WA. There is a proposal for 2006 for the Sawgrass Marriott near Jacksonville, FL that is under review, and Lloyd Massengill, the general chair, is looking at sites for 2007 and should have a proposal in hand next spring. The Steering Group has voted to go to a three-year schedule for venue selection since it is getting harder to find good venues for their growing conference on a two-year cycle.

Ron Keyser introduced Ralph James, the General Chair of the 2003 NSS/MIC. The conference, to be held in Portland, OR is going to be larger than it has been in several years. There was growth in both NSS and MIC abstract numbers, with about 1200 total. There may be as many as 1400 attendees. The committee has been working hard to promote the meeting. The Room Temperature Semiconductor Detector workshop, with 120 papers, will be meeting with them as will a number of smaller satellite meetings. Success has its problems and sessions will start on Monday; there will be a number of parallel sessions, and a lot of posters. They are trying to expand the room block. There are quite a few European papers, and over half the RTSD papers are from overseas. Considerable effort will need to be expended in helping to obtain visas with the new rule change. (See above.)

Patrick LeDû reported on the continuing problems with closing the 2000 conference in Lyon. This has been a good learning experience and Alberto Del Guerro, chair of the 2004 NSS/MIC, to be held in Rome, will be a major beneficiary of the lessons learned. From a technical and international, interactive view, the Lyon conference was terrific and a new venture. It has most probably had a significant role in the conference growth seen in the last couple of years. The Rome conference will be centered at a hotel that has its own conference center so will be more like an American conference in that regard. The hotel and meeting spaces are being renovated now, so the space should be very nice. The conference will run on the European-style Monday to Friday schedule, with no weekend technical sessions. RTSD will once

again collocate and several satellite workshops are also collocating, including one on breast imaging.

Tony Laviertes, who presented the above material on the Rome meeting, also introduced a new, secure, web-based registration package that is now in beta test. It will go live shortly for 2003 NSS/MIC registration and for subsequent years. The developers, for a very reasonable additional fee, will make the software available to all other NPSS conferences. After testing by the 2003 NSS/MIC, AdCom will decide how to proceed. Input is wanted from TC and conference chairs. Assuming success, this package has the potential for considerable savings to our conferences in the registration function. Issues such as a maintenance contract remain open for discussion.

Erik Heijne of CERN, chair of the Transnational Committee, reported that the committee now has 15 members representing radiation effects, radiation instrumentation, nuclear and medical imaging and plasma science. Other fields need representation. They have been active in collaborating with chapters, and tried to get awards nominations in, but were unable to comply with the May 15 deadline. They will start working now for 2004 awards. They are eager to get input from members and potential members on their view of IEEE NPSS activities.

Functional Committees and Liaisons

Ray Larsen, chair of the Meeting Policies Committee, noted that the terrific effort of our conference organizers in difficult and unpredictable times has earned our kudos. Ray and his committee are working on guidelines for international meetings as a supplement to the NPSS meeting planning document that is used in conjunction with the IEEE Meeting Organization Manual.

Ray is also our liaison to the Society for Social Implications of Technology (SSIT). His report is presented in detail elsewhere in this issue.

Igor Alexeff announced the winners of the Merit and Shea awards who are, respectively, Joe Srouf of TRW and Steve Gitomer of LANL, our Transactions on Plasma Science editor. No Early Achievement or graduate student awards were given this year.

Vernon Price reported that our membership is down some 6.3% this year. Usually in June there is a surge of new student memberships

Thomas is the name

The scientist has a lot of experience with ignorance and doubt and uncertainty, and this experience is of very great important, I think.

Richard P. Feynman

The rest profit

Fools make researches and wise men exploit them.

H. G. Wells

Who does what to whom?

Power does not corrupt people. People corrupt power.

William Gaddis

and that didn't happen this year. At PAC, Vernon only recruited 4 new members, but did better at Radiation Effects with 18 new members. There were also 21 new members recruited at ICOPS. Vern also mentioned that NPSS response to the member satisfaction survey was 34% of the requests, which is good. The responses need to be evaluated.

Osamu Ishihara reported that we ranked and submitted 11 Fellow candidate applications. It was a very good pool, so we'll see how many new Fellows are appointed from NPSS. In the past we have had 35 to 50% of our nominees elevated. The committee also needs fresh members. A member can't serve as a referee for a candidate, and all committee members must be Fellows. It makes things tough at times...

By the time you get this report, you should have returned your AdCom ballots. Peter Winokur deserves applause for completing his role of Nominations Committee chair expeditiously and months ahead of schedule.

Paul Dressendorfer, our Editor-in-Chief, and also TNS editor, expanded on Ed Hoffman's report related to the Annual Panel of Editors' meeting in Washington. IEEE publishes 116 periodicals, supports 350 conferences and in total publishes about 30% of the information in its technical areas. In 2002, only 42% of IEEE journals were out on time. While TNS publication has improved, the June 03 issue was mailed two weeks late. On the other hand, TPS, which hasn't been out on time for a long, long time (does anyone remember the last on-time issue?) was out on time. Could the meeting between our editors and senior Pubs staff have had an effect? Limited guidelines have also come down regarding papers from politically sensitive countries. Papers may be published, but communication with authors is disallowed for now, so our journals are not accepting articles from these countries since review and revision has been made impossible.

Peter Clout, chair of the Communications committee, has announced the availability of our new brochure and of a particle-accelerator-specific flyer. Contact Peter for copies for your conferences (clout@vista-control.com). Leave adequate time for shipping. If you want Newsletter copies, let Ken Dawson (kend@triumf.ca) know as early as possible because they have to be printed with the major run. They are, according to Vernon Price, a good sales tool, well worth including in registration packets.

Our booth is also available and can be obtained from Peter.

Our web site has improved, but we need input from Technical Committees to provide links to relevant sites that discuss our technologies and areas of interest. It is also important that NPSS conference literature and web sites say that they are NPSS conferences! Use the logo. Spell out the words, Remember to provide Dick Kouzes with a hotlink to your web page (richard.kouzes@pnl.gov). Check out other web sites to get ideas to improve yours.

Our guest, Ralph Wyndrum, noted that IEEE has many awards, but the candidate pool is small. The IEEE web site lists all awards and the criteria on which they are awarded. Many an NPSS member is eligible for some of them. We haven't had a lot of recognition at the Institute level, despite being an extremely active society. However, not all Societies, no matter how big, can boast of having an IEEE Emberson Award winner in their ranks!

Ralph also discussed the IEEE-USA Technical Policy Council's activities. He is meeting with eight IEEE societies to encourage members to participate in Council activities. They are working on the criteria for long-term technical worker visas, some of which have been used fraudulently. They encourage individual member visits to Congress in support of IEEE-USA positions in a number of areas, and they also support four professional lobbyists in Washington. Areas of focus include energy policy where we are well represented by Ned Sauthoff, utility restructuring, National Electrical Reliability and so on. Position papers are being prepared on Electric/Hybrid Cars; Advanced Nuclear Power R&D and others. Their priorities are broadband deployment including DSL and fiber optic issues; SPAM; the public health information system; homeland security; genetic nondiscrimination; and nanotech R&D. They team with other technical societies when making presentations. They are also soliciting grassroots teams to visit congressmen, and support a number of Congressional Visiting Days.

Other activities include regional technology fora with three scheduled (Austin, San Diego, Boston). Globalization of technology is a concern, and they also support a Career Policy Committee.

If you have an interest in participating in these activities, contact Ralph (r.wyndrum@ieee.org) about the possibilities. A number of us have

served in the past as reviewers of position statements, but there are many opportunities.

Other Items

As XPLORE becomes used more routinely, there will be a switch in the paradigm for allocating publication revenue, which is now based on the All-Society Periodicals Package. For NPSS we expect to remain revenue neutral, but there will be a big impact, both positive and negative, on a number of societies, based on a preliminary study.

Corporate purchases of the IEL package, where employees have ready access electronically to IEEE journals seem to be part of the reason that society memberships are dropping – the journal access isn't needed. This will continue to be monitored.

It is important to remember that there are specific rules for conference sponsorships – don't use the term lightly! And note that we may e-mail something for another conference or society, but mailing lists are not shared! This is a recurring issue as every conference chairman gets requests. Be careful and check the rules. If you don't know and

can't find the answer, contact Ray Larsen (Larsen@SLAC.Stanford.edu)

Future Meetings

October 25, 2003
Portland, OR
Annual Meeting with NSS/MIC

March 12, 13, 2004
New Orleans, LA
Retreat and Meeting

July 24, 2004
Atlanta, Georgia
NSREC

October 23, 2004
Rome, Italy
Annual Meeting with NSS/MIC

Albe Larsen, the NPSS Secretary, can be reached at the Stanford Linear Accelerator Center, MS66, 2575 and Hill Road, Menlo Park, CA 94025; Phone: +1 650 926-2748; Fax: +1 650 926-5124; E-mail: amlarsen@slac.stanford.edu. 📧

WANTED:

Have you seen or are YOU this person? NPSS NEWSLETTER EDITOR

Ken Dawson has informed AdCom of his wish after nine years to turn the NPSS newsletter over to a fresh set of hands. If this important job interests you, contact the NPSS Editor-in-Chief Paul Dressendorfer by e-mail at dressepv@sandia.gov.

Duties

Solicit and organize articles for three to four Newsletters a year. Prepare the Annual Yearbook and Directory.

- Collect material; check that it is right
- Format material
- Send proofs to authors
- Correct as needed

- Send to IEEE Pubs in a format they can use
- Maintain database of pictures used in Newsletter articles
- Maintain database of membership in all NPSS committees
- Prepare the annual Yearbook and Directory for AdCom

This is an opportunity to put YOUR stamp on this highly respected communication.

Ken will be available, if needed, for guidance to launch a new Editor. You can also find out more about what the editor's job entails by getting in touch with Ken at k.dawson@ieee.org. He would be happy to hear from you. 📧

Pedal to the mental (sic!)

It is a wry commentary on the value system in the United States that one speaks there of “teacher training” and “driver education.”

Peter Hilton

TECHNICAL COMMITTEES

ANNUAL REPORT FROM THE RADIATION EFFECTS COMMITTEE



Ronald D. Schrimpf
REC Chairman

The IEEE Radiation Effects Committee (REC) held its annual Open Meeting on July 24, 2003 at the Doubletree Hotel in Monterey, California, during the 2003 Nuclear and Space Radiation Effects Conference (NSREC). The meeting included reports from the chairmen of the 2002 through 2004 NSRECs.

An election was held during the Open Meeting for Junior Member-at-Large to the Radiation Effects Steering Group (RESG). The RESG welcomes Steve Clark from the Air Force Research Laboratory as its newly elected Junior Member-at-Large.

During the Open Meeting, Ron Schrimpf introduced the new members of the RESG. Janet Barth of NASA GSFC and Lloyd Massengill of Vanderbilt University are the newly appointed General Chairs of the 2006 and 2007 NSRECs, respectively. Tim Oldham of NASA GSFC is the new Executive Vice Chairman, Jeff Black of MRC is the new Secretary, and Marty Shaneyfelt of Sandia joins the RESG as the Vice-Chairman for Publications.

Klaus Kerris was honored for his service as Executive Vice Chairman, Chairman, and Past Chairman of the RESG. Dave Hiemstra of MD Robotics was honored for completing three years of service as Member-at-Large. Peter Winokur of Sandia was recognized for his dedicated service as our representative on NPSS AdCom. Dale Platteter, Ron Schrimpf, Teresa Farris, Robert Ecoffet, and Paul Dressendorfer also were recognized, although all continue to serve on the RESG.

Ken Hunt of the Air Force Research Laboratory, 2002 Conference General Chairman, recognized each member of his committee with an award plaque. Ken and his team took the NSREC to Phoenix in 2002, hosting a great meeting in spite of the “dust storm of the century.”

Allan Johnston of JPL, 2003 Conference General Chairman, summarized some statistics from the 2003 conference. Total NSREC attendance was up by 14% over 2002, with 576 people attending the technical sessions, the short course, or both. In addition, we regis-

tered 58 additional people for the exhibits, for a grand total of 634 attendees. 130 papers were presented during the 5-day conference (50 orals, 52 posters, 28 data workshop). International attendance was down by 16%, with 84 attendees.

Dan Fleetwood, 2004 Conference General Chairman, announced that the Nuclear and Space Radiation Effects Conference will be held on 19-23 July 2004, at the Renaissance Waverly Hotel in Atlanta, Georgia. The Technical Program Chairman will be Jim Pickel from PRT, Inc. Joe Srouer of Northrup Grumman is organizing the tutorial Short Course. Once again, NSREC 2004 is planning a Radiation Effects Data Workshop and an Industrial Exhibit. Jim Kinnison of Johns Hopkins APL is assembling the social program, which will include a sampling of the many activities available in Atlanta, one of the most-visited and fastest-growing cities in the US.

A special issue of the IEEE Transactions on Nuclear Science commemorating the 40th anniversary of the NSREC was distributed to all attendees. This special issue was edited by Tim Oldham, Fred Sexton, and Joe Srouer and it contained sixteen reviewed articles that summarize the technical history of the NSREC.

We are constantly looking for new ways to encourage NPSS membership in our community. This past winter, we distributed a QuickTime video recording of the 2002 Short Course on CDROM (playable on your PC), and provided this CD to each NPSS member who attended. We encouraged our NPSS members to show this Short Course video to their non-NPSS colleagues. The goal of this project is to provide members with “good opportunities” to recruit new members. Tim Holman of Vanderbilt University led this effort.

Minutes from the REC Open Meeting are available at www.nsrec.com. For the most current information on the Nuclear and Space Radiation Effects Conference, including information on paper submission, please visit this web site.

Reality check

A mathematician may say anything he pleases, but a physicist must be at least partially sane.

Josiah Willard Gibbs

Radiation Effects Steering Group 2003-2004

Elected Members:

Chairman: Ron Schrimpf
Vanderbilt University

Executive Vice-Chairman: Tim Oldham
NASA GSFC

Secretary: Jeff Black
Mission Research Corporation

Senior Member-at-Large: Ron Pease
RLP Research

Member-at-Large: Gary Lum
Lockheed Martin

Junior Member-at-Large: Steve Clark
Air Force Research Laboratory

Past Chairman: Dale Platteter
NAVSEA Crane

Appointed Members:

Vice-Chairman, Publications:
Marty Shaneyfelt
Sandia National Laboratories

Vice-Chairman, Publicity: Teresa Farris
Aeroflex

RADECS Liaison: Robert Ecoffet
CNES

Editor, IEEE Trans Nuc. Sci.
Paul Dressendorfer
Sandia National Laboratories

Vice-Chairman, 2003 Conference:
Allan Johnston
Jet Propulsion Laboratory

Vice-Chairman, 2004 Conference:
Dan Fleetwood
Vanderbilt University

Vice-Chairman, 2005 Conference:
Fred Sexton
Sandia National Laboratories

Vice-Chairman, 2006 Conference:
Janet Barth
NASA GSFC

Vice-Chairman 2007 Conference:
Lloyd Massengill
Vanderbilt University

Elected AdCom Members:

Term expires: 12/03: Ken Galloway
Vanderbilt University

Term expires: 12/05: Dennis Brown
NRO

Term expires: 12/06: Joe Benedetto
Mission Research Corporation

Ron Schrimpf serves as Chairman of the Radiation Effects Steering Group, which oversees the NSREC Conference. He is technical chair of the NPSS Radiation Effects Committee. Ron can be reached at Vanderbilt University, 5635 Stevenson Center, Nashville, TN 37232; Phone: +1 615 343-0507; Fax: +1 615 343-9550; E-mail: ron.schrimpf@vanderbilt.edu

NUCLEAR MEDICAL AND IMAGING SCIENCES TECHNICAL COMMITTEE (NMISTC)

Final plans for the 2003 Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC) are well underway. Dr. Ralph James (Brookhaven National Laboratory) is the General Chair of the Conference. Dr. Uwe Bratzler (CERN) is the NSS Program Chair. I would like to congratulate Ralph and his colleagues for the outstanding job they have done in organizing this year's NSS/MIC meeting. The Conference will be held in Portland, Oregon at the two Doubletree Hotels, which are located on the famous Columbia River. (Conference dates and more detailed information can be found in another article in this issue of the Newsletter.) Dr. Michael King (University of Massachusetts) is MIC Program Chair this year; he has been working very hard to ensure that the MIC portion of the meeting will

be a great success - scientifically, educationally and socially.

The NSS/MIC meeting is the premier nuclear medical imaging conference in the world; this year it is continuing to grow, with nearly 400 abstracts being submitted. The meeting presents a wonderful opportunity to relax and visit with old friends, and meet new colleagues on an informal basis. The Conference's Short Courses provide an excellent forum for those that are new to the field to quickly acquire the tools they need to perform more proficiently. This year we will be presenting the Young Investigator Medical Imaging Science Award. Mike will be introducing some innovative and exciting activities at this year's MIC meeting. Perhaps one of the most innovative ideas will be the venue for the traditional MIC Banquet: A Dinner Cruise along the Columbia River.

Rationale for irrationality

A government that must hold Senate hearings to discover whether it has reason to go to war is a government that doesn't know the meaning of war.

Lewis H. Lapham



Ronald Jaszczak
NMISTC Chair

I told you so

Every great scientific truth goes through three stages. First, people say it conflicts with the Bible. Next they say it has been discovered before. Lastly, they say they always believed it.

*Louis Agissiz
(who said Darwin
was wrong!)*

There will be lots of on-board activities such as wine tasting, music, etc. The ship can carry about 350 people. Since space is limited, I urge everyone who wants to attend the MIC Banquet to register and purchase their tickets as soon as possible.

In 2004, NSS/MIC will return to Europe for the second time, this time to Rome. Alberto Del Guerra (University of Pisa) is the General Chair of the Conference. Plans are progressing very well and a web site has been established (<http://nss-mic-rtsd-2004.df.unipi.it/>). Please visit this web site for further information. There will be enormous floor space for posters so that they can remain up for the entire MIC meeting.

In 2005, NSS/MIC will be held in Puerto Rico; this will be the first time that the meeting will be held in the Caribbean region. Tom Lewellen (University of Washington) is the General Chair. The MIC Program Chair is Simon Cherry (University of California, Davis). They have selected a beautiful resort outside of San Juan, the El Conquistador; it has nearly everything in the way of outstanding convention, dining and social facilities. It even has its own private island! They hope to be able to offer many more student travel grants for the 2005 NSS/MIC meeting. Both the Rome and the Puerto Rico meetings are exciting new venues for the NSS/MIC meetings. Be sure to mark your calendars early, submit an abstract and plan to attend.

The Nuclear Medical and Imaging Sciences Technical Committee (NMISTC) includes NPSS members who are interested in scientific and educational activities that promote the fields of nuclear medical and imaging sciences. The activities of the NMISTC are managed by the Nuclear and Medical Imaging Sciences Council (NMISC), consisting of 15 elected members-at-large that serve for three

years. Five new Council members are elected each year.

I would like to take this opportunity to acknowledge the support and contributions of the following elected NMISC members whose terms expire at the end of this year: Eric Frey, Marijana Ivanovic, Paul Marsden, Bradley Patt, and Lawrence Zeng. By now, you should have received your ballot for electing the five new members to the NMISC; please be sure to vote and return your ballot before the deadline date.

Finally, I would like to close on a personal note. I will complete my tenure as NMISC Chair at the end of this year. I would like to thank the members of the NMISC and of the entire membership of the nuclear and medical imaging sciences community for their support, suggestions, and constructive criticism. I hope that I will have the opportunity to serve our members again in the not too distant future. The IEEE NPSS functions mainly with the help of its volunteer members. It is because of the hard work and active participation of volunteers from the medical imaging community that the NMISC has been able to organize markedly successful MIC meetings. These meetings have attracted the best and brightest nuclear medical imaging engineers and scientists in the world.

Magnus Dahlbom (University of California, Los Angeles) is NMISC Vice Chair and Chair-Elect; I am confident that he will serve our medical imaging community effectively, and I wish him success during his term in office for 2004 and 2005.

Ronald Jaszczak, Chair, NMISC, can be reached at the Department of Radiology, DUMC-3949, Duke University Medical Center, Durham, NC 27710; Phone: +1 919 684-7685; Fax: +1 919 684-7122; E-mail: rjj@dec3.duhs.duke.edu. 



Ronald Keyser
RITC Chair

RADIATION INSTRUMENTATION TECHNICAL COMMITTEE REPORT

You will soon receive the ballot for the selection of the new members of the RITC Steering Committee. The ballot has highly qualified, motivated co-workers willing to work on your behalf to continue to improve the field. The RISC has 15 elected members, of which 5 are elected each year for a three-year term. Please return your ballot with your selections. It's not too

early to volunteer for next year, so send me a message if you want to be on the Steering Committee.

All interested NPSS members are invited to attend the RITC annual meeting at the NSS/MIC meeting. Look in the program guide or at the meeting for time and location. At this meeting you will have the chance to talk with the Steering Committee (RISC) about

the meeting, the Society or any other topic. The Steering Committee oversees the operation of the whole Committee and your input is important, so that we may do what you want.

If you haven't made plans to attend the 2003 meeting in Portland (Oct 19 to 25), do so now. This meeting is the premier meeting for radiation detectors, processing electronics, modeling, systems, and medical imaging. Before and after the meeting are short courses and workshops, where you can learn about newest developments, the basics of radiation detection, or medical imaging. The exhibits will showcase the latest products from many companies. Even if you have known some of these companies for many years, it is worth the time to investigate their new products. Because of the quality of this meeting, many companies make the first public showing of products at this exhibition. See the web site www.nss-mic.org for complete details and read the Newsletter articles by the Chairmen of the meeting.

The future NSS/MIC meetings are:

- 2004
Oct 16 to 23, Rome, Italy
General Chair: Alberto Del Guerra
- 2005
Oct 23 to 29, San Juan, PR
General Chair: Tom Lewellen
- 2006
Oct 29 to Nov 5, San Diego
General Chair: Graham Smith

Mark these dates on your calendar. The abstract submission is usually in the late spring for the following meeting. This means you need to be thinking about it soon. It's never too early to start the writing.

To the members in Universities, I put out a call for more student members. Vernon Price has done an outstanding job of getting new members, including students. However, many students are not receiving all the membership benefits they could obtain by attending meetings and association with others doing similar work from around the world. If you need help in explaining the benefits to potential student members, Vernon will be happy to supply you with the right materials.

Finally, vote and I look forward to seeing you in Portland in October.

Ron Keyser, the Chair of RITC, can be reached at ORTEC, 801 South Illinois Avenue, Oak Ridge, TN 37831; Phone: +1 865 483-2146; Fax: +1 865 481-2438; E-mail: RonKeyser@ieee.org 

Capital crime

Nothing is more dreadful than the despicable murder of a beautiful theory by abominable facts.

Roland Omnès

TLC?

We're raising our children the same way we raise calves for veal. Keep them in boxes, feed them too much, allow them no exercise. The lifestyle of most American families is so unhealthy, so toxic, that we may be witnessing the first generation of kids ever whose life expectancy is less than that of their parents.

Rich Killingsworth

FUNCTIONAL COMMITTEES

REPORT FROM CHAPTERS AND MEMBERSHIP COMMITTEES



Vernon Price
Chair, NPSS Chapter
and Membership
Committees

Hope for me
yet!

Perhaps the
unintelligent
machines can
do even better
than the
intelligent ones.

Richard P.
Feynman

Chapters

The present set of NPSS chapters includes 15 units located in 6 of the 10 IEEE regions. The chapters are described as follows:

Region 1. A chapter in Boston is under the leadership of Prof. Dikshitulu Kalluri and has been organized for many years. It is struggling but at least it is somewhat active. A new chapter has been established in Long Island NY. The nucleus of this unit is located at Brookhaven National Laboratory. At PAC 2003, I met the chair, Dr. Arlene Zhang and discussed progress she is making with her new unit.

Region 2. A chapter is located in Cleveland Ohio under the leadership of Dr. Zhenghong Lee. Also, a chapter is located in the Washington D.C., Northern Virginia and Baltimore areas under the leadership of Harry Sauberman, P.E. It has been in existence for several years.

Region 4. A chapter is located in the Chicago area with its nucleus at Fermi National Lab. It has been organized for several years but is just now being reactivated with Dr. Jack Sherman as its chair.

Region 6. Four chapters are located in Region 6. One is located in Los Alamos under the leadership of Dr. Rickey Faehl. A second is located in Albuquerque chaired by Gerald Wood. A third chapter is located in the San Diego area with David Strobel as chair. The fourth chapter is located in the Oakland East Bay area with Joe Mauger as its leader. Each of these chapters is active and is well organized. I met with each chair at a recent PAC 2003 conference.

Region 8. Five Chapters are located in Region 8. One of these is located in the Benelux area in Antwerp and is chaired by Dr. Benoit Brichard. I met with Benoit at the recent NSREC and discussed his effort in work with his chapter. Another chapter is located in France and is well organized under the leadership of Dr. Jean-Luc LeRay. I met with him and other chapter leaders at NSREC 2003. As usual, they held a chapter meeting at the conference. A third chapter is centered in Erlangen Germany under the leadership of Dr. Klaus Frank. I met with his vice chair at PAC 2003. He reported that the chapter is

also organized and is active. A fourth chapter is located in Bari Italy. Its leader is Alessandro Rizzo. The fifth chapter is located in Ukraine in the Kiev area under the leadership of Dr. Anatoly Kirilenko. It is jointly administered with several other societies.

Region 10. Our lone chapter in this region is located in Japan under the leadership of Dr. Shozo Ishii. The nucleus of the chapter is in the Kawasaki area.

Membership

At the end of June this year, total membership in IEEE was 330,923, a reduction of 16,509 or 4.8% compared to the prior year. Part of the reason for this loss is a sharp reduction in the expected influx of new students in June. Another factor was the loss of about 6000 Life members. These people did not respond to requests regarding their membership and hence were dropped from the rolls. About one third of IEEE members do not belong to any of the 38 Societies that make up the technical activities of IEEE. The rest belong to one or more societies giving a total society membership 361,066. Total membership in societies has dropped 4.3% compared to last June. Only the Computer, Geo Remote Sensing and Social Implications of Technology societies had positive growth so far this year. All of the other societies lost members. The overall society growth for IEEE compared to last June was -5.5%.

At the end of June 2003, membership in NPSS was 2851, a decrease of 193 members compared to June of the prior year. This total includes 51 Affiliates. This membership may be illustrated in several ways as follows:

Higher Grades	2533
Students	267
Affiliates	51
Total	2851
Loss compared to last year =	- 6.3%

Another view of our membership is shown in the table.

	Life	Regular	Student	Affiliate	Total
Fellows	67	100			167
Senior Members	74	307			381
Members	113	1661	267	51	2092
Associates	6	205			211
Total	260	2273	267	51	2851

Using a population of 2800 (value equals total minus affiliates), 9.3% of our members are “Lifers”. The Fellows in NPSS amount to 6% of our population compared to 1.7% for IEEE. We have 14% of our members classed as Seniors compared to 7.7% for IEEE. It is well to note that the “Lifers” are not required to pay the annual fee for IEEE membership (though they are strongly urged to donate to various IEEE causes) nor do they pay an annual fee for NPSS membership if they have been a member of our society for at least five years. They are required to pay no more than the student rate for attendance at any IEEE conference. A new benefit for the Lifers is to permit them web access to all journals published by IEEE. Such benefits should strongly encourage people to retain their membership throughout their useful life. Because life expectancy is increasing and the number of expected life members will grow, IEEE is considering raising the entry limit for life members from the present value (100 = age plus years of membership in IEEE) to some higher value.

Recruitment of IEEE/NPSS members at conferences so far this year has not been as pro-

ductive compared to previous years. Only four people joined at the PAC 2003. It is reported that 21 people joined at the ICOPS but the application forms did not come to me and at the moment they are held up awaiting my completion of the task. At the Pulsed Power conference, I was able to recruit only eleven people even though the conference was well attended. At the NSREC, 18 people joined including members from France, England, Sweden, Japan and Italy.

Senior Grade Members

Thus far this year, eleven members of our society have become senior members of IEEE. Nomination forms for elevation of several more people have been submitted to Headquarters for evaluation and approval. Each is expected to be approved. The following site provides information on the process used: <<http://www.ieee.org/organizations/rab/md/smelev.htm>>

Vernon G. Price can be contacted at 22151 Berkeley Ct, Los Altos CA 94024-7452: Phone (408) 737-0778: Fax: (408) 737-1922: E-mail: v.price@ieee.org 

AWARDS

KLAUS G. KERRIS RECEIVES 2003 RADIATION EFFECTS AWARD

The 2003 Radiation Effects Award was presented to Klaus G. Karris, U.S. Army Research Laboratory (retired), during the opening ceremonies of the 40th Annual Nuclear and Space Radiation Effects Conference (NSREC) in Monterey. Dale Platteter, past-chairman of the IEEE Radiation Effects Steering Group (RESG), made the presentation.

The purpose of the award is to recognize individuals who have had a sustained history of

outstanding and innovative technical and/or leadership contributions to the radiation effects community.

Klaus Kerris received this year’s award with a citation “for contributions to the dissemination and advancement of radiation effects research by his leadership in all aspects of the IEEE Nuclear and Space Radiation Effects Conference and the Radiation Effects Steering Group.”

Klaus was educated at UCLA with a BA in physics (1957) and MA in physics (1959). He

Self-correcting

Psychoanalysis is that spiritual disease of which it considers itself to be the cure.

Karl Kraus



Klaus G. Kerris

The art of debate

Give me the facts, Ashley, and I will twist them the way I want to suit my argument.

Winston Churchill (to his researcher)

worked 10 years for Hughes Aircraft, but somehow made it to the east coast to put in another 31.5 years for the US Army Research Laboratory in Adelphi, MD.

He first published in the Transactions on Nuclear Science in 1969, back when we were holding the NSREC conference at universities.

Klaus Kerris was Short Course presenter at two NSRECs. We all remember when the projectionist dropped his slide canister in 1996 at our Short Course in Providence, RI. Klaus' 35mm slides were sticking in the projector, so the projectionist held up the carousel to see what was wrong. This was huge a mistake, as the locking ring on the carousel was not in place. A colleague tried to reassemble the Klaus' slides (in real time), while Klaus restructured his lecture in real time! At the NSREC short course in New Orleans (1992), our weak laser pointer could not be seen from the back of the room. Klaus became the first short course instructor to use a 10-foot long fishing pole as a pointer, immediately solving this problem.

Klaus was NSREC session chair in 1987 and local arrangements chair in 1989 at Marco Island.

He spent 3 years as Member-at-Large on the Radiation Effects Steering Group (RESG), 3 years as secretary for the RESG, and nine more years as Executive Vice-Chairman, Chairman,

and Past-Chairman of this group. That's 15 years on the steering group.

Klaus and his wife Paula currently live in Silver Spring, MD. He has been retired for 2 years (really retired), however Paula and Klaus still share their "family vacation" with the NSREC conference each year. Why would they do that? Well, they have made many friends at the NSREC, just like all of us have.

Klaus Kerris can be reached at 2701 Shanandale Drive, Silver Spring, MD 20904; Phone: +1 301 572-7535; E-mail: kerris@erols.com.

About the Radiation Effects Award

The prestigious Radiation Effects Award is presented by NPSS on a yearly basis in recognition of a "sustained history" of contributions to the radiation effects community. It includes a plaque and a cash award of \$2000. The nomination process is open to any member of the IEEE/NPSS Radiation Effects Committee (REC). A nomination form is available at www.nsrec.com/nominate.htm

This article was prepared by Dale Platteter, the past chair of the RESG. He can be reached at NAVSEA Crane, Code 605, Building 3334, Crane, IN 47522; Phone: +1 812 854-1206; Fax: +1 812 854-1751; E-mail: platt@ieee.org 📧



Younes Boulghassoul



Iwan Cornelius

PHELPS GRANT AWARDED TO RADIATION EFFECTS STUDENTS

On behalf of NPSS, we are proud to announce two recipients for the Paul Phelps Continuing Education Grant.

Younes Boulghassoul

Younes Boulghassoul received a Master in Electrical Engineering in 2000 from the Montpellier 2 University, Montpellier, France and a Master in Electrical Engineering in 2002 from Vanderbilt University, Nashville, TN. He is currently working on a Ph. D. degree in electrical engineering at Vanderbilt, continuing work on fundamental studies of the analog single event transient (ASET) phenomenon in advanced analog and mixed-signal circuits in aggressively-scaled fabrication technologies. As a master's student, he has written or contributed to 7 published papers. He recently presented a paper titled "Applicability of Cir-

cuit Macromodeling to Analog Single-Event Transient Analysis," at the 2003 Nuclear and Space Radiation Effects Conference, Monterey, CA. Younes was nominated by his professor, Dr. Lloyd Massengill.

Iwan Cornelius

Iwan Cornelius is pursuing the Ph. D. degree at the University of Wollongong, Wollongong, New South Wales, Australia. Iwan has worked on the detection of fast neutrons with silicon sensors and simulation of energy deposited from recoil protons in small silicon volumes. His PhD project is related to microdosimetry using SOI devices. Iwan has performed experimental measurements and theoretical Monte Carlo simulations of energy deposition and charge collection in SOI devices from heavy ion microbeams. He has 5 published papers

(first author on 4), is the recipient of the 2002 Australian Institute of Physics (AIP) Award for Postgraduate Excellence and is a 2000-2003 Australian Institute of Nuclear Science and Engineering (AINSE) Scholar. Iwan recently presented two papers at the 2003 Nuclear and Space Radiation Effects Conference, Monterey, CA. He was nominated by his professor, Dr. Anatoly Rosenfeld.

It should be noted that both students have submitted papers for publication in the December 2003 issue of the Transactions on Nu-

clear Science. Both students are members of IEEE and NPSS.

Professors should consider nominating their most promising students before May 15, 2004. Forms can be found on the NSREC web site at www.nsrec.com.

Prepared by Teresa Farris, the RESG Publicity Vice-Chairman. She can be reached at Aeroflex UTM, 4350 Centennial Blvd., Colorado Springs, CO 80907-3486; Phone +1 719 594-8035; Fax: +1 719 594-8468; E-mail: teresa.farris@aeroflex.com. ☐

CONFERENCE REPORTS

REPORT ON ICOPS 2003 IN KOREA

The ICOPS (International Conference on Plasma Science) held its 30th meeting for the first time outside of North America in South Korea. The conference organizer was Kyu-Sun Chung, who did a great job, as well as the Plasma Science and applications Committee chairs, Dr. Robert K. Parker (past) and Dr. Thomas W. Hussey (present), who also did lots of work. It was held on a resort island, Jeju, at the Lotte Hotel. I counted 670 abstracts in the abstract book. The major group of attendees was from Korea, followed by Japan and the USA. However, some papers were not presented because of the SARS epidemic. In particular, people from China, Hong Kong, and Taiwan cancelled their attendance.

The topics ranged from our past interests such as Thermonuclear Fusion, basic plasma research, and microwave generation to newer topics such as plasma discharges in air for plasma industrial applications, medical applications, and sterilization, so the conference demonstrates a healthy appreciation for newer fields as well as for the older fields. I was personally very impressed by the Korean work in Thermonuclear Fusion, with the large superconducting TOKAMAK, KSTAR, now under construction, as well as the Korean work on large plasma display panels. In general, Korea has a large, active, and creative plasma membership.

The Plenary Sessions were outstanding. One talk that impressed me, "The Physics of

Lightning" by Dr. John J. Lowke, presented evidence that part of the lightning stroke is carried by an electron-free plasma of negative and positive ions. Consideration of such electron-free air plasmas generally has been considered heresy in the past. He also made the suggestion that ball lightning in the air is an electrical image of a slowly-proceeding lightning streamer underground.

There was also a special mini-course on plasma diagnostics, presented by 9 speakers from around the world, including The USA, Germany, The Netherlands, and Japan. There was an industrial exhibit in the hall leading to the oral sessions. The IEEE had a nice booth in the same hall.

The Institute of Electrical and Electronics Engineers, Nuclear and Plasma Sciences Society (an international organization), is very pleased to help its members in Asia. The Pacific Rim has the most rapidly growing IEEE membership in the World, and these members must be acknowledged and aided. I personally look forward to returning to Asia, and Korea in particular.

Igor Alexeff, a past NPSS President, organized the first ICOPS conference in 1974 in Knoxville. He can be reached at the University of Tennessee, Electrical Engineering Department, Ferris Hall, Knoxville, TN 37996-2100; Phone +1 865 974-5467; Fax: +1 865 974-5492; E-mail: i.alexeff@ieee.org ☐



Igor Alexeff

To each his own

There are people who must have their poisons or they are not themselves.

**Robertson
Davies**

2003 PARTICLE ACCELERATOR CONFERENCE



Bruce Brown
NPSS PAST
Technical Committee
Chair

PAC2003 was held in Portland Oregon on May 12-16. The scientific program, guided by Program Committee Co-Chairs Alan Jackson and Ed Lee of Lawrence Berkeley National Laboratory, was a success in attracting presentations that covered both traditional and new topics in accelerator science, technology and applications. Dr. Robert Siemann of the Stanford Linear Accelerator Center, who served as Conference Chair, and his conference staff are completing conference activities.

Despite a combination of budget strictures at US Government sponsored labs and the travel limitations from Asian labs due to the SARS epidemic, 1135 participants registered at PAC03. 1,467 abstracts were submitted and we expect to publish about 1,147 papers. The accompanying industrial exhibit provided op-

portunities to meet with vendors in various accelerator technologies.

The Particle Accelerator Science and Technology Award for PAC2003 was presented to Keith Symon of the University of Wisconsin and to Stephen Milton of Argonne National Laboratory by our NPSS president, Ed Hoffman. Other accelerator prizes and student travel awards were also presented at the awards ceremony on May 14. Portland provided a pleasant conference venue with only a brief, refreshing shower to complement the otherwise sunny weather.

Bruce Brown, the Particle Accelerator Science and Technology Committee chair, can be reached at the Fermi National Accelerator Laboratory, MS221, P.O. Box 500, Batavia, IL 60510; Phone: +1 630 840-4404; Fax: +1 630 840-6311; E-mail: bcbrown@fnal.gov.

LIAISON REPORTS

REPORT FROM NPSS LIAISON TO THE SOCIETY FOR SOCIAL IMPLICATIONS OF TECHNOLOGY



Ray Larsen
NPSS Liaison to SSIT

Online Center for Ethics in Engineering and Science

A small group of SSIT and IEEE members continue to advise inquirers who send email queries about ethics concerns in the workplace to the Online Center (<http://www.onlineethics.org>). The queries come from engineers employed by many different industries, consulting engineers, professionally licensed engineers, students and graduate students. One of the most common complaints is from graduate students whose advisors plagiarize their work, or publish it under their own name with the student unawares until it appears in print. A common complaint from civil and construction engineers is the customer trying to play loose with the laws concerning proper signoff of engineer-certified documentation, including one case of forgery. Others have been asked by their employers to fudge test data that in effect would falsely qualify faulty parts back to the customer, who is typically the gov-

ernment. Several cases of serious product problems, when brought to the employer, resulted in a cover-up that the inquirer refused to be a part of, and in one case a lawsuit was brought by legal authorities to make the employer comply.

Often in these cases the inquirer is operating from the position of having just been fired for his ethical behavior. Many inquirers simply want clarification of their options when caught in these kinds of difficulties. The inquirers are never identified to the advisors nor the advisors back to the inquirer. Advisory opinions are solicited and a response from the collective group crafted by the Director of the Center, and approved by the group before responding. Overall the system is doing a good service and has had no problems. This is the same kind of operation that the IEEE Board of Directors killed a few years ago because of "legal liability concerns", followed by a summary firing of the

core of the Ethics Committee halfway through their terms, the author being one so honored.

IEEE Ethics Committee

In addition to the Online Center, there is an active discussion group that continues to air ethics issues, and continues to track IEEE's Ethics efforts. Since the above-mentioned event the Ethics Committee has been notably quiet and uncommunicative. Lately a few small personal opinion articles have appeared in The Institute. Last year the IEEE Ethics Committee was merged with the IEEE Member Conduct Committee, to make the EMCC, presumably for administrative streamlining purposes. This body reports directly to the BoD. Some of the EMCC members are occasionally part of the discussion group.

There are some hopefuls in the discussion group who believe EMCC can be swayed to do useful service. A recent Spectrum article by Jack Casazza criticizing the power engineers who colluded with Enron and others to devise creative ways to rip off consumers and governments, especially in California where it's likely to cause the governor his job, stirred a lively discussion. Some proposed that perhaps the EMCC should be given wider powers to pursue members in corporate positions for unethical behavior toward the public trust that we all swear to uphold in our IEEE Code of Ethics. A large number of discussants, voicing a large number of opinions, some openly strident and hostile, eventually arrived at a consensus that giving expanded punitive powers to a committee that in fact had fiercely resisted doing anything supportive -even as minor as giving friendly advice - for people who did uphold the Ethics code, should now be encouraged to hunt out offending members within corporations with punishment in mind, seemed bizarre in the extreme. In the author's opinion, the outlook for any significant changes in the fortress mentality of IEEE in regard to Ethics support appears less than dim.

IEEE-USA and Engineering Employment

Just in the past couple of weeks there has been a furor developing over industry plans to outsource millions of (mostly IT) jobs in the next decade. For a summary of the problem see the New York Times article of July 22, 2003, online at <http://www.nytimes.com/2003/07/22/technology/22JOBS.html> regarding IBM's particular plans and philosophy. This and similar news in the past few weeks caused the discussion to veer off into ethical issues within industry, government and the IEEE over outsourcing and bringing short term visitor employees ("Guest Workers") into the country. These short-termers are often the harbinger of teaching the home industry techniques to a new group offshore, who then leave taking jobs along with them, often followed by immediate cutbacks at home. There are obviously many difficult issues and forces and counter-forces at work. IEEE-USA fired a salvo this week about skilled worker job loss at home potentially crippling long-range competitiveness as well as national security. Some of the discussion group instantly voted to circle the wagons, cancel the H1B and L1 visas, and pull up the drawbridges, and also bewailed IEEE-USA for doing nothing. One discussant from IEEE-USA staunchly defended their efforts, and if they were too small it was because of a lack of commitment of time and money by the volunteers who are doing the complaining, as well as an apathetic IEEE management and membership at large. The author offered an opinion first that a certain amount of outsourcing is entirely consistent with IEEE's transnational goals, but that if people felt so strongly about more effort by IEEE-USA on their behalf they should lobby IEEE-USA to set up a voluntary fund they could contribute to for lobbying efforts, and they could volunteer to help mobilize more people who care in a writing campaign to their elected representatives.

Is There a Union in our Future?

The subject of professional unions also was brought up in discussion until cut off by some who felt it out of order. Engineers react against unions, but some say that if they want job protection and better regulation of credentials etc., this is what they need. This led to taking a look at IEEE, which is so diverse that it's very hard to find a "PE" kind of engineer anymore, to ask how effective it could be as a kind of union if it so chose. This quickly died. Many members are from other scientific fields or from other countries where rules about degrees and licensing are all over the map. It seems impossible to drag IEEE backwards to fit into a simpler picture of what the "Electrical and Electronic" industries looked like forty years ago, as much as that might be welcomed by some of us old boys. Recognizing this, it seemed agreed that if one

Virtue out of necessity

Man's capacity for justice makes democracy possible; but man's inclination to injustice makes democracy necessary.

Reinhold Niebuhr

Don't give up!

One is frightened only when he still thinks he has a chance.

Alberto
Santos-Dumont

ever did want a "Professional Union", that it would have to be a new entity entirely outside of IEEE. Incidentally there is an interesting website for the "Oregon Association of Technology Professionals", <http://www.ortech.org>. This is an Association, not a union, and it appears to have been started by a couple of software types. They mention IEEE as being inadequate to represent the kind of concerns they have. (I was all ready to sign up until I read the part that rules out anyone with hire/fire authority.) Another organization mentioned in the NYTimes article is the "Washington Alliance of Technical Workers", <http://www.washtec.org>, in the state of Washington, which is trying to organize IT technology workers under the umbrella of the 700,000-member "Communications Workers of America", <http://www.cwa-union.org>, which clearly is a union and does not seem to stress the word "Professional." Oregon Association of Technology Professionals claims to have been inspired by WATC, but is aimed at professionals who want collaboration on workplace issues but not a union.

What About the Future?

Listening to all of the somewhat strained conversations of the past few weeks, and the clear worries that many have about job security, ethics support and the lack thereof, protectionism, the role of IEEE-USA to promote the needs of 275,000 U.S. engineers preferentially to the global IEEE members etc., I posited the following questions to myself:

What kind of professional organizations will best serve the ever-more closely interconnected global community and global public interests?

Can IEEE be adapted to serve well in a world that on the one hand espouses increased "Free

Trade" partnerships to promote peace and prosperity, and on the other hand pre-emptive wars against terrorism that identify other countries (and their IEEE members) as the epitome of evil and distrust?

I rather quickly concluded that we need an organization that is truly international in organization, representation and scope of interests, serving an international public with quality as well as equality. The IEEE is a U.S. Corporation that has been very successful in the global marketplace in terms of attracting members, but as an exclusively U.S. corporation it is constrained transnationally in addressing professional concerns like ethical conflict between members and their employers, professional standing in the public arena, professional employment tensions between labor, government and business, and professional involvement in the local and national debate. IEEE is a wonderful organization that serves well as a force for education, publication, standards and conferences involving cooperative effort among practicing engineers and scientists worldwide, but it cannot escape its U.S.-Centric roots and image as an ally of U.S. business. It will continue in its present role that it does very well, but some areas are out of reach.

I have begun a personal effort to write down some of the features I would like to see in a Professional Engineer and Scientist organization that can address a wide range of transnational as well as national issues. If anyone would like to be part of this discussion, at your own risk, please contact the author to get on an email list.

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Politic

It is much safer to be feared than loved, if one has to lack one of the two.

Niccolo
Machiavelli

IEEE ELECTIONS

Editor's note: This year there are two Institute-wide elections of interest to NPSS members. They are for the posts of 2004 IEEE President-Elect and for 2004 Technical Activities Vice President-Elect. As in the past I asked all four candidates involved if they would be willing to prepare expanded (up to about 750 word) statements in which they could provide more details about their platform than is allowed in the election brochure.

The two IEEE President-Elect candidates, Cleon Anderson and Michael Lightner were pleased with the opportunity and provided thoughtful descriptions of their goals and aspirations for IEEE. They deserve our thanks.

However, for the first time ever, the two Technical Activities Vice President-Elect candidates, Celia Desmond and John Vig, decided that, since our Society consisted of less than 1% of the IEEE membership, it wasn't worth their time and effort to provide expanded statements. This despite the fact that I pointed out there are other Societies willing and happy to publish such statements. Apparently finding out who these Societies were was also not worth their time and effort. I hope that whoever gets elected will be able to apply

the time and effort necessary to properly and fairly run the Technical Activities Board and that small Societies will not be adversely affected by their actions or inaction.

W. Cleon Anderson

Thirty-four years ago, my Student Branch Counselor told the Senior Electrical Engineering Class at the University of Utah, "If you think your decision to be an engineer is important, if you want to succeed in the practice of engineering, if you really care about your profession, you will join the IEEE. Not everyone will be accepted into this prestigious organization, but with my recommendation, you can become a student member." I joined, and since that time, I have been continuously engaged in interesting projects. I used my IEEE affiliation to keep me in touch with the larger engineering community. Access to technical information from IEEE made me valuable to both my employer and colleagues. The network of friends I found in IEEE helped me find engineers to hire, and provided me with an assurance of future work even during difficult economic times. I am a longtime IEEE volunteer, because I believe in the value of IEEE and its mission.

I am seeking the IEEE Presidency to:

Ensure that the volunteer members drive the entire IEEE organization. Our strength is the dedication and experience of our members. In managing the affairs of the Institute, I will listen to, and include, those members who volunteer in our planning and decision-making. There is a natural synergism between the organizational units of IEEE, which volunteers can exploit and use to benefit IEEE members.

Make business decisions that will maximize the IEEE membership-advantage in the workplace. Members have the right to expect a membership-advantage and other benefits for their dues. Service to the members of IEEE must take precedence over non-members when it comes to using the IEEE organization to improve the engineering workplace. I want to ensure that IEEE is member friendly, only then will membership recruitment and retention activities be enhanced.

Push decision-making responsibility and authority down the global organization to make IEEE flexible and adaptable to the diverse needs of our worldwide membership. The global nature of the Institute should not be monolithic. IEEE should seek alliances with national engineering organizations using Regional Activities and the IEEE Transnational

Committee. Regional organizations (sections and chapters) must be given wide latitude in developing and executing plans for the benefit of our culturally diverse membership.

Challenge the liaisons between IEEE and industry, universities, and governments, to enhance our profession in general and advance the well-being of IEEE members in particular.

Ensure that our conferences, publications, and standards add value for members working in our industrial/business/academic communities worldwide. Technical Activities form the basis of fulfilling the scientific and educational mission of IEEE. Publications and Standards provide the greatest leverage and opportunity for IEEE to prosper in the industrial/business community.

Put value into every business decision, so that IEEE Standards and society publications and conferences strengthen the image of engineers, promote excellent employment, and increase membership-advantage. While acknowledging IEEE as a many-faceted global association, the strategic benefits of IEEE membership must be the central focus of each IEEE organizational unit.

In IEEE we are not without problems to solve, but I think it is the role of engineers to solve problems. I recognize the high levels of educational achievement our members have attained. I respect our volunteers as the wise and educated people they are. Together we must take the challenge to build on these strengths, enhance IEEE volunteerism, foster industrial relations, and promote the importance of IEEE products and services. These are the three main needs of the Institute and its members today.

I have demonstrated management skills in industry. I understand financial management as required by corporations. Working as an engineer in industry, and as an engineering manager, has given me the experience and fiscal discipline for developing plans, setting priorities, and completing projects. I understand how to evaluate programs for both the short-term benefits and long-term implications on income and growth. I have considerable experience in working with volunteers in not-for-profit organizations. I can delegate.



W. Cleon Anderson
*Candidate for 2004
IEEE President-Elect*

Why not both?

Single woman looking for a bachelor or 1 bedroom suite in this area.

From a Vancouver church bulletin

I will use my managerial skills and financial experience, developed during a demanding engineering management career, and the understanding gained through years of extensive interaction with IEEE members in developing plans, setting priorities, and controlling projects, as well as resolving financial problems within the Institute.

Today, more than ever, IEEE needs a president with managerial skills. Together, let's focus IEEE's

great engine of volunteers in a business-like manner. Your vote for President Elect will give me the opportunity to help us reach these goals. Please visit <http://www.cleonanderson.com>.

Cleon Anderson can be reached at L-3 Communications Systems-West, 640 N. 2200W, P.O. Box 16850, Salt Lake City, UT 84116-0850; Phone: +1 801 594-7323;

E-mail: w.c.anderson@ieee.org 

Michael Lightner



Michael Lightner
Candidate for 2004
IEEE President-Elect

IEEE, the largest and most diverse professional organization in the world, is the integrating thread of my 33-year career: a source of colleagues, technical information, opportunities to present results, to help participate in defining different research fields and ultimately providing the possibility of participating in leading different activities within the IEEE.

The strength of IEEE lies in its diversity, incredible volunteers and staff, global membership, and the international reach of its products and services.

Our challenge is to maintain these strengths in the midst of our current economic climate and the increasingly complex needs of our members and the profession. A balanced and dynamic response is the key to our organizational vitality and our economic viability. This balance consists of:

- A decentralized organization of creative, entrepreneurial volunteers partnered with a professional staff;
- An efficient, coherent, flexible, affordable, and consistent infrastructure;
- Continual development, marketing and delivery of products and services with affordable member rates;
- Extending our connections to industry, including new products and services, continuing education, leadership and management opportunities for volunteers, and an expanded standards activity;
- Quickly and visibly responding to our rapidly changing technical environment.

The IEEE is a large, complex organization operating in a complex business environment. A decentralized organization allows us to respond to rapid technical and market changes. Many of our operations have become complex and intertwined with the related global businesses. Over the past seven or more

years the level of professionalism and expertise of our staff has risen to match the complexity of our business environment. Our volunteers understand the detailed technology trends and the possibilities for effective and innovative support of members and the profession. Creative partnership between volunteers and staff is key to our future development.

We should have the most efficient and cost-effective infrastructure possible. I will continue working with the Board of Directors and other organizational units to understand and vigorously pursue opportunities for cost reductions based on the analysis of service levels and requirements. Detailed analysis has shown that, over the past five years, the annual corporate infrastructure has accounted for 19 to 20 percent of expenditures. We must work to control these costs. Recent changes, both in our allocations and in the general economy, have created severe hardships within the IEEE. I am not convinced that we currently have effective cost accounting and allocations, and I will work specifically to understand, reduce and clearly communicate the allocations.

It is critical that where we have common infrastructure, such as Xplore, we institute mechanisms to support innovation by societies. As VP of Publications I am leading an initiative for an Xplore product development lab that will allow societies to use our exceptional infrastructure to develop innovative, experimental products and services.

Partnering with industry is critically important. IEEE does provide service to members and companies. Many companies purchase our intellectual property and find it essential to their mission. IEEE standards are absolutely critical to industry and industry is our key partner in this global activity.

Increasing services to industry is important but increasing visibility is vital. A simple first

I second that!

Royal Commissions spend years taking minutes.

Harold Wilson

step would be to work with all those who purchase our products and services to put the IEEE logo somewhere within their website. The logo would link to a page customized for the company. This simple step would increase the awareness and potential interaction between companies and the IEEE. Next, I would continue the President Adler's executive forums. I would coordinate these through societies, councils, sections and chapters. Finally I would work to increase our certification efforts, pioneered by the Computer Society, as a specific activity that integrates the needs of both engineers and employers.

IEEE is entering a time of organizational and operational change. These changes should be driven by a broad vision. We need to be strategic, far-sighted and inclusive. I offer the following expanded vision - - the IEEE should be the integrating thread of our Profession.

My professional background, leadership skills and extensive IEEE experience enable me to work with volunteers and staff, companies, organizations and members, to provide open and timely communication, consensus building, imaginative problem solving, efficient use of resources, and a sense of both responding to and driving the future. We are an incredible group of people in an incredible profession. Together we have the opportunity to increase the impact of IEEE by making it the integrating thread of our profession!

I respectfully request your vote and would be honored to work with you for the future of IEEE.

Mike Lightner can be reached at the University of Colorado at Boulder, Department of Electrical and Computer Engineering, College of Engineering East, 3100 Marine St., Rm A436: Phone +1 303 492-5180; E-mail: m.lightner@ieee.org or visit <http://ece.colorado.edu/~lightner/IEEE/>

Equalizer

Even a giant is blind in the dark

Alan Hillgarth

NEW PUBLICATION BY NPSS MEMBER

Handbook on Radiation Probing, Gauging, Imaging and Analysis

Volume I: Basics and Techniques
(464 pp, ISBN 1-4020-1294-2)

Volume II: Applications and Design
(526 pp, ISBN 1-4020-1295-0)

(Set: ISBN 1-4020-1296-9)

by Esam M. A. Hussein

Kluwer Academic Publishers, Dordrecht

This is a four-part handbook that covers all aspects of non-destructive evaluation (NDE) with charged-particles, photons and neutrons. The book is written by an IEEE NPSS member: Esam Hussein, a nuclear engineer and professor and chair of Mechanical Engineering at the University of New Brunswick, Canada. As described in the Foreword to the book, written by Dr. John Hubbell (National Institute of Standards and Technology), this is a "two-volume "how-to" desk reference on virtually all aspects of the use of photon and corpuscular radiations in the interrogation of materials and structures, I found the presenta-

tion format to be unique and useful. Although the variety and comprehensiveness is akin to a topical encyclopedia, the presentation reminded me of a thesaurus, in which the subtopics are not sequenced alphabetically, but, similar to in a thesaurus, are sequenced in a logical progression. Then, going "Roget" one better, at the end of the book are found not one, but two alphabetized indexes, first an "application index" and finally a conventional index alphabetically listing key words and their page numbers from throughout the text."

The book starts with an introductory chapter that makes the case for using radia-



Esam Hussein

**Don't tell me
you...**

**If people really
liked to work,
we'd still be
plowing the
ground with sticks
and transporting
goods on our
backs.**

William Feather

tion-based methods in NDE, by comparing them to conventional techniques.

Part I of the book covers radiation sources, modifying (interaction) physics and detectors. Radiation sources and detectors are identified and their properties presented. The physics of radiation interactions are discussed in terms of their relevance to NDE. The safety aspects of dealing with radiation are addressed in the fourth chapter of Part I.

In Part II, the examination techniques of transmission, scattering, emission and absorption are presented, each in a separate chapter. The conventional transmission techniques of radiography and tomography are discussed, along with special variations such as dual-energy methods, resonance imaging and Mössbauer spectroscopy. The chapter on scattering methods covers techniques used to probe a point in an object, provide an overall bulk indication, or produce an image; in addition to methods that employ neutron diffraction and charged-particle scattering. Methods that rely on induced (secondary) radiation emission, as well as those employing internal sources (e.g. radiotracers), are covered in the chapter dealing with emission methods. Indications provided internally by the absorption of different types of radiation are examined in a separate chapter, including the neutron die-away indication.

The second volume focuses on applications and design. Part III begins by presenting applications involving probing a particular location in an object, inspecting products, and monitoring processes systems. Applications that give bulk quantified indications are presented in a separate chapter. The usefulness of elemental analysis, with neutrons and x-rays, is demonstrated by a wide variety of industrial, environmental and geological applications, along with others. The chapter devoted to imaging applications discusses, not only the industrial uses of familiar transmission-based radiography and tomog-

raphy methods, but also applications utilizing scattering and emission.

Part IV addresses design aspects, in five chapters. It starts with a list of the arguments a designer can use to overcome the reluctance of some industries to adopt radiation-based methods. The first chapter in this Part identifies performance and design parameters, and addresses the issues of choosing the proper radiation source, detector and technique. A chapter is devoted to the processes of modifying the energy, direction, and intensity of commercially available radiation sources. Design and shielding calculation methods are outlined. Experimental design, including the licensing process and laboratory practices, are examined. The last chapter deals with the issues associated with commercializing a developed device, in particular, prototyping and patents.

In addition to the above described 18 chapters, the book includes 7 appendices, provided for convenience at the end of each volume. They include: basic units and constants, an alphabetical list of elements and natural isotopes, the basics of relativistic mechanics, the quantum-mechanics concept for cross-sections, methods for calculating nuclear/atomic parameters for compounds and mixtures, approaches to evaluating the effective-energy of multienergetic sources, and radiation counting statistics.

This book is designed to provide students and experts with an inclusive source of streamlined information. Researchers and instrument developers will find a list of 1373 references. The application index will enable practicing engineers and industrial physicists to easily identify techniques suited for a particular application, along with their previous uses.

Esam Hussein can be reached at the University of New Brunswick, Department of Mechanical Engineering, Fredericton, NB, E3B 5A3 Canada, Phone: +1 506 447-3105; E-mail: hussein@unb.ca For more information about the Esam see: <http://www.unb.ca/web/ME/faculty/hussein.html> 

Blind side

**Nature endowed us with pride to spare us the pain on knowing
our imperfections.**

La Rouchefoucauld

DISCLOSURE OF INTELLECTUAL PROPERTY ASSIGNMENT AGREEMENTS

IEEE-USA Position Statement

(Approved by the IEEE-USA Board of Directors, June 2003)

Pre-employment intellectual property assignment agreements, or other agreements with similar terms, and covenants constitute a material part of an employment offer, potentially equaling or exceeding monetary considerations in importance. When such terms and covenants are required, they are usually a non-voluntary precondition of employment. Therefore, IEEE-USA supports the following minimum standards of ethical conduct with respect to assignment agreements:

- Timely and complete disclosure of required terms and covenants prior to or simultaneously, with an offer of employment, and not after (1) the acceptance of an offer and (2) the prospective employee's notice of termination to a previous employer is an ethical necessity;
- Given the close relationship between such terms and covenants, the employee's everyday duties and livelihood, and the unforeseeable but potential material implications, the mandate of professional ethics for disclosure is not dependent upon the level of interest expressed by the prospective employee;
- The employer's ethical obligation of disclosure also extends to established employees. When an employer proposes alterations to previously agreed upon terms and covenants as a condition of continued employment, the employer has an ethical responsibility to provide a period of acceptance sufficient for the employee to obtain alternative employment;
- Consideration by the employer of reasonable objections and requests for modification of terms and covenants is an ethical necessity in all instances. Modification requests should not be unreasonably refused. Refusal to accept alterations on the mere basis of unwillingness to approach an officer of sufficient authority, or for lack of precedent, is considered to be contrary to ethical standards. Exclusion from the pre-employment agree-

ments of existing intellectual property rights of the prospective employee is conclusively reasonable; and

- An employer's efforts to obtain intellectual property rights may extend beyond the term of an inventor's employment. A pre-employment agreement may require further reasonable efforts of the inventor to cooperate with the employer even after the termination of employment, but ethical standards require that the inventor be reasonably compensated.

This statement was developed by the IEEE-USA's Intellectual Property Committee, and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field.

Background

Since 1975, the IEEE-USA and its Intellectual Property Committee have endeavored to encourage and improve use of the intellectual property rights. Intellectual property rights are an integral part of an inventor's economic well-being.

New employees are usually not shown intellectual property assignment agreements, and similarly required documents, before the day employment commences. While such documents are generally a routine matter, in some unfortunate instances terms are required that are onerous and burdensome. Lack of pre-employment disclosure serves to deprive new employees of the opportunity to perceive potential difficulties before committing to employment.

Prospective employees may ask to inspect such forms before accepting an offer, and we encourage them to do so where forms are not voluntarily pre-disclosed. Nevertheless, failure to ask is no proof of lack of interest. Our collective experiences and those of our correspondents demonstrate that employers often have a dominant bargaining position. A request to review documents may be held as a demonstration of suspicion, and does little to please prospective superiors.

The ethical solution is the simplest. Employers should automatically provide prospective employees with copies of the forms they will be

Count your blessings

Much sorrow may be avoided by acknowledging that as gloomy as being alone makes you feel, it is rollicking heaven compared with being amongst most other people.

Roger Rosenblatt

required to sign, at the time of an offer. At the very least, it is a simple professional courtesy.

The opportunity to comprehend and question overbearing or ill-conceived clauses

is imperative for all employees. These questions and consequent modifications that arise will reflect real needs, enhancing the viability of our industry. ■

ADVANCED NUCLEAR POWER RESEARCH AND DEVELOPMENT

IEEE-USA Position Statement

(Approved by the IEEE-USA Board of Directors, June 2003)

Story time

Where the human mind cannot establish or explain a thing it necessarily invents, preferring a pretence of learning to a complete lacuna.

T. Ribot

The IEEE-USA supports a substantial renewed nuclear energy R&D effort as part of a broad and balanced government program in energy technology. IEEE-USA believes that the improved nuclear reactor designs merit a substantial advanced nuclear energy research, development and demonstration program. Such a program would result in the deployment of advanced nuclear energy systems that could provide a valuable future energy source.

IEEE-USA recommends increased funding for R&D in energy technologies generally, to provide a diverse set of options for more efficient electricity use in the near and long-terms. Our vision emphasizes energy efficiency and diverse energy sources including solar, other renewable energy resources, and advanced nuclear technologies, in order to reduce the need for burning fossil fuels. Nuclear energy now provides 20 percent of electricity in the U.S. and 17 percent worldwide. In the future, nuclear energy can contribute an even greater share of clean and economic energy for a growing population, raising the quality of life of the developing world while reducing pressures on the earth's environment and finite resources. U.S. Department of Energy funding of nuclear energy research, including research on reprocessing and use of spent reactor fuel, needs to be invigorated.

The United States should:

- Exercise world leadership in nuclear science and technology.
- Support the continued use of nuclear energy as a major component in a balanced portfolio of energy sources.
- Develop new nuclear energy systems within the larger context of increased conservation, energy efficiency and use of other energy sources.
- Capitalize on the advantages of nuclear power - no direct emissions of CO₂ or other greenhouse gases, and the capacity to produce a significant fraction of the

world's demand for electricity for hundreds of years or more.

- Realize the potential for increased safety and more attractive economics in the next generation of reactor designs.

In moving forward with a major renewed program, the research needs to address the challenges of nuclear power, including:

- Public concerns about the risks of radiation, nuclear power plants, and the transportation and storage of nuclear waste.
- Presence of a large quantity of energy and radioactive materials stored in the fuel of a nuclear reactor.
- Difficulties in managing nuclear spent fuel.
- Illicit production of materials that could be formed into nuclear weapons, and dissemination of nuclear weapons expertise that might increase the potential for proliferation of nuclear weapons.
- Economic challenges posed in the past by a long and uncertain licensing process that led to significant increases in construction and operating costs in the USA.

The IEEE-USA position is that nuclear energy has been demonstrated to be environmentally sound and economically competitive, and that the challenges discussed above can be addressed in a manner that will make nuclear energy an even more attractive energy option. The U.S. should accelerate the research, development and demonstration of next-generation nuclear energy systems including reprocessing and the use of long-term sustainable fuel cycles. The deployment of advanced nuclear energy systems would be further assisted by implementing effective licensing reforms to demonstrate that reactors in the U.S. can be built as cost effectively as they are abroad.

This statement was developed by the Energy Policy Committee of the IEEE-United States of America (IEEE-USA), and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field. ■

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Elected Administrative Committee Members

Terms expiring 2003: Richard W. Callis (FT), Kenneth F. Gallo-way (RE), Osamu Ishihara (PSA), Edl Schamiloglu (PPST);

Terms expiring 2004: Erik H.M. Heijne (Transnational), Tom K. Lewellen (NMIS), Mark Rader (PSA), Michael P. Unterweger (NID).

Terms expiring 2005: Dennis B. Brown (RE), Mounir Laroussi (PSAC), Patrick LeDû (CANPS), William W. Moses (RI)

Terms expiring 2006: Joseph Benedetto (RE), Grant Gullberg (NMIS), Glenn F. Knoll (RI); Patrick O'Shea (PAST)

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Computer Applications in Nuclear and Plasma Science (CANPS): Christian Boulin; *Radiation Instrumentation (RI):* Ronald M. Keyser; *Fusion Technology (FT):* Philip J. Heitzenroeder; *Nuclear Instruments and Detectors (NID):* Ronald M. Keyser; *Nuclear Medical and Imaging Sciences (NMIS):* Ronald J. Jaszczak; *Particle Accelerator Science and Technology (PAST):* Bruce C. Brown; *Plasma Science and Applications (PSA):* Thomas W. Hussey; *Pulsed Power Science*

and Technology (PPST): Robert E.Reinovsky; *Radiation Ef-fects (RE):* Ronald D. Schrimpf.

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Awards: Igor Alexeff; *Chapter and Local Activities:* Vernon G. Price; *Communications:* Peter N. Clout; *Fellow Candidate Eval-uation:* Osamu Ishihara; *Finance:* Harold Flescher; *Conference Policy:* Raymond S. Larsen; *Membership:* Vernon G. Price; *Nominations:* Peter S. Winokur; *Publications:* Paul V. Dressendorfer; *Students & Careers:* Edl Schamiloglu & Ken-neth A. Connor; *Transnational:* Erik H. M. Heijne.

Publications

Editor-in-Chief: Paul V. Dressendorfer; *Editor, IEEE Transac-tions on Nuclear Science:* Paul V. Dressendorfer; *Editor, IEEE Transactions on Plasma Science:* Steven J. Gitomer; *Editor, IEEE Transaction on Medical Imaging:* Max A. Viergever; *Conference Editors, Transactions on Nuclear Science: Ed-ward J. Hoffman, John Valentine;* *Editor, Newsletter:* W. Ken-neth Dawson; *Newsletter Editor Emeritus:* John F. Osborn.

Liaison Representatives on other IEEE Committees

Coalition for Plasma Science: Gerald L. Rogoff; *Distin-guished Lecturer Program:* Vernon G. Price; *Energy Policy:* TBA; *R&D Policy:* Peter S. Winokur; *PACE:* Julian Forster; *RADECS Liaison:* Harold Flescher; *Social Implications of Tech-nology:* Raymond S. Larsen; *Standards:* Julian Forster; *TAB New Technology Directions:* Edward J. Hoffman; *TMI:* A Bertrand Brill and Ronald J. Jaszczak.

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