

# Nuclear & Plasma Sciences

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SOCIETY NEWS

## CONFERENCES

### 39<sup>th</sup> ANNUAL INTERNATIONAL NUCLEAR AND SPACE RADIATION EFFECTS CONFERENCE

Phoenix, Arizona  
July 15-19, 2002

**A**s General Chairman it is my pleasure to invite you to attend the 39th Annual International Conference on Nuclear and Space Radiation Effects (NSREC) to be held July 15-19, 2002 at the Pointe South Mountain Resort in Phoenix, Arizona. As with previous NSRE Conferences, 2002 will offer an outstanding technical program, a one-day Short Course preceding the technical program, a Radiation Effects Data Workshop, and an Industrial Exhibit. We welcome attendance by engineers, scientists, managers and other interested persons from throughout the world. Highlights of the conference are given below. You can also access this information at [www.nsrec.com](http://www.nsrec.com).

The 2002 IEEE NSREC will be held at the Pointe South Mountain Resort. The Pointe South Mountain Resort is the largest all-suite resort in the American Southwest with ideal conference meeting space for the NSREC. Located adjacent to the South Mountain Park and ten miles from the Phoe-



nix Sky Harbor airport, the Pointe has many scenic courtyards, six swimming pools, a large spa and fitness center, and world-class tennis and golf facilities.

The conference is sponsored by the IEEE/Nuclear and Plasma Science Society Radiation Effects Committee and supported by the Defense Threat Reduction Agency, Sandia National Laboratories, Air Force Research Laboratory, NASA Electronic Parts and Packaging Program.

#### SHORT COURSE

Attendees will have the opportunity to participate in a one-day Short Course on Monday, July 15. A Short Course is offered each year and is intended to provide newcomers with an overview and in-depth study of timely and significant issues in the radiation effects field and for updating and refreshing the knowledge of experienced workers. The 2002 Short Course, organized by Paul Dressendorfer (Sandia



**Ken Hunt**  
General Chairman



**Tom Turflinger**  
Technical Chairman



**Paul Dressendorfer**  
Short Course  
Chairman



**Jeff Black**  
Local Arrangements  
Chairman

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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 August 1, 2002.

### 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 August 1, 2002.

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National Laboratories), titled "Radiation Effects - From Particles to Payloads," is a cohesive set of talks on the issues of concern for satellite systems.

Joe Mazur, The Aerospace Corporation, will set the stage with his presentation "The Radiation Environment Outside and Inside a Spacecraft." He will illustrate the hazards that exist and their impact on space systems.

Dr. Jim Schwank from Sandia National Laboratories will present "Total Dose Effects in MOS Devices." He will first provide an overview of the basics of radiation damage. This background will lead into a more detailed discussion of the limitations and issues for device response, including concerns for advanced technologies.

Next, Dr. Todd Weatherford, U.S. Naval Postgraduate School, will present the segment "From Carriers to Contacts, a Review of SEE Charge Collection Processes." Single Event Effects are a major concern for satellite electronics and Dr. Weatherford will cover this important area. This session will examine the process from ionization to photocurrents.

Dr. Christian Poivey, NASA Goddard, will conclude the Short Course with "Radiation Hardness Assurance for Space Systems." This will tie together the earlier talks in a discussion of how one assures a satellite system will work in the space environment.

For those interested in Continuing Education Units (CEUs), there will be an open-book test at the end of the course. The course is valued at 0.6 CEUs and endorsed by the IEEE and the International Association for Education and Training.

All Short Course attendees will receive a CD of the 1980-2002 IEEE NSREC Short Course presentations.

### **TECHNICAL INFORMATION**

The Technical Program Chairman, Tom Turflinger (NAVSEA Crane) and his program committee have put together an outstanding set of contributed papers that have been organized into ten sessions of 53 oral and 41 poster presentations and a Radiation Effects Data Workshop. The Workshop consists of 27 papers emphasizing radiation effects data on electronic devices and systems, and descriptions of new simulation and radiation test facilities. In addition, there are three outstanding invited talks that should be of general interest to attendees and their companions. All will be pre-

sented over the next four days of the Conference as a single track.

Technical sessions will include:

- Basic Mechanisms
- Space and Terrestrial Environments
- Dosimetry and Facilities
- Photonic Devices and Integrated Circuits
- Radiation Effects in High Energy Physics
- Isolation Technologies
- Hardness Assurance
- Single Event Effects, Mechanisms and Modeling
- Single Event Effects, Devices and Integrated Circuits
- Devices and Integrated Circuits

### **INVITED TALKS**

Radiation damage has been studied extensively in the frame of electronics. It is also a subject of elaborate investigations in the context of semiconductor detectors. This is the case in the context of particle physics where detectors have to withstand the harsh radiation environment of high luminosity particle colliders. Radiation damage at much lower dose is of relevance in space based X-ray observatories where detectors are exposed to cosmic radiation and in particular to the radiation belt. This high vulnerability, with respect to radiation, is due to the sophisticated structures of the detectors which have to provide simultaneously precision images and spectral information. The mechanisms responsible for deterioration of detector properties differ in many ways from those being important in electronic devices. Thus the methods of improving radiation hardness of detectors also deviate from those used in electronics. On Wednesday, July 17, Dr. Lutz, Max Planck Institut-Halbleiterlabor, will review the mechanisms of radiation damage in silicon radiation detectors.

On Thursday, July 18, Dr. Soroosh Sorooshian, University of Arizona, will speak on the effective management of water resources in today's world, particularly in the arid and semi-arid regions of the world, which constitute nearly 1/3 of the world's land mass. Three issues place special stress and added uncertainties on water resources in semi-arid regions. The first issue is the rapid population growth in almost all of the semi-arid regions of the world. The second issue is the impact of prosperity on per capita water consumption

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## **Architecture**

It takes theories to build the factual bricks of the scientific world into coherent structures.

*David Lindley*

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## **Hard at work**

Faced with the choice between changing one's mind and proving that there is no need to do so, almost everybody gets busy with the proof.

*J. K. Galbraith*

## Eternal truth

It is often said that fusion is the power of tomorrow — and always will be.

*Ian McKinley*

rates. The third complication arises from the additional uncertainty resulting from global climate change and, hence, the potential intensification of the hydrologic cycle. Therefore, there is no doubt that both population growth and climate variability will have a great impact on regional water resources and the way they should be managed.

On Friday, July 19, Carl Walz, U.S. Air Force officer and career astronaut, will describe “Living and Working in Space”, his experiences on four previous space missions and as a member on the most recent International Space Station (ISS) crew. He will discuss his intensive training in Russia and the U.S., the mission itself and the recovery process after more than 5 months in space. We will have a unique opportunity to learn the latest status of the Station and the growing understanding of man’s place in space.

### **INDUSTRIAL EXHIBIT**

Starting at noon on Tuesday, July 16, this year’s Industrial Exhibit, organized by Chuck Tabbert (Peregrine Semiconductor) will provide an opportunity for conference attendees to discuss the latest radiation-resistant electronics, radiation analysis and testing equipment and facilities, and hardware and software simulation products and services. An Industrial Exhibits Reception will occur on Tuesday evening. Exhibitors include:

Actel  
AEM  
Aeroflex UTMC  
ATMEL  
BAE Systems  
Boeing Radiation Effects Lab  
Brookhaven National Lab  
Defense Microelectronic Activity  
DPA Components International  
Honeywell  
Integrated Systems Engineering, Inc.  
International Rectifier  
Intersil Corporation  
iROC Technologies  
J. D. Instruments  
J. L. Shepherd  
Maxwell Technologies  
MeltroniX/US Semiconductor  
Micropac  
Modular Devices

NASA Applied Radiation  
NASA Goddard Space Flight Center  
NASA Marshall Space Flight Center  
Northrop Grumman  
Peregrine Semiconductor Corporation  
Sandia National Laboratories  
Silvaco  
Texas A&M Cyclotron  
White Sands Missile Range  
Xilinx, Inc.

### **SOCIAL PROGRAM**

Social events have been planned to give Conference attendees and their guests opportunities to informally discuss radiation effects and to become better acquainted. Jeff Black, (Mission Research Corporation), this year’s Local Arrangements Chairman, has put together a terrific social program. The highlight of the program will be the Wednesday evening social where attendees and their companions will have the opportunity to visit the Corona Ranch for an evening filled with food, friends and a Mexican Rodeo. We strongly encourage you to register as early as possible for the social events as we are limited in the numbers we can accommodate. Please visit to view the activities and obtain the registration forms.

Please call the Pointe South Mountain Resort at +1 602 438-9000 (Toll-Free: +1 877 800-4888) and ask for the “IEEE NSREC” block of rooms. Reservations must be guaranteed. The cut-off date for room reservations is June 11, 2002. After that date, room accommodations will be confirmed on a space available basis and the conference room rate is not guaranteed.

### **ADDITIONAL INFORMATION**

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

You may also contact me at: Ken Hunt, Air Force Research Laboratory, Kirtland AFB, NM 87117; Phone: +1 505 846-4959; E-mail: [ken.hunt@kirtland.af.mil](mailto:ken.hunt@kirtland.af.mil).

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## At a disadvantage

He has not a single redeeming defect.

*Benjamin Disraeli*

## MAKING RESEARCH EASY

This year, the Nuclear and Space Radiation Effects Conference (NSREC) will provide each Short Course attendee with a copy of the Archive of Radiation Effects Short Course Notebooks on CD-ROM. The CD contains all NSREC Short Course notebooks from 1980 through 2002. It represents the complete collection – since NSREC began publishing the short course material.

The original CD collection was first printed in 1999. We scanned 6100 pages of material from 19 old notebooks. It was a 5-month effort. Scanning was in black and white at 300 dpi, mostly from copies in my personal library. Jim Ramsey and Ken Galoway contributed the older copies that were missing. To get those 6100 pages into a flatbed scanner, we had to cut loose the bindings. As a result, our paper archive was dismantled for a good cause.

After 1999, we went digital. Each instructor contributed their original manuscript, including color graphics. With the manuscripts in word processor format, the encoding process took seconds instead of months, allowing us to produce a CD in several hours.

One nice part about doing research with this CD-ROM collection is the “search engine” feature. For example, if you search on the word “Fleetwood” the engine finds 321 entries. Dan Fleetwood, IEEE Fellow, is one of our most quoted authors. I have used the search engine to find all material that mentions “minority

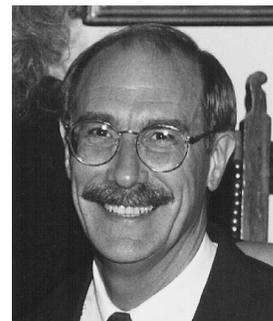
carrier lifetime” and “latchup” when I needed to become an instant expert on a topic. The engine is nothing special, it is simply a part of the standard Adobe Acrobat Catalog software, which comes on the full edition of Acrobat. Other search modes include ‘word stemming’ and ‘sounds like’ features, in addition to perfect matches.

Three universities are using the CD as their textbook for graduate level physics courses. When we ran out of CDs earlier this year, one professor (who could not wait for our updated version to come out) burned copies for his students on his CDRW, collected checks from each of his ten students, and sent the money to IEEE. His email made my day.

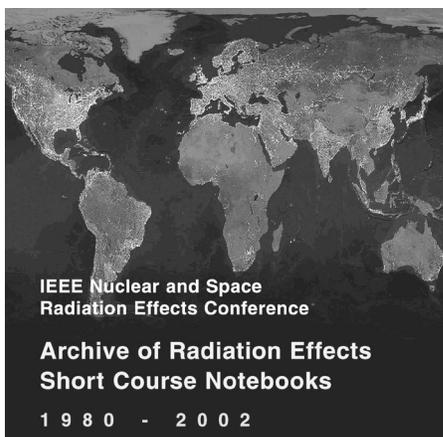
The 100 (plus) instructors who contributed to this CD can be very proud that they are “passing the torch” to our next generation of radiation effects scientists. But then, this is what IEEE is all about.

A limited number of CDs can be purchased for \$200 each (\$160 for IEEE members) at the IEEE online Catalog&Store at <http://shop.ieee.org>. Ask for IEEE product order code EC146, ISBN: 0-7803-6844-4.

*Dale Platteter serves as Chairman of the Radiation Effects Steering Group, which oversees the NSREC Conference. He is technical chair of the NPSS Radiation Effects Committee. Dale 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](mailto:platt@ieee.org)*



**Dale Platteter**  
Radiation Effects  
Committee Chairman



### Retro-perspective

Anyone can create the future, but only a wise man can create the past.

*Vladimir Nabokov*

### For any eventuality

For the purposes of making a declaration under this Subdivision, the Commissioner may: (a) treat a particular event that actually happened as not having happened; and (b) treat a particular event that did not actually happen as having happened and, if appropriate, treat the event as: (i) having happened at a particular time; and (ii) having involved particular action by a particular entity; and (c) treat a particular event that actually happened as: (i) having happened a time different from the time it actually happened; or (ii) having involved particular action by a particular entity (whether or not the event actually involved any action by that entity).

*Australian Goods and Services Tax Act*

# 2003 IEEE NUCLEAR AND SPACE RADIATION EFFECTS CONFERENCE Monterey, California July 21 – 25, 2003

## Monterey

The picturesque city of Monterey is located on Monterey Bay, a two-hour drive from San Francisco. It is the site of the world-renowned Monterey Aquarium, as well as the location of Cannery Row, made famous by the novelist John Steinbeck. Several historical buildings remain from the early part of the nineteenth century when Monterey became an important fishing and commercial center. The nearby 17-mile drive contains some of the most beautiful scenery in the United States, and was photographed by Ansel Adams during the 1940s. Monterey is a small city with an intimate feel, with many local attractions and activities. Sea lions, seals and sea otters abound in Monterey Bay. Beaches, hiking, historical sites, kayaking, sailing, golf, and nearby wineries in the Carmel Valley are among the many attractions in this unique site.

The 2003 Conference will be held at the DoubleTree Hotel and Monterey Conference Center (which are contiguous), in the center of the main attractions within the city. A three-minute walk to the north of the Conference Center takes you to the Monterey Pier and marina area with restaurants and maritime attractions, as well as the Maritime Museum. An even shorter walk to the south puts you in downtown Monterey, where there are numerous shops and restaurants within a ten-block area that invite exploration by the visitor. The aquarium and Cannery Row are less than one mile away, and can be reached by an inviting footpath that parallels the bay. Conference attendees and their families will have numerous activities and attractions to choose from in one of the most popular vacation sites in California.

## Additional Information

Contact either the General Chairman, Allan Johnston, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109; Phone: +1 818 354-6425; Fax: +1 818 393-4991; E-Mail: [allan.h.johnston@jpl.nasa.gov](mailto:allan.h.johnston@jpl.nasa.gov), or the Publicity Chairwoman, Teresa Farris, Aeroflex UTM, 4350 Centennial Blvd., Colorado Springs, CO 80907; Tel: +1 719 594-8035, Fax: +1 719 594-8468; E-mail: [teresa.farris@utmc.aeroflex.com](mailto:teresa.farris@utmc.aeroflex.com) 

The IEEE Nuclear and Space Radiation Effects Conference (NSREC) is pleased to announce the 2003 Conference will be held at the DoubleTree Hotel, Monterey, California, July 21-25, 2003. The NSREC is one of the most prominent international symposia on radiation effects. The main part of the Conference consists of a technical program of eight to ten sessions of contributed papers describing the latest observations in radiation effects on electronic devices, circuits, optoelectronics and materials. The Conference also includes a Radiation Effects Data Workshop and Industrial Exhibit. In addition, a Short Course on Radiation Effects in Advanced Integrated Circuit Technologies will be given during the first day. 2003 marks the 40<sup>th</sup> consecutive year in which the conference has been held. A special commemorative publication will be distributed to conference attendees, reviewing many of the key technical accomplishments in this field during its forty-year history.

The conference is sponsored by the IEEE Nuclear and Plasma Science Society and supported by the Defense Threat Reduction Agency, Sandia National Laboratories, Air Force Research Laboratory, and the NASA Electronic Parts and Packaging Program.

## Technical Program

The technical program includes oral and poster sessions, along with a separate poster session for the Data Workshop. Papers describing nuclear and space radiation effects on electronic and photonic materials, devices, circuits, sensors, and systems, as well as semiconductor processing technology and techniques for producing radiation-resistant devices and integrated circuits, will be presented at this meeting of engineers, scientists, and managers. International participation is strongly encouraged.

Information on submission of summaries to the 2003 IEEE NSREC will be posted at [www.nsrec.com](http://www.nsrec.com) in late July. The deadline for submitting summaries is February 7, 2003.

*Additional information on the technical program may be obtained from the Technical Program Chairman, Dr. Paul Dodd, Sandia National Laboratories, P.O. Box 5800, MS1083, Albuquerque, NM; Phone: +1 505 844-1447; Fax: +1 505 844-2991; E-Mail: [pedodd@sandia.gov](mailto:pedodd@sandia.gov).*



NSREC 2003  
MONTEREY

## Capsule summary

To say that  
science is logical  
is like saying that  
a painting is  
paint.

*Leon Cooper*

## 2002 Symposium on Nuclear Power Systems (SNPS)

The 2002 Symposium on Nuclear Power Systems (SNPS) will be held November 12-14, 2002 in Norfolk, Virginia. The Sessions 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
  - New aspects on equipment qualifications
  - A special annual overview report of major importance to nuclear power utilities
- And more

*For more information please contact Jay Forster, 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](mailto:jay.forster@gene.ge.com)*

### Full house

Science is a first-rate piece of furniture for a man's upper chamber, if he has common sense on the ground floor.

*Oliver Wendell Holmes*

## A FINAL LOOK

2001 NUCLEAR SCIENCE SYMPOSIUM  
AND MEDICAL IMAGING CONFERENCE  
including SYMPOSIUM ON NUCLEAR POWER SYSTEMS  
and 12<sup>TH</sup> INTERNATIONAL WORKSHOP ON  
ROOM TEMPERATURE SEMICONDUCTOR  
X- AND GAMMA-RAY DETECTORS

Town and Country Hotel and Convention Center San Diego, California  
November 4-10, 2001

The IEEE Nuclear Science Symposium (NSS) and Medical Imaging Conference (MIC) was held last year and included the Symposium on Nuclear Power Systems (SNPS) as well as the 12<sup>th</sup> International Workshop on Room Temperature Semiconductor X- and Gamma-Ray Detectors (RTSD).

The RTSD Program was a trial effort to determine the suitability of co-locating this activity with the NSS/MIC conference and turned out to be a great success. The attendees from each conference segment benefited from the high synergism of their respective programs. It appears that there is enthusiastic support to continue this practice for future conferences.

The call for papers produced more than 750 high quality submissions and resulted in an expansion of every program, in both oral and

poster sessions. The high number of submissions helped to facilitate one of the highest attendance records in many years. Total attendance was over 1000, with record numbers also engaging in Short Course and Companion Program activities. This participation was a startling, yet pleasant, surprise in light of the recent preceding events of September 11. A special thanks, once again, to those of you who came and contributed at the conference, especially to those who had to endure travel hardships to be with us.

The SNPS sessions were expanded to three full sessions of excellent oral presentations. This is an area in which we expect to continue to attract more interest, as the nuclear power industry appears to be on a path of increased interest.

With respect to Short Courses, an extra effort was made to expand the offerings to



**Anthony Lavietes**  
2001 NSS/MIC  
General Chairman

---

## Besieged

... so why do we stand here confronted by insurmountable opportunities.

*Walt Kelly (Pogo)*

---

## Comfort zone

Art upsets, science reassures.

*Georges Braque*

address emerging areas of interest. The Continuing Education Program consisted of nine short courses in nuclear science and medical imaging, providing comprehensive coverage of the topics of interest.

The Town & Country Convention center proved to be an excellent location, providing all of the resources necessary for successful exhibition and conference. This year's conference reception was held in the hotel pool area with a full buffet emphasizing Mexican cuisine with elaborate desert offerings. Entertainment for the reception was provided by an outstanding mariachi band.

The Exhibits Program was quite successful and extremely well attended. The Exhibitor Sessions, a continuation of a new initiative from last year's conference in Lyon, were full of excellent presentations detailing exciting new developments from the commercial sector. At the opening of the exhibition, we had what appeared to be a standing room only exhibits reception that garnered the attention of most attendees at the conference.

This year, we chose to pursue an all electronic presentation methodology for oral sessions. To the first order, this effort was very successful, though, because all of the computers were networked together, we found that we were particularly vulnerable to computer viruses. With minor architectural changes, electronic presentations will be the standard method for future NSS/MIC conferences.

Overall the conference was an enormous success. I especially want to thank the follow-

ing folks for their support and tireless efforts contributing to this success.

- Ann Tyler – Coordinator
- Graham Smith, Bo Yu – NSS Program
- BenTsui, Eric Frey – MIC Program
- Jay Forster – SNPS Program
- Ralph James, Paul Siffert – RTSD Program
- Judy Sanders, Christina Sanders, Malica Tareb – Registration
- Gary Alley, Lynette Willard, Nancy Salmon – Short Course Program
- Lynn Bergman, Lee Lampo, Frieda Forster – Companion Program
- Guy Armantrout – Treasurer
- Uwe Bratzler – Promotion
- Ed Lampo, Joe Mauger, Guillaume Mauger – Local Arrangements
- Tony Seibert, Brad Sleaford, Joel Surget, Michele Ulma – Guest Editor
- Alen Friensehner – Photographer
- Jan Grimm, Mag Simmons, Lei Loni Rodrigues – Administration
- Shaun Lund – Graphic Arts
- Tony Maeda, Larry Brinkley, Dora Merelli – Computer Support

*Anthony Lavietes, the 2001 NSS-MIC General Chairman, prepared this wrap-up of the very successful meeting he chaired. He can be reached at the Lawrence Livermore National Laboratory, 7000 East Avenue, L-153 Livermore, California 94550; Phone: +1 925 423-6766; Fax: +1 925 422-1332; E-mail:lavietes1@llnl.gov* 📧

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## A thought

There is nothing like thinking about thinking to make you feel dumb as a post.

*James Gorman*

---

## Strength in weakness

Whoever needs more should feel humble because of their weakness, not self-important because of the kindness shown to them.

*St. Benedict*

## PRESIDENT'S REPORT

## Tired of talking dollars and cents ...

In this Newsletter, I'm going to take a break from IEEE finances and talk about NPSS membership. AdCom held a retreat at IEEE headquarters in Piscataway, NJ, on March 1 to discuss membership issues. We wanted to answer the question of whether NPSS was relevant to the lives and careers of our members. Of course, it's difficult to separate the relevance of NPSS membership from IEEE membership. So, in general, I'll discuss the relevance of IEEE/NPSS membership and try to point out the special, unique benefits of joining NPSS. Based largely on our personal experiences and feedback from our colleagues, AdCom members came up with the following reasons to join IEEE/NPSS.

The top reason to join IEEE/NPSS is to remain technically current. The NPSS sponsors and its volunteers organize a series of outstanding conferences, which IEEE members can attend at reduced rates. No one can doubt that the information presented at IEEE/NPSS conferences and our associated publications represents the state-of-the-art information in nuclear and plasma sciences. In fact, IEEE's conference proceedings and periodicals are typically its biggest sellers. Our members want the technical information presented at our conferences and they want it fast. NPSS conferences do a pretty good job of getting conference proceedings on the street, typically in CD format, but the archival publications (e.g., *Transactions on Nuclear Science (TNS)* and *Transactions on Plasma Science (TPS)*) have experienced significant delays as we migrated from camera-ready print to fully edited transactions. To alleviate this delay, NPSS AdCom has agreed to post conference proceedings on the web in a password-protected site for conference attendees until the CD or transactions is released. Thanks to the efforts of Jeff Fessler, papers from the 2001 NSS/MIC were posted on the web shortly following the conference in November 2001 though the first week in April 2002. We don't have overall usage statistics, but the site registered 5662 hits originating

from 178 unique sites in the two-week period from February 18 to March 3!

The second reason to join NPSS is access to our publications and Xplore™ at incredibly low prices. The huge fixed costs to publish IEEE journals are covered by the sales of intellectual property to non-member and institutional customers. In 2002, non-members were charged \$575 for the IEEE TNS and \$450 for the IEEE TPS. These prices will increase 10% in 2003 as IEEE attempts to price its journals at 2/3 that of the commercial competition. In 2002, NPSS members only paid \$15 for print or electronic subscriptions to TNS and TPS, and \$24 for both print and electronic. In theory, these member subscriptions are supposed to cover variable costs like paper, printing, and mailing. Last year, NPSS under-recovered or subsidized these variable costs to the tune of \$60,000.

In 2003, TNS and TPS subscriptions will be increased to \$20 for print or electronic, which is still far short of the actual costs. Print *and* electronic will be \$40 to simplify accounting and hopefully encourage the transition from paper to electronic. Clearly, print copies of the transactions drive our variable costs. If we migrate toward electronic media and access through Xplore™, these costs will drop markedly. NPSS will do everything it can to support its members, but we can't go bankrupt doing so. In the past, we had the luxury of subsidizing member subscriptions and dues because of a large corporate surplus driven by a high-flying stock market. Future IEEE and NPSS budgets and business practices can't be based on expected gains in the stock market.

Another reason put forth to join NPSS is professional recognition. The grades of Senior Member and Fellow are noteworthy accomplishments, especially since one's peers confer this standing. The ability to present papers and publish in top-rated IEEE journals is extremely important to many of our members, both in building one's professional reputation and for career advancement. Clearly, this is true for our authors who present the fruits of their technical



**Peter S. Winokur**  
NPSS President

**Rules of the game**  
[Chaos is] lawless behaviour governed entirely by law.

*Ian Stewart*

## Structured analysis

If order appeals to the intellect, then disorder titillates the imagination.

*Paul Claudel*

## Just the facts

Science can only state what is, not what should be.

*Albert Einstein*

studies at our conferences. Authors are perhaps the most important of NPSS members since they provide this intellectual property that hopefully fulfills IEEE's mission to better mankind through advances in science and technology. On a more practical note, the intellectual property drives the IEEE and NPSS financial engine. We can't overlook the employers and sponsors, whether in academia, government, or industry, which foot the bill to advance the field of nuclear and plasma sciences.

Finally, NPSS members enjoy an outstanding Newsletter. Thanks to Ken Dawson for his tireless efforts to publish three Newsletters each year and a Yearbook. The Newsletter keeps folks up to date and recognizes the significant accomplishments of many of our members.

A final, yet extremely important reason to join NPSS is to give something back to the community. Sounds a bit corny, but not really. Another way of saying that is: "What have you done for IEEE/NPSS?" I spent more than a quarter of a century in the radiation effects community of NPSS. Since 1974, I've attended nearly every IEEE Nuclear and Space Radiation Conference held each July and I've published nearly 100 papers in the December Issue of the TNS. I enjoyed, no I thrived, on being given the opportunity to present my work and to serve the community as a volunteer. To be frank, it didn't help me that much in my job. I didn't get any big promotions or raises. I was extremely fortunate that Sandia National Laboratories management gave me the time and support to publish and volunteer. I presented and published papers, served as a session chair, program chair, editor of the December Issue of TNS, and then as the head of the Radiation Effects Technical Committee. I was a volunteer and a contributor. I never stopped to ask what IEEE and NPSS was doing for me. I know this is true of all our volunteers. I know the feeling of contribution and accomplishment matters. It's the volunteers that make it all work and I thank you.

So how is NPSS doing in attracting members? The 13 February 2002 issue of IEEE's Society Sentinel reports that IEEE membership grew 3.1 percent in 2001 to total of

377,342 members, falling just short of the year-end goal of 380,000. This was the fourth consecutive year that IEEE membership has increased. Student membership far exceeded its goal, reaching 65,669 students worldwide, with 12.6 percent growth. Higher-grade memberships also grew, but at the slower rate of 1.3 percent. Although society membership growth was weak overall at only 0.2 percent, 17 societies experienced increases. The five fastest growing IEEE Societies for 2001 were: 1. Circuits and Systems, +31.6 percent; 2. Lasers and Electro Optics, +12.9 percent; 3. Microwave Theory and Techniques, +6.3 percent; 4. Components, Packaging, and Manufacturing Technology, +5.7 percent; and 5. Nuclear and Plasma Sciences Society, +4.9 percent. Vern Price, NPSS Membership Chair, reports that we have 3127 members. The greatest part of NPSS growth is in Europe, where NPSS has recently established chapters in Paris, Benelux, Italy and Ukraine.

We attribute our overall growth to Vern's tireless recruiting efforts at NPSS conferences, the unbundling of the journals from the membership fees, and our highly professional NPSS brochure and web site. Thanks to Peter Clout for spearheading the design, publication, and distribution of the brochure and to Ken Connor and Dick Kouzes for the revamped web site. NPSS is doing its best to ensure that the most current, accurate information about NPSS conferences and activities appears on the web site, as well as links to web pages hosted by our eight technical committees.

In the final analysis, NPSS will be judged by the quality of its conferences, publications, and services that support our international membership. NPSS will always strive to support its membership. In closing, I want to once again acknowledge all the volunteers who have devoted untold time and effort – and never asked for anything in return.

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# SECRETARY'S REPORT

March 1 and 2, 2002  
AdCom Retreat and Meeting

The IEEE NPSS AdCom held its first meeting of 2002 at the Hyatt New Brunswick. This meeting was preceded by a one-day retreat at IEEE's main office in Piscataway, New Jersey. The retreat was very valuable in that we had a chance to discuss a few important issues in considerable depth, and we had the opportunity to meet key IEEE staff with whom many of us work on a regular basis. The retreat discussion topics were membership and how much we wanted to pursue increasing member numbers, or whether we wanted to be more selective and seek members who would really contribute to the Society, and publications issues such as quality, time to publication and the transfer to electronic publishing. IEEE staff participants provided extremely useful input.

At the regular meeting on March 2 we welcomed new AdCom members Dennis Brown, National Reconnaissance Office (RE); Mounir Laroussi of Old Dominion University (PSAC); Patrick LeDû of Saclay (CANPS); and Bill Moses of LBNL (RI). New Technical Committee Chairs are Phil Heitzenroeder, PPPL, Fusion; Ron Keyser of ORTEC (Radiation Instrumentation); and Bob Reinovsky of LANL (Pulsed Power). Ron Schrimpf, the vice chair of Radiation Effects represented that TC.

Ed Lampo, our Treasurer, reported that in spite of all the IEEE fiscal problems, we ended up in a positive financial position. However, the tax on our reserves in 2002 will reduce them by about a third. It is more important than ever that conferences run in the black and close on time so that we do not face penalties.

Peter Winokur, our President, again focused on the state of IEEE's finances. The operations people have done very well in containing their costs but there has not been an equal level of containment effort in all sectors. The IEEE reserves will drop about \$35million to make up 2001 deficits. For the first time, in FY02 a balanced budget that does not rely on the stock market should be in place. (Your secretary guesses that the last several boards never heard of the old adage of saving for a rainy day - put those big stock gains away instead of squandering them on millennium medals and new logos and things we didn't need. *Editor's note: They*

*had, but a majority were convinced that it wouldn't rain next year or, for that matter, the year after that. Don't know what happened to their personal portfolios!)* The TAB meeting in Tempe, Arizona voted on the principles method of reserve reduction, which is a more equitable plan in which societies essentially pay for the services they use. Unfortunately, this is being phased in over several years so that for this year NPSS will see a very large hit because we have healthy reserves and the algorithm being used is based on reserves - so much for fiscal responsibility. Certain societies with large memberships will need to increase their dues to avoid bankruptcy. NPSS is in sound fiscal shape.

Peter also reported on the soon-to-be announced members digital library that will allow members to acquire articles from publications and conference records to which they do not subscribe. There will be a couple of subscription levels for this service, based on projected use.

Peter also remarked that, despite the aftermath of September 11, we had excellent conferences in 2001, even at the end of the year.

## Technical Committee Reports

The CANPS committee, chaired by Christian Boulin, reported on plans for the 2003 RT conference in Montreal, to be held at the Mont Royal Hotel. IEEE Conference Services provided valuable help to Dr. Martin with the contract negotiation. There was a committee meeting in Paris with Christian, J.-P. Martin, the conference chair, J.-P. DuFay and Patrick LeDû to work on logistics and conference plans. CEA has designed the poster and it is ready to mail. J.-P. DuFay is in charge of reviewers so has a major role on the program committee. They will offer four half-day short courses. Commercial exhibits are under discussion. The last exhibition was not very successful. They will discuss this with some of the potential exhibitors to try to reach a decision. More volunteers are needed to work on the conference. Christian is seeking to renew and enlarge the Technical Committee.

The Fusion Technical Committee, under Phil Heitzenroeder, met at the SFE meeting in Atlantic City. Phil presented meeting details. There



Alberta Dawson  
Larsen  
NPSS Secretary

**Sisyphean task**  
Science in the  
very act of  
solving problems,  
creates more of  
them.

*Abraham Flexner*

## Clear vision

Science is a long history of learning how not to fool ourselves.

*Richard P. Feynman*

## Reassurance

Yes, the mirror reflection is always there.

*Vladimir Nabokov*

were 133 attendees and 180 abstracts. They tried a new format with a continental breakfast available during the 8 AM plenary sessions. This was successful. However, the number of exhibits was down, with most of the exhibitors being the fusion labs. They had over 50% of the manuscripts submitted electronically.

The 2003 meeting will most likely be in Pleasanton since Berkeley was too expensive. Dick Foley is chair.

The Standing Committee is being expanded to include European and Asian representatives.

Mike Unterweger reported for NIDCom that despite a small glitch, the wideband gap standard is about to be released.

Ron Jaszczak's report noted that at the 2001 MIC meeting, there were 398 of the 925 attendees who indicated MIC as their primary interest area, but this was probably low since NSS is the default. The NMIS committee has elected a number of new members including Magnus Dahlbom, Lars Eriksson, Margaret Daube-Witherspoon, Steven Meikle and Charles Stearns. The 2002 meeting will be held in Norfolk, VA with Joel Karp as chair and the 2004 meeting will be held at the Ergife Palace Hotel in Rome, chaired by Alberto del Guerra. Sybille Ziegler will be the MIC chair for that meeting.

NSS and MIC have decided to put the conference preparation and management on an equal footing for RISC and NMISC. The first step has been the appointment of a site selection committee with equal representation. Bill Moses is the chair. Bill will also chair the NMISC Bylaw review committee. Ron Jaszczak replaced Joel Karp as NMISC chair on January 1.

Bruce Brown reported that the 2003 PAC is scheduled for May 12-16, 2003, one week before the Real Time conference in Montreal. While overlap is small, it would be better to space our conferences to avoid conflict. There is now a scheduling page on the NPSS web site to help facilitate this. Conference Chairs should check it and have tentative dates posted as soon as possible. Remember, though, to remove tentative information when final plans/dates are in place.

PAC 01 is near closing and the PAC03 budget has been developed.

Bruce presented a request to allow all the old PAC conference records be digitized and posted on the JACoW (Joint Accelerator Conferences Web) site so these could be accessed easily. Permission has been granted by IEEE with the stipulation that every page bear the IEEE copyright and that IEEE will be pro-

vided the digitized copy to use on its own electronic publishing sites. This will be funded privately and perhaps in part through the PAC03 budget.

PAC05 planning is behind schedule and was a major discussion topic at the April PAC organizing committee meeting in Albuquerque. PAC07 will be hosted by LANL and held at the Albuquerque Convention Center.

Bob Parker reported that the PSAT TC met at the APS DPP meeting in Long Beach. He and others visited Seoul in late January to investigate the plans for ICOPS 2003. The meeting will be at a hotel in downtown Seoul, in a good location. They still need to identify the whole local committee and the program committee and to present a budget, but there has been enough progress to proceed comfortably with this venue. Having the meeting in Asia will allow focus on some new areas including plasma displays, fusion plasmas, and plasma surface interactions. The 2004 meeting will be in Baltimore, 2005 in Monterey, 2006 in Traverse City, MI, and 2007 will be a joint meeting with Pulsed Power.

The 2002 ICOPS award will be presented to NPSS past president Igor Alexeff.

Bob Reinovsky, the new Pulsed Power TC chair, reported on the 2001 PPPS conference, the first truly integrated ICOPS - Pulsed Power conference. Attendance was about 1,000. There were some little complications due to the different cultures of the two meetings, but the meeting was clearly a success since the second integrated conference is now being planned for 2007. Between now and then details will be worked through to have a less complex registration fee system, among other things.

The 2003 Pulsed Power conference will be in Texas, with Mike Giesselmann as chair, and the 2005 conference will be in Monterey, contiguous with ICOPS, but not joint.

Ron Schrimpf reported that the 2001 NSREC conference record had finally been reprinted and distributed and was now of very good quality. They are working on resolving the problems of publication delays. The 2002 NSREC will be in Phoenix and 182 abstracts have been submitted, which is a record. Ken Hunt of AFRL is the chair. Papers on radiation effects in high-energy physics, a new area, are being encouraged. Phelps grants are being offered to select short course attendees.

The 2003 conference will be in Monterey with Allan Johnston of JPL as chair, while the

2004 conference will be in Atlanta with Dan Fleetwood as chair.

Ron Keyser, the new chair of the Radiation Instrumentation TC gave his thanks to past chair Glenn Knoll, who certainly has contributed much to NPSS in his many roles. Ron reported that the 2001 NSS/MIC was successful with almost a thousand attendees and over 900 papers. The exhibit had 34 displays in 40 booths, down a little from some past years, but still a good showing. The conference is almost closed and is well in the black. Craig Woody has been selected as RI chair-elect. Steve Derenzo of LBNL received the first RI Achievement Award. Ed Lampo noted the success and ease in managing the conference finances by using IEEE's concentration banking system with Conference Service's budget software.

### **Functional Committee Reports**

Vernon Price reported on NPSS membership. Thanks to Vern's hard work, we are now among the fastest growing IEEE societies. The greatest increase in growth has been among Europeans (10%) and all other than Canadians and US members (5%). We are still struggling with the problem of having the RAB folks who decide on membership understand about acceptable non-US/Canadian degrees. Christian Boulin is helping with this. He is focusing in particular on Italian universities, since we will hold NSS/MIC in Rome in 2004 and hope to be able to increase membership there. Vern also noted that retention of members who join at conferences is about 85%. One of the biggest reasons for dropping membership is no receipt of journals to which members have subscribed. There seems to be a gap somewhere in getting subscriptions straightened out for new members and especially ones outside North America and Western Europe.

The first stand-alone issue of NMIS papers in TNS occurred this spring. These issues will appear in February, June and October. Editor-in-chief Paul Dressendorfer also reported that there will be a special issue of papers from the Real Time conference held in Spain, and another with papers submitted from the RADECS conference. The issue of paying for fully edited publications received considerable discussion.

Peter Clout reminded us that the "new" NPSS brochure is now in its second year of use and will be revised and updated for 2003 when Ed Hoffman becomes our president. Other communications pieces are being considered

such as one-sheet flyers on "Why Join NPSS?" and "Why Publish in NPSS Journals?" The new web site is up and running with IEEE as the host. Dick Kouzes and Ken Connor have done a fabulous job with this and received a hearty round of applause, although in their absence. If you would like to have the IEEE NPSS display at your conference, or want brochures to put in conference briefcases, please contact Peter Clout.

The Fellows Committee noted that we gained nine new Fellows in 2001, which is 3.5% of the total, and a very good number considering the size of our society. We should be working harder though, to add more Fellows in High Energy Physics, Fusion, and several other areas where we have outstandingly qualified members but very low representation of these communities among our Fellows. If you know of a worthy candidate (must be a senior member of IEEE) contact the appropriate Technical Committee chair or Osamu Ishihara, the Chair of the Fellows Evaluation Committee.

Hal Flescher, our liaison to RADECS, reported that they met in Cannes in January. RADECS is seeing some positive evolutionary changes that are providing some overlap and corporate memory from one conference to the next. It is also becoming more international in scope.

Ken Galloway provided feedback from the ad hoc committee appointed to examine frequency of AdCom meetings. The consensus was to make no changes at this time, but recommended that the issue be revisited in 2-3 years. They also recommended greater use of subcommittees to look at specific issues and report to AdCom. There is also a feeling that the elected members of AdCom should play more active roles and participate in areas where they will learn and be able to become part of the corporate memory, such as finances, membership, and the secretary's job, for a few examples.

### **Actions taken by AdCom**

\* It was moved that PAC03 papers be placed on the JACoW site for open use. After considerable discussion, this motion carried.

\* It was moved that up to \$2600 be allocated to replace graphics and a shipping container lost by UPS. This passed unanimously.

\* It was moved that beginning in 2003 member dues be increased to \$10 from \$5. This passed unanimously.

### **Point of view**

He lies like an eyewitness.

*Russian proverb*

### **Budget rationale**

The nation spends as recklessly on soap as it does on weapons, the object of both expenditures being the protection of the American body politic against contamination by alien substances.

*Lewis H. Lapham*

## Cause and effect

Any demanding high technology tends to develop influential and dedicated constituencies of those who link its commercial success with both the public welfare and their own.

Amory B. Lovins

\* It was moved that the NPS permanent membership category be eliminated beginning in 2003. However, those who have already elected and paid for permanent membership will have that membership honored. Passed.

\* It was moved that member subscriptions to TNS and TPS be \$20 for either print or electronic copies and \$30 for BOTH print and electronic copies. Amendment: that print and electronic copy be \$20 each whether one or both formats are ordered. The amendment carried, as did the motion so beginning in 2003 our journals will be \$20 for print and for electronic copies. Part of the rationale was that maintenance of electronic copy is potentially quite expensive, especially when migration to new media has to be considered.

\* A motion to allow AdCom members to serve two consecutive terms was defeated.

\* A motion to require IEEE NPSS membership for conference officers with fiduciary responsibility was deferred to the next meeting.

\* A motion to increase the publication assessment on conferences that publish papers in the TNS be increased from \$35 to \$50 per page beginning with conferences held in 2003 carried unanimously.

\* A motion to hold the 2003 Dusty Plasmas conference in cooperation with IEEE NPSS carried.

\* A motion to assess a per copy charge to conferences that provide Transactions to attendees was tabled. More information is needed to make an informed decision.

The next meeting of AdCom is on Friday, 31 May 2002 at the Banff Center, Banff, Alberta, Canada. The Annual Meeting of AdCom will be held on November 9, 2002 in Norfolk, VA.

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## DIVISION IV REPORT

### Division Director's Report

#### IEEE Fiscal State of Affairs: IV



Peter Staecker  
Division IV Director

**F**iscal matters continue to be the major issue before volunteers and staff, and, for yet another installment of this column, our original selection of topics is still, well, topical:

1. Selection and management of initiative programs within the Institute,
2. Periodic review of the Corporate Infrastructure activities
3. A closer look at (read "simplification of") the complicated set of business rules that are required to support the many offerings of the Societies and Councils,
4. A financial model that more properly allocates expenses among users.

#### 1. Initiative Programs:

An Adhoc Committee of the Board of Directors will continue to look closely at initiative spending throughout the year. New and old initiatives will be scrutinized for strategic impact. TAB initiatives will be internally scrubbed before being sent on to the BoD.

We should begin to see the outlines of a formal review process by the time you read this. In related activity at the February BoD series, P2SB, TAB, and the Board passed two out-of-cycle 2002 initiatives: an IEEE *Member* Digital Library, and an IEEE *Medical* Online Package. The first is just what it sounds like: online access to IEEE publications for individual Members. The second is the first experiment in a series of topical technical offerings across the Institute which cut across traditional Society lines, AND make a great deal of sense to our technical customers. Clear and detailed business plans showing rapid investment recovery facilitated passage of both items, which still leave a net positive operating budget for 2002.

#### 2. Infrastructure Charge Distribution within TAB:

The two methods (*Principles, Blended*) under consideration for Infrastructure Charge Distribution were described in the last col-

umn. The motion before TAB in February, was to accept the *Principles* method, with a 4 year phase-in from the *Blended* method, as follows:

Year	Blended	Principles
2002	100%	
2003	2/3	1/3
2004	1/3	2/3
2005		100%

When the discussion ended and the votes were counted, TAB moved to adopt the transition by nearly a 3:1 margin. Minority opinions held that:

1. The *Principles* method discouraged membership growth, because of the large per-member charge (~\$15) to Societies.
2. The transition period is too slow.

Having voted to IDENTIFY charges related to membership infrastructure as part of the *Principles* method, TAB is now armed with the awareness to do something about it. Congratulations to us all, and read on...

### 3. Business Rule Complexity

Speaking of membership costs, during 2001, the IEEE Infrastructure Oversight Committee (IOC) examined the value proposition offered by IEEE and Society membership, and proposed that there are substantial savings to be gained by simplifying or reducing our present membership offerings (briefly described in the last letter). The range of savings here is between \$2 and just under \$9 per member. A savings of \$9 per member (*minimum feature* alternative) would make a sizeable dent in the \$15 charge identified by the *Principles* method of infrastructure charges. Here's an example: That membership cards we carry around in our pocket cost about \$1.40 each. In November, the BoD authorized RAB and TAB to investigate business rule changes to re-

alize savings in a *minimum feature* alternative, and a TAB committee formed in February will give its first suggestions in June.

### 4. Financial Model and the Budget Update

IEEE Budget principles adopted at the November Board of Directors Meeting for the 2002 Budget are serving as a template for the 2003 Budget development. The non-controversial principles are:

- The operating budget will be balanced.
- All investment income, including dividends and interest (D&I), is NOT part of the operating budget. Further, initiatives (continuing plus new) will be capped by D&I income. Excess D&I income will be used to offset infrastructure charges.
- Other surplus investment income will be returned to reserves.

These principles were put into place for the 2002 budget, which was passed in the February BoD meeting. Additional elements of the financial model, including methods of re-establishing Corporate Reserves, and modifying the method of paying for additional indirect core functions, are still under consideration.

### Discussion

The 2002 Budget, net positive, is finally final. While we address the challenge of delivering the revenues, we must also finalize the Financial Model and Budget principles, and publish them in the IEEE financial operating manual, so that we don't forget them in the future. These will let us begin to drive down infrastructure costs, in effect, to quote an old saying, "Repairing the airplane while in flight."

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## Economic taxonomy

[Those] who make the mistake of classifying economics as a department of mathematics rather than as a life science.

*Lewis H. Lapham*

## Point of view

In war men think otherwise than they do in peace.

*Fritz Haber  
(on the use of  
poison gas)*

## Neither here nor there

I am not absent-minded. It is the presence of the mind that makes me unaware of everything else.

*G. K. Chesterton*



**Ronald Jaszczak**  
*Chair, NPSS NMISTC*

## TECHNICAL COMMITTEES

# NMISTC CHAIR'S REPORT TO ADCOM

**Ronald Jaszczak (Chair) and Craig Levin (Secretary)**  
**10 February 2002**

**T**he Nuclear Medical and Imaging Sciences Council (NMISC) Annual Meeting was held on November 9, 2001 from Noon-2pm at the Town and Country Hotel in San Diego, CA. The meeting was called to order by Joel S. Karp, NMISC Chairperson

Members and newly elected members present: Magnus Dahlbom, Margaret Daube-Witherspoon, Lars Eriksson, Ron Huesman, Joel Karp, Craig Levin, John Engdahl, Ron Jaszczak, Bill Moses, Bradley Patt, Michael King, Paul Mardsen, Charles Stearns, Gary Wong, Larry Zeng,

Members absent: Sibylle Ziegler, George Zubal, Marijana Ivanovic, Steven Meikle

Others in attendance: Ed Hoffman, Ben Tsui, Eric Frey, Anna Celler, John Aarsvold, Paul Kinahan, David Townsend, Robert Miyaoka, Alberto Del Guerra.

New members: Eric C. Frey, Marijana Ivanovic, Paul Kenneth Marsden, Bradley E. Patt, Gengsheng Lawrence Zeng, were introduced with terms ending December 31, 2003.

Newly elected members: This years election results were in time for the meeting and the newly elected members were introduced: Magnus Dahlbom, Lars Eriksson, Margaret Daube-Witherspoon, Steven Meikle, and Charles Stearns are the newly elected members with terms from January 1, 2002 - December 31, 2004.

An overview of 2001 IEEE MIC meeting in San Diego was presented by B. Tsui and E. Frey, MIC conference chair and co-chair). The number of registered attendees with MIC indicated as primary interest was 398 out of 925 for the whole conference. It was noted, however, that there were many MIC attendees that did not indicate MIC on the on-line registration form and were counted as NSS attendees, since that was the default. So probably there were many more MIC attendees than 398. This year ten companies contributed to student travel awards for students to attend.

A review of Next Year's (2002) IEEE NSS/MIC Meeting in Norfolk, VA was pre-

sented by J. Karp, NSS/MIC General Chair, P. Kinahan, Chair MIC, and R. Miyaoka, Co-Chair, MIC.

The MIC and NSS chairs have met to discuss the issue of poster sessions for next year's meeting. Both NSS and MIC will be doing poster tours. There will be a local outreach program to bring high school students to the meeting. The 2002 MIC chair Paul Kinahan will be firming up plans in February.

A preview of 2004 NSS/MIC meeting in Italy was presented by A. Del Guerra, NSS/MIC General Chair. Sites in Florence and Rome were strongly considered. The general consensus was that "the hearts went with Florence but the minds selected Rome". Ergife Palace Hotel in Rome has been chosen. Just outside of (15 minute bus ride to) old Rome. The motion to nominate Sybille Ziegler to serve as the 2004 MIC Chair was unanimous.

A discussion of the roles of the RISC/NMISC Technical Committees was presented by Glenn Knoll. It was decided that the merging of RISC and NMISC tasks regarding the conference was a good idea. However, in order for NSS to recognize MIC component of the meeting on equal footing, they must share all responsibilities for the conference preparation. The first issue discussed was site selection. A motion was made to form a joint NSS/MIC site selection committee with Bill Moses as chair. Bill Moses was nominated and unanimously voted in as the first official NSS/MIC site selection committee chair. Both NSS and MIC community members will be represented in this committee. Another responsibility discussed regarding the joining of RISC and NMISC tasks was joint reporting to AdCom regarding potential problems associated with the conference. The two groups would also work together to choose a general conference chair.

Officers of NMISC. Joel Karp's term as NMISC chair ends December 31, 2001. Ron Jaszczak, as Vice Chair, will assume the role of Chair on the first of January, 2002. Although Craig Levin's term with the NMISC

**Out of toyland**  
The electron - up to that time largely the plaything of the scientist - had clearly entered the field as a patent agent in the supplying of man's commercial and industrial needs.

*Robert Millikan (on the 1915 achievement of New York to San Francisco phone calls)*

also terminates Dec. 31, 2001, he will stay on as secretary. Margaret Daube-Withersopoon was nominated and voted in as the new Awards Chair.

NMISC Bylaws review committee. Bill Moses has also volunteered to chair a review committee to update the NMISC bylaws.

*Excerpted from the Minutes of the Annual Meeting and submitted by Craig Levin, Secretary, NMISC who can be reached at the Nuclear Medicine Division, School of Medicine, University of California/VA Medical Center, San Diego, CA 92161; Phone: +1 858 552-7511; Fax: +1 858 552-4387; E-mail: clevin@ucsd.edu*

**It's the truth**  
If I tell a lie it's  
only because I  
think I'm telling  
the truth.

*Phil Gaglardi*

## CALL FOR NOMINATIONS FOR NEW MEMBERS OF THE IEEE NPSS NUCLEAR AND MEDICAL IMAGING SCIENCES COUNCIL (NMISC)

It is time again to nominate candidates for election into the NMISC. The council governs activities and issues relevant to the IEEE NPSS medical imaging community. Candidates must be official members of the IEEE NPSS. Self nominations are encouraged.

Please send all nominations by July 1, 2002 to Craig Levin, NMISC Secretary and Nominations Committee chair who can be reached at clevin@ucsd.edu.

## NUCLEAR INSTRUMENTS AND DETECTORS COMMITTEE (NIDCom)

The long awaited "IEEE Standard Test Procedures for CZT and Other Wide-BandGap Semiconductor Detectors of Ionizing Radiation" (IEEE1557) is well on the way to completing all hurdles and is expected to be issued in the near future.

IEEE Standard 325 "IEEE Standard Test Procedures for Germanium Gamma-Ray De-

ectors" is to be balloted for reaffirmation shortly. At the same time, it will be reviewed for possible revision at a later date.

*Louis Costrell, Secretary of NIDCom can be reached at the National Institute of Science and Technology, MS 8460, 100 Bureau Drive, B119, Gaithersburg, MD 20899-8460; Phone +1 301 975-5608; Fax: +1 301 869-7682; E-mail: louis.costrell@nist.gov*

**Depends where  
you are**  
Maybe this world  
is another  
planet's hell.

*Aldous Huxley*

### Confidence builder

When you go into court you are putting your fate into the hands of 12 people who were not smart enough to get out of jury duty.

*Norm Crosby*

## AWARDS

# NEW IEEE FELLOWS

Each year the IEEE Board of Directors elects no more than 0.1% of the full members to the grade of Fellow. Nominations are made by Senior Members or by Fellows and must be supported by at least six Fellows. After being reviewed and ranked by the appropriate IEEE Society the nominations are passed on to the Fellows Committee of the Board who then recommend a list of candidates for the Board's consideration. The NPSS is pleased that the following members were elected by the Board this year and extends its congratulations to all of them.

## TOSHIO GOTO



**Toshio Goto**

**T**oshio Goto received his B. Eng., M. Eng. and D. Eng. degrees in electronics from Nagoya University, Nagoya, Japan, in 1964, 1966 and 1969, respectively. He was a research associate from 1969 to 1974, an assistant professor from 1974 to 1978, an associate professor from 1978 to 1986 and a professor from 1986 to 1994 in the Department of Electronics, and is now a professor in the Department of Quantum Engineering, Nagoya University.

He has been engaged in research on various gaseous lasers, laser diagnostics by laser spectroscopic techniques, and on applications of nonlinear optical fibers. This work has led to more than 200 papers published in journals and about 200 papers presented at international conferences. Notably, he clarified excitation mechanisms of an argon ion laser, metal vapor lasers and excimer lasers, and also developed practical devices based on those lasers. He developed a new radical measurement method in plasmas by using infrared diode laser absorption spectroscopy (IRLAS) and succeeded in measuring the SiH<sub>3</sub> radical in silane plasmas for the first time which is a dominant precursor of amorphous silicon thin film formation. In addition, by using IRLAS, he measured various radicals which play important roles in etching and CVD plasmas, and clarified unknown behaviors of those radicals in

plasmas. Also he has recently developed a practical and portable device which generates a wavelength-tunable femtosecond light pulse in the extremely wide region of 1 to 2  $\mu\text{m}$  by using nonlinear optical fiber. This technique is expected to be applied to optical communication, plasma processing and laser spectroscopy.

He has served as chairperson of the organizing committee for three international conferences and many domestic conferences in the fields of plasma processing and gaseous electronics. These conferences have contributed significantly to the development in these fields. In addition, he served as a vice president of the Japanese Society of Applied Physics from 2000 to 2002 and has been serving as a president of that Society since 2002. This Society has contributed to a great extent to the development of applied physics.

He served as a councilor of Nagoya University from 1994 to 1996 and has been serving as a dean of Graduate School of Engineering at Nagoya University since 2000.

His Fellow citation reads "*For contributions to plasma processing, gaseous electronics and lasers.*"

*Toshio Goto can be reached at the Department of Quantum Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Japan 464-8603; Phone: +81 52 789 3400; Fax: +81 52 789 3100; E-mail: gotou@nuee.nagoya-u.ac.jp.*

### Don't overlook this

Facts do not cease to exist because they are ignored

*Aldous Huxley*

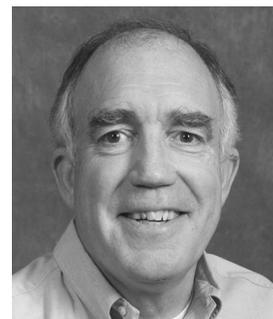
## RONALD H. HUESMAN

**R**onald H. Huesman is presently a Senior Staff Scientist at the Center for Functional Imaging of the E.O. Lawrence Berkeley National Laboratory in Berkeley, California. He was born and raised in San Francisco and received a B.S. in Electrical Engineering in 1963 at the University of California at Berkeley. He spent four years in and attained the rank of captain in the United States Marine Corps, and then completed a Ph.D. in Physics in 1974 at the University of California at Berkeley. His work in the field of medical imaging began with development of reconstruction algorithms for tomography. His areas of specialization have been data acquisition and data analysis for PET with emphasis on quantitation and the propagation of statistical uncertainty. Accurate modeling of

the physical and statistical aspects of data acquisition and the incorporation of these details into parameter estimation have been a central theme of his research. More recently he has studied the problems of gantry motion in dynamic SPECT and respiratory motion in cardiac PET.

Dr. Huesman's Fellow citation reads: *"For contributions to computed tomographic reconstruction, parameter estimation from dynamic reconstructed images, and related analysis."*

Ron Huesman can be reached at the Lawrence Berkeley National Laboratory, Nuclear Medicine and Functional Imaging, One Cyclotron Road #55-121, Berkeley, CA 94720; Phone: +1 510 486-4062; Fax: +1 510 486-4768; E-mail: [RHHuesman@lbl.gov](mailto:RHHuesman@lbl.gov); Web page: <http://cfi.lbl.gov/~huesman>.



**Ronald H. Huesman**

## RALPH B. JAMES

**D**r. Ralph B. James was born in Nashville, TN in 1953. He received a B.S. degree in Engineering Physics with highest honors from the University of Tennessee in 1976, a M.S. degree in Physics from Georgia Institute of Technology in 1977, and M.S. and Ph.D. degrees in Applied Physics from California Institute of Technology in 1978 and 1980. In 1981-83 he was a Eugene P. Wigner Fellow at Oak Ridge National Laboratory. He then moved to Sandia where he held an appointment as Distinguished Member of the Technical Staff until 2001. Currently Ralph is the Associate Laboratory Director for the Energy, Environment and National Security (EENS) Directorate with the U.S. Department of Energy's Brookhaven National Laboratory. The Directorate encompasses Brookhaven's Department of Environmental Sciences, Department of Energy Sciences & Technology, Department of Nonproliferation & National Security, Center for Data-Intensive Computing, and Research and Business Operations. In his current position, James oversees a wide range of basic and applied research. For example, the work includes such projects as aerosol chemistry and how it relates to global warming and air pollution, research in biological and chemical pro-

cesses to develop better cleanup technologies, development of advanced ultra-clean fuels to increase energy supply and lower costs, and new sensor technology to detect nuclear, chemical, biological and explosive materials. Since September 11th, he has also chaired Brookhaven's Counter-terrorism Working Group, which is conceptualizing and coordinating Laboratory efforts to develop technologies that can fight terrorism.

Dr. James' research results are extensive and fundamental, and the impact of his work has been immediate and lasting. James has authored more than 300 scientific publications, served as editor of 11 books, and holds 5 patents. Among his honors, Dr. James won Discover magazine's "Innovator of the Year" award for his contributions to the development of radiation detectors. He is a three-time winner of R&D Magazine's R&D 100 Award, which honors the top 100 inventions of the year. He won the awards for pioneering research to understand semiconductor radiation detectors and instrumentation, defects in electronic devices, nonlinear optics, and laser processing of materials. The output of his research on semiconductor radiation detectors, particularly cadmium zinc telluride devices, is finding numerous applications in the fields of



**Ralph B. James**

## Seeing is believing

Brevity is the soul of lingerie.

Dorothy Parker

gamma-ray spectrometers, astrophysics, and high-resolution imaging for medical uses.

In addition to his fellowship in the IEEE, James is a Fellow of both the American Physical Society and the International Society for Optical Engineering. He is also a member of the American Association for the Advancement of Science, Optical Society of America, Materials Research Society, Sigma Pi Sigma Physics Society, Tau Beta Pi Engineering Society and Sigma Xi. He is now an Associate Editor for the Journal of Crystal Growth and serves on the Advisory Boards of several organizations.

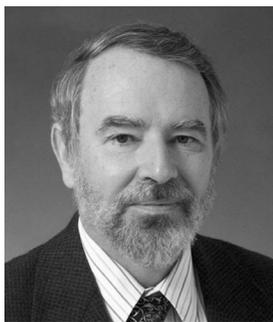
Dr. James is recognized for a long history of dedicated mentorship and for leadership contributions to professional societies. He has worked to rally the assets and talents of academia, government labs, U.S. industry, and several Russian and Ukrainian laboratories toward the common goal of developing advanced sensors. For example, Dr. James played a pivotal role in establishing a DOE user facility to fabricate and test radiation detectors. He launched over 20 cooperative research and development agreements with industry to co-develop and commercialize

semiconductor radiation detectors and instruments. In addition, Dr. James served as co-chair of the 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup> International Workshops on Room-Temperature Semiconductor Radiation Detectors and Associated Electronics, which were sponsored by the IEEE, MRS or E-MRS. He also co-chaired four SPIE Conferences on Hard X-Ray and Gamma-Ray Detector Physics, an International Workshop on the Physics and Chemistry of II-VI Materials, the Conference on Semiconductor Detectors for Remote, Portable and In-Situ Radiation Measurement Systems, as well as six other workshops devoted to radiation sensing and imaging. In 2003 he will serve as General Chair for the IEEE Nuclear Science Symposium and Medical Imaging Conference.

Dr. James' Fellow citation reads *"For contributions to and leadership in the development of wide band-gap compound semiconductor devices used for detecting and imaging X- and gamma-ray radiation."*

Dr. James can be reached at Brookhaven National Laboratory, 40 Brookhaven Avenue, Upton, NY 11973-5000; Phone: (631) 344-8633; Fax: (631) 344-5584; E-mail: [rjames@bnl.gov](mailto:rjames@bnl.gov).

## ALLAN H. JOHNSTON



Allan H. Johnston

Allan Johnston received B.S. and M.S. degrees in physics from the University of Washington, Seattle, Washington. He joined Boeing Aerospace Company in 1965, working on a variety of radiation effects problems in microelectronic devices, including studies of latchup and mechanisms for the latchup window effect, along with latchup from heavy ions in space. He performed some of the earliest studies of rebound effects in CMOS integrated circuits, demonstrating that circuit failure modes for low dose-rate conditions in space were distinctly different from the failure modes that occurred under accelerated test conditions. He also worked on development of hardened fiber optic receivers. In 1986 he became the manager of the Microelectronics Section of the Boeing High Technology Center where he continued studies of radiation effects, and also worked on microelectronics reliability and fault-tolerant design methods. He joined the Jet Propulsion Laboratory in 1992, where he directs applied research in a variety of technical disciplines relating to space radiation effects. That work has included enhanced damage

in bipolar integrated circuits at low dose rate; displacement damage in bipolar integrated circuits; displacement damage in light-emitting diodes, laser diodes and optocouplers; and single-particle effects in optoelectronics and highly scaled microelectronic devices.

He has authored or co-authored more than 80 papers in peer reviewed journals, and received the Outstanding Paper Award at the 1999 Nuclear and Space Radiation Effects Conference (NSREC). He was appointed an IEEE Fellow in 2002 *"For contributions to the understanding of space radiation effects in optoelectronics."*

He has served as NSREC Technical Program Chairman (1997), Awards Chairman (1996), Short Course Chairman (1993), and Local Arrangements Chairman (1988). He was the associate editor for the NSREC in 1982, and is the General Chairman for the 2003 NSREC.

Allan Johnston can be reached at the Jet Propulsion Laboratory, 4800 Oak Grove Drive, Mail Stop 303-220, Pasadena, CA 91109; Phone: +1 818 354-6425; Fax +1 818 393-4559; E-mail [allan.h.johnston@jpl.nasa.gov](mailto:allan.h.johnston@jpl.nasa.gov).

## ANDREW NG

**A**ndrew Ng is a native of Hong Kong. He received his B.Sc. degree from the Hong Kong University and his M.Sc. and Ph.D. degrees from The University of Western Ontario. Prior to joining the Department of Physics at the University of British Columbia in 1980, he was a National Research Council of Canada Postdoctoral Fellow in the Department of Electrical Engineering at the University of Alberta. As a young student, he was attracted to the field of plasma physics by the excitement of fusion research as a means to produce a virtually inexhaustible source of energy. As a researcher, he has been fascinated by the multidisciplinary nature of plasma science. He is particularly interested in the link between condensed matter physics and plasma physics. He strives to understand the transition from a condensed matter to a plasma state in the regime for which he has coined the description "Warm Dense Matter".

This regime is also key to research in high pressure science, planetary science and inertial confinement fusion.

Andrew Ng is an active member of the Plasma Science & Applications Committee (PSAC). He is serving his second term on the PSAC EXCOM. He is a recipient of the C.A. McDowell Medal and Izaak Walton Killam Research Prize at U.B.C., and the IEEE Nuclear and Plasma Sciences Society Merit Award. He is also a Fellow of the American Physical Society. His IEEE Fellow citation reads: "*For contributions to plasma science concerning warm density matter, femtosecond-laser matter interactions, and laser-driven shock waves.*"

*Andrew Ng can be reached at the Department of Physics & Astronomy, University of British Columbia, Vancouver, B.C., V6T 1Z1, Canada; Phone: +1 604 822-3191; Fax: +1 604 822-5324; E-mail: nga@physics.ubc.ca.*



**Andrew Ng**

## EDL SCHAMILOGLU

**E**dl Schamiloglu was born in the Bronx, New York in 1959. He was educated in the New York City public school system, graduating from the Bronx High School of Science in 1976. He received his B.S. and M.S. degrees from the School of Engineering and Applied Science at Columbia University in 1979 and 1981, respectively. He received his Ph.D. degree in Applied Physics from Cornell University in 1988. His dissertation research was performed in the Laboratory of Plasma Studies and studied the interaction of an intense, rotating proton ring with a magnetized plasma.

He has been on the faculty of the Department of Electrical and Computer Engineering at the University of New Mexico (UNM) since 1988, where he is presently the Gardner-Zemke Professor of Electrical & Computer Engineering. He also directs the Pulsed Power, Beams, and Microwaves Laboratory. He was a lecturer at the U.S. Particle Accelerator School at Harvard University in 1990 and at MIT in 1997. He received the Sandia National Laboratories Research Excellence Award as a member of the Delphi/Minerva team studying long-range intense electron beam propagation in a laser-ionized plasma channel (1991), the UNM School of Engineering Re-

search Excellence Award (as a junior faculty member in 1992 and as a senior faculty member 2001), and the title of Regents' Lecturer for excellence in teaching, research, and service to the University and profession (1996-1999).

Dr. Schamiloglu's research interests are in the physics and technology of charged particle beam generation and propagation, high power microwave sources, plasma physics and diagnostics, electromagnetic wave propagation, and pulsed power. He is an Associate Editor of the IEEE Transactions on Plasma Science and is an elected member of the Administrative Committee of the IEEE Nuclear and Plasma Sciences Society. He is Coeditor of *Advances in High Power Microwave Sources and Technologies* (IEEE Press, 2001) (with Robert J. Barker), and is coauthor of the forthcoming *High Power Microwaves, 2nd Edition* (Institute of Physics Publishing, 2003) (with Jim Benford and John Swegle). He has authored or coauthored over 40 refereed journal and 60 reviewed conference papers, and serves on the international program committees of numerous conferences in pulsed power, plasma science, and high power microwave sources.

His Fellow citation reads: "*For contributions to the generation and propagation of intense pulsed charged particle beams.*"



**Edl Schamiloglu**

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*Albuquerque, NM 87131; Phone: +1 505 277-4423; Fax: +1 505 277-1439; E-mail: edl@ecece.unm.edu.*

## MARTY R. SHANEYFELT



**Marty R. Shaneyfelt**

**M**arty R. Shaneyfelt received his B.S. degree in Electrical Engineering from the University of Nebraska in 1984, and his M.S. degree in Electrical Engineering from the University of New Mexico in 1990. From 1984 to 1990 he worked on technology development and manufacturing of radiation-hardened integrated circuits for Allied-Signal Microelectronics Operation, Albuquerque, NM. Marty joined Sandia National Laboratories in 1990, where he is a Principal Member of the Technical Staff in the Radiation Physics, Simulation & Technology Department. At Sandia, he has been involved in numerous research activities associated with developing radiation-hardened bulk and SOI CMOS technologies, characterizing the physical mechanisms responsible for the radiation response of ICs, developing hardness assurance approaches, and addressing the limitations of using commercial technologies in radiation environments.

Early work that Marty performed at Allied-Signal Microelectronics Operation led to the development of the first multi-megarad hard polysilicon gate CMOS ICs. More recently, his work at Sandia has led to the development of techniques for hardening shallow trench isolation oxides and silicon-on-insulator ICs. He is a co-inventor of the Body Under Source Field Effect Transistor (BUSFET), a device that mitigates the effects of radiation-induced charge trapping in SOI buried oxides on IC performance. Marty has also been actively involved in identifying the mechanisms for radiation-effects in MOS devices. He developed the hole trapping/hydrogen trans-

port (HT)<sup>2</sup> model for interface-trap buildup. This model explains the electric field dependence for interface-trap buildup. He was the first to show that preirradiation elevated temperature stresses can dramatically affect the radiation-induced response of transistors and ICs. This discovery, called the “burn-in effect”, has important implications for hardness assurance testing. He is presently investigating ways to eliminate or reduce enhanced low-dose-rate sensitivity and burn-in effects in linear bipolar devices.

Marty has authored or co-authored over 95 scientific publications on radiation effects in electronic devices, including papers that won Outstanding Conference Paper Awards for the 1995, 1997, 2000 and 2001 IEEE Nuclear and Space Radiation Effects Conference (NSREC) and the 1990 and 1995 Hardened Electronics and Radiation Technology (HEART) Conferences. He was also the recipient of an Industry Week Technology Award, and a Discover Magazine Technology Award. He has served as General Conference Chairman, Publicity Chairman, Local Arrangements Chairman, Session Chairman, and Finance Chairman for the IEEE NSREC.

His Fellow citation reads: “*For contributions to the understanding of radiation effects in semiconductor devices and to the development of radiation-hardened technologies.*”

*Marty Shaneyfelt can be reached at Sandia National Laboratories, MS 1083, Albuquerque, NM 87185-1083; Phone +1 505 844-6137; Fax: +1 505 844-2991; E-mail: shaneymr@sandia.gov.*



**Manfred K. A. Thumm**

## MANFRED K.A. THUMM

**M**anfred K.A. Thumm received the M.Sc. (Dipl. Phys.) and Ph.D. (Dr. rer. nat.) degrees in Physics from University of Tübingen, Germany, in 1972 and 1976, respectively. At the University of Tübingen he was involved in the investigation of spin-dependent nuclear forces in inelastic

neutron scattering. From 1972 to 1975, he was Doctoral Fellow of the “Studienstiftung des Deutschen Volkes”.

In 1976, he joined the Institute for Plasma Research of the Electrical Engineering Department, University of Stuttgart, Germany, where he worked on RF production, RF heating and

diagnostics of toroidal pinch plasmas for thermonuclear fusion research. From 1982 to 1990 his research activities were mainly devoted to electromagnetic theory and verifying experiments in the areas of components development for mode conversion and transmission of very high-power millimeter waves in overmoded waveguides and of antenna structures for RF plasma heating with microwaves.

In June 1990, he became a Full Professor at the Institute for Microwaves and Electronics, University of Karlsruhe, Germany, and Head of the Gyrotron Development and Microwave Technology Division in the Institute for Technical Physics of the Research Center Karlsruhe (Forschungszentrum Karlsruhe / FZK). Since April 1999, he has been the Director of the Institute for Pulsed Power and Microwave Technology of the FZK, where his current research projects are the development of high-power gyrotrons, dielectric vacuum windows, transmission lines and antennas for nuclear fusion plasma heating and industrial materials processing. He has authored/coauthored 2 books, 7 book chapters, more than 120 research papers in scientific journals, and more than 500 conference proceedings articles. He holds 10 patents on active and passive microwave devices.

Dr. Thumm was awarded the Kenneth John Button Medal & Prize 2000 in recognition of outstanding contributions to research in the field of millimeter wave and infrared physics. In 2001, he was awarded the title of Honorary Doctor, presented by the St. Petersburg State Technical University, Russia, for his contributions to the development and application of electron beam devices.

Dr. Thumm is vice chairman of Chapter 8.6 (Vacuum Electronics and Displays) of the Information Technical Society (ITG) in German VDE and a member of the German Physical Society (DPG). He is member (SM '94) of the IEEE societies Nuclear and Plasma Sciences (NPS), Electron Devices (ED), Microwave Theory and Techniques (MTT) and Antenna and Propagation (AP). His IEEE activities have been: Member of the Editorial Board/Reviewer of IEEE-TPS since 1995 and of IEEE-MTT since 1998; Chairman of the "8<sup>th</sup> ITG/IEEE Conference on Displays and Vacuum Electronics", 29-30 April 1998, Garmisch-Partenkirchen, Germany; Co-Chairman of the IEEE/ITG-Workshop "Trends, Developments and Applications of Pulsed Power Switches", 13 October 2000, Karlsruhe, Germany; Member of the Program Committee of the "2<sup>nd</sup> IEEE Int. Vacuum Electronics Conference (IVEC 2001)", 2-4 April 2001, Noordwijk, The Netherlands and Organizer of the Session "Microwave Systems" at "The 29<sup>th</sup> IEEE Int. Conference on Plasma Science", 26-30 May 2002, Banff, Alberta, Canada.

He was elected an IEEE Fellow in 2002 *for contributions to the development and application of gyrotron oscillators, oversized microwave mode converters and transmission line components.*

*Manfred K.A. Thumm can be reached at the Institute for Pulsed Power and Microwave Technology of the Research Center Karlsruhe, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany; Phone: ++49 7247-82-2440; Fax: ++49 7247-82-4874; E-mail: Manfred.Thumm@ihm.fzk.de.* ☐

## Hot stuff

Her only flair is in her nostrils

*Pauline Kael*

## Alas, 'tis true

Anyone making a panoramic assessment of political leadership from the beginning to now would have to conclude that Darwin got it exactly backwards.

*Henry Adams (paraphrase)*

## CALL FOR NOMINATIONS

### Particle Accelerator Science and Technology Award

**T**wo will be awarded to recognize outstanding contributions to the development of Particle Accelerator Technology. At least one award will be given to an individual early in his/her career.

Nominations are to be submitted on the nomination form and include:

- brief curriculum vitae,
- list of relevant publications,
- letters of support from one or more nominators, and
- a suggested award citation.

Nomination forms can be obtained from:

Dr. Bruce C. Brown  
Fermi National Accelerator Laboratory  
MS 221, PO Box 500  
Batavia, IL 60510  
Phone: +1 630 840-4404  
Fax: +1 630 840-6311  
E-mail: bcbrown@fnal.gov

They must be received by November 25, 2002.

A certificate and a cash award will be made at PAC'03 in Portland. ☐



**Joel H. Schultz**

## FUSION TECHNOLOGY AWARD JOEL H. SCHULTZ

**J**oel H. Schultz of MIT's Plasma Science and Fusion Center was presented the Fusion Technology Award in recognition of his many contributions to fusion engineering and superconducting magnet technology at the 19th Symposium on Fusion Engineering (SOFE). The SOFE was held at the Trump Plaza in Atlantic City from January 21-25. When presenting the award, Dick Foley, Chairperson of the IEEE/NPSS Fusion Technology Committee, noted Joel's many engineering achievements and his unusually broad academic achievements. In addition to MS and EE degrees in Electrical Engineering, Joel holds a BA degree in Classical Literature from Swarthmore College and an MA degree in Comparative Literature from Harvard University. Joel began his career at MIT as a Senior Engineer in the Fusion Technology and Engineering Division in 1981. His work encompasses development of ad-

vanced superconductor concepts, improved electrical integrity, development of novel methods for quench detection in superconducting coils, improved superconductor joints, and helium flow meters – all of which have greatly benefited fusion and other areas of magnet applications. He is especially noted for his contributions to magnet design and comprehensive magnet and systems analyses. During his career, Joel has led several national and international magnet design projects. He currently heads the Advanced Magnet Applications Group in the Technology and Engineering Division of the MIT Plasma Science and Fusion Center.

*Joel Schultz can be reached at the Massachusetts Institute of Technology, Plasma Science and Fusion Center, 185 Albany Street, NW22-213, Cambridge, MA 02139; Phone: +1 617 253-8151; Fax: +1 617 253-0807; E-mail: [jhs@psfc.mit.edu](mailto:jhs@psfc.mit.edu).*

## OUTSTANDING PULSED POWER STUDENT AWARD NOW TO BE AWARDED ANNUALLY

**Now hear this**  
I sometimes give myself admirable advice, but I am incapable of taking it.

*Mary Wortley  
Montagu*

**T**he IEEE NPSS Outstanding Pulsed Power Student Award, heretofore awarded biennially, will now be awarded annually, although the recipients will be recognized biennially at the IEEE International Pulsed Power Conference. This change was done to recognize the accomplishments of students in pulsed power that were not eligible to be considered for the award because they graduated in a year in between conferences. As a result, nominations will be sought for the student award for this year (2002), and beginning with 2003, the nomination deadline will be the same for each year. For information on this award and the deadline for nomination,

please consult the Awards portion of the IEEE-NPSS webpage at: <http://ewh.ieee.org/soc/nps/awards.htm> The links to the Outstanding Pulsed Power Student Award (as well as the links for the biennial Erwin Marx and Peter Haas Pulsed Power Awards) will be activated shortly.

*Gerald Cooperstein, Awards Committee Chair IEEE-NPSS Pulsed Power Science & Technology Standing Committee, can be reached at the Naval Research Laboratory, Plasma Physics Division, Code 6770, 4555 Overlook Avenue SW, Washington, D.C. 20375-5346; Phone: +1 202 767-2290; Fax: +1 202 767-0436; E-mail: [cooperstein@nrl.navy.mil](mailto:cooperstein@nrl.navy.mil)*

## Report of the NPSS Liaison to the IEEE-USA Energy Policy Committee

The IEEE-USA Energy Policy Committee, as part of the Technology Policy Council, is focusing on a few key topics that relate to near-term government activity aimed at assuring reliable and affordable electricity. Position statements establish the basis for IEEE-USA interactions with legislators, regulators, and the executive branch. The development sequence for such government relations activity involves prudent selection of high impact topics based on the legislative or executive opportunity and on IEEE's ability to provide competent contributions, assembly of a team of experts (including both IEEE technical society delegates and at-large members), development of a set of recommendations, committee reviews of the recommendation, compilation of related background material to provide references for readers, and then review and possible approval by the IEEE-USA Board of Directors.

In the most recent months, the following position statements were approved:

- Benefits of Electrification,
- Energy Efficiency, and
- Interconnection Standards.

Position statements under development include:

- Electric Power Reliability,
- Solar and Renewable Energy,
- Photovoltaic Energy Development,
- Advanced Nuclear Energy Technology (with NPSS and the American Nuclear Society)

Especially noteworthy has been IEEE-USA's recent activity in the area of dis-

tributed energy sources. Efforts on standards for the interconnection of distributed energy sources led to legislative language in the Daschle/Bingaman Energy Bill that explicitly mentioned IEEE's work on related standards, advocating the adoption of consensus-based standards from groups like IEEE.

Another success was the restoration of funding for the Department of Energy's Electric Energy Systems program.

The Energy committee, the Technology Policy Council and the IEEE-USA Board have debated assorted proposed foci and concluded that the 2002 priority themes will include:

- Homeland Security (including critical infrastructure protection, national aviation safety and security, public health information infrastructure, and cybersecurity R&D),
- Federal R&D Investment Policy (including computer, information technology and networking R&D),
- Energy Reliability,
- Broadband Deployment, and
- National Voting Technology Standards.

As such, the Energy Committee will focus on aspects of reliability in the restructured regulatory environment and protection of the critical electricity infrastructure. NPSS members are encouraged to get involved.

*Ned Sauthoff, the NPSS Liaison to the IEEE-USA Energy Policy Committee, can be reached at the Princeton Plasma Physics Laboratory, MS-37, P.O. Box 451, Princeton, NJ 08543; Phone: +1 609 243-3207; Fax: +1 609 243-3266; E-mail: n.sauthoff@ieee.org.*



**Ned Sauthoff**  
NPSS Liaison to the  
IEEE-USA Energy  
Policy Committee

**With friends like this...**

Sometimes I wish I could fall in love. Then at least you know who your opponent is.

*Peter Ustinov*

### Not far enough

It was bad to the point of being laughable, but not to the point of actually being enjoyable.

*Stephen Bayley (Millennium Dome Creative Director)*

## ROBERT S. LIVINGSTON 1914-2002



**Robert S. Livingston**  
1914-2002

**R**obert S. Livingston, a pioneer in nuclear science research and in ion source and cyclotron development, died March 6, 2002 in Knoxville, Tennessee. He was born in Summerland, California on September 20, 1914. He received his Bachelors degree from Pomona College and his PhD in nuclear physics from the University of California at Berkeley in 1941. He was a Life Fellow of the Institute of Electrical and Electronics Engineers, a Senior Fellow of the American Physical Society, and a Fellow of the American Association for the Advancement of Science.

Upon receiving his PhD, he joined the E. O. Lawrence cyclotron and Calutron magnetic isotope separator development effort. In 1943 he moved to Oak Ridge, Tennessee, as Research Superintendent of Calutron process improvement at the Y-12 facility. With the phase-out of Calutron development in 1950 his organization became a part of Oak Ridge National Laboratory as the Electronuclear Research Division. He served as Division Director until 1971 when he was appointed Director of the Office of the Laboratory Program Planning and Analysis.

He was very active in IEEE affairs having served as Chairman of the Technical Committee on Particle Accelerator Science and Technology of the IEEE Nuclear Sciences Society, as President of the society, and as a member of the IEEE Fellow Selection Committee. In 1963 while President of the society he led the organization of the 1965 IEEE Particle Accelerator Conference which he chaired. He also chaired the 1967 meeting. Since then seventeen very successful meetings have been held biannually

He was co-organizer of the first International Cyclotron Conference held in Sea Island, Georgia, in 1959, Chairman of the 1966 meeting held in Gatlinburg, Tennessee, and a member of the Organizing Committee for many years. The conference has typically been held triennially with sites alternating between the U.S. and other countries.

He served on many committees and panels. He was chairman of the National Academy of Sciences Ad Hoc committee on Heavy-Ion

Sources that led to a multi-year program at several laboratories, and Chairman of the Nuclear Physical Panel of the DOE/NSF Nuclear Science Advisory Committee that recommended construction of a high-current, continuous-beam, high-energy electron accelerator. The latter recommendation ultimately led to the creation of the Thomas Jefferson National Accelerator Facility.

During and following the last days of Calutron development some units were set aside for separation of highly alpha-active nuclides. Highly enriched  $U^{234}$ ,  $U^{235}$ , and  $U^{238}$  were produced in the early years and, with the addition of double containment protection, very pure  $Pu^{239}$ ,  $Pu^{240}$ ,  $Pu^{241}$ , and  $Pu^{242}$ . As part of the effort, plutonium fuel elements were produced jointly by Oak Ridge and Los Alamos and irradiated at the high-flux MTR reactor at Idaho Falls, Idaho, to provide feed with a much higher concentration of the heavier isotopes.

During his tenure with the Electronuclear Division, five cyclotrons were built. The first two (1949-1951) were very low energy test machines. They were followed by the 63-inch Cyclotron (28 Mev N +3 ions) in 1952, the 86-inch Cyclotron (22 Mev protons) in 1953, and the Oak Ridge Isochronous Cyclotron (multi-particle, variable energy, 70 Mev protons, 100 Mev alphas) in 1962. The 63-inch cyclotron was notable as it was the first designed solely for heavy ion acceleration; it was used for energy-loss and nuclear reaction studies. The 86-inch cyclotron was the highest energy non-isochronous cyclotron ever built and the most powerful. It supported an extensive program of nuclear cross-section measurements and with beam currents exceeding 1 mA (22 kW). With sophisticated targetry it was the premier isotope producer for more than two decades. The Oak Ridge Isochronous Cyclotron supported a broad program of light-ion and heavy-ion nuclear physics using an internal ion source until 1980 when it began operation with beam injection from a newly installed 25 MV tandem electrostatic accelerator. With external injection, the maximum useful ion mass

### No fixed address

My home is my work and my work is everywhere.

*Alfred Nobel*

was increased from 40 to about 200. The ORIC currently operates mainly to produce intense light-ion beams used to produce radioactive isotopes that are then ionized and accelerated by the 25 MV tandem.

Concurrently with the accelerator construction and operation, several large projects were developed and proposed; an 850 MeV eight-sector spiral-pole separated sector proton cyclotron, a separated sector orbit cyclotron to produce multi-milliampere 1 GeV proton beams, a separated sector heavy-ion cyclotron providing energies up to  $400 \text{ q}^2/\text{A}$ , and a major upgrade of the ORIC which involved increasing the strength of magnetic field by using superconducting magnet coils. This would have increased heavy-ion energies tenfold to

$1000 \text{ q}^2/\text{A}$  MeV. Although these projects were never funded, the concepts and results of RF and model-magnet studies were useful to several other major accelerator projects.

Robert Livingston was an exceptional leader, organizer, and coordinator. He made very significant contributions to the accelerator community through promotion of regular conferences, and to nuclear and accelerator science through the accomplishments of the ORNL Electronuclear Research Division.

*John Martin prepared this tribute to his colleague and friend at Oak Ridge. He is an IEEE Life Fellow and has twice served as NPSS President. John can be reached at 9623 Tunbridge Ln., Knoxville, TN 37922-3425; Phone: +1 865-693-2015* 📧

## THE CONFERENCE CHRONICLES

### When In Rome...

#### ***In the Beginning***

I was just completing the closing activities as the General Chairman of the 2001 NSS/MIC/SNPS/RTSD conference in San Diego when I was asked if I would be willing to assume the duties of Treasurer for the 2004 conference. I remember agreeing, thinking that it wouldn't require anything on my part for at least two years (an nice break and time to recover) and it would be interesting to attempt an understanding of European finances. In what seemed to take only fraction of a microsecond, Alberto Del Guerra (2004 General Chairman) accepted my nomination and set up the first committee meeting. So, my first assumption proved false and I started to pack.

#### ***Patience, patience, patience . . .***

I have been quite fortunate in that my job has provided many opportunities to visit Europe. I have had the distinct pleasure to experience many countries and cultures and meet new friends. Each time I've traveled to Europe, I return more appreciative of the simple details in every day life that are typically taken for granted. Each trip has never failed to provide a certain amount of special surprises that require a good helping of patience. In this new post-September 11th world, what was once simply a tiresome process of enduring ridiculously disorganized airport procedures has been transformed into an intense process of scrutiny, suspicion, and endlessly long lines. Personally, I've never felt threatened by the 2

cm file on a nail clipper, though maybe I'm just another member of the naïve public, unaware of the real dangers that threaten us all.

In any event, the anticipation of seeing Rome again was enough to get me through the minor irritations of airport security. Now, this business of seeing Rome was a somewhat optimistic view on my part. What I thought was a rational and very conservative decision of making the trip as short as possible was entirely stupid. I arranged to leave on a Thursday morning and return on the following Sunday morning. This very efficient schedule left essentially no time outside of the committee meeting at the hotel for leisure activities. Not to mention the serious jet-lag issues, which indeed had an appreciable effect on my attention span.

The trip to Rome was unusually uneventful. With the exception of the occasional, amazingly long security lines that remind one of amusement parks, most events occurred right on schedule. The one thing that never escapes my notice is the seemingly dysfunctional US Customs Service. Getting in or out of the US has always been a confusing process that appears to lack all logic and reason. I have yet to determine the value of collecting all baggage, checked or not, and essentially re-checking in again as though I had just arrived at the airport. I suppose this is for my safety and security, but I can't shake the feeling of unreasonable and unsupportable activity engaged for the sole purpose of job security.

### WHY??

Curiosity is one of the permanent and certain characteristics of a vigorous mind.

*Samuel Johnson*



**Anthony Lavietes**  
2004 NSS/MIC  
Treasurer  
and  
Tireless Traveller

## Appearances don't count

The more success the quantum theory has, the sillier it looks.

*Albert Einstein*

## My strength is as the...

Nothing that I have ever done has been tainted with legality.

*Robert Moses*

When I did arrive in Rome, I scrupulously followed Alberto's advice and took a taxi using the sanctioned taxis at the taxi stand just outside the terminal. There were indeed people walking around the terminal trying to snag unsuspecting folks into some sort of taxi black market, which apparently charges about twice the fare and doesn't provide a receipt. I would like to echo the sentiments of Bill Moses concerning taxis in Rome – these are truly high intensity events. The taxi driver I was fortunate to obtain proceeded at nothing less than mach 5 (slower speeds apparently require the driver immediately whip out the local newspaper and study the sports section). In addition, it appears to be illegal (or at least poor form) to follow at a distance greater than 5 cm. The lines on the road appear to be only a suggestion and signaling is an act of war, presumably akin to warning the enemy. Boston drivers will feel right at home.

Arriving at the Ergife Palace Hotel a bit shaken (my seat belt was broken), I proceeded to the reception counter. I approached what appeared to be a receptionist and attempted to check in. This caused a bit of trouble because I did not know the name of the "company" that arranged my room reservation. A short discussion resulted in the arrival of the convention and sales manager and resolution of everything. Aside from this short delay, the hotel reception personnel were very nice, spoke a variety of languages (fluent English, thankfully), though were clearly understaffed. This was an issue fully acknowledged by the hotel that they are working to remedy. To this end, the hotel is finishing a new lobby area that will greatly increase the flow and efficiency. We were shown the new construction, just off the existing lobby area, which appears about 70% complete and should be a major improvement.

### **Sleep deprivation**

In all of my trips to Europe, the hardest thing to overcome has been the time shift. From California, this would be 9 time zones, totaling about 22-25 hours of airplanes and airports. I have tried just about every method suggested and found that, essentially, nothing works. The first few days require massive amounts of caffeinated substances for support. This is the only circumstance when I've actually almost fallen asleep, on my feet, while talking to someone (yes, I was doing the talking – it's embarrassing). So, with a meeting taking place in a few hours, I was afraid to sleep in the

event I dropped into a coma from which I couldn't wake. I walked around the area near the hotel, but aside from a few small shops and restaurants, nothing exciting was happening. I didn't feel strong enough to brave the Metro just yet, so I relented and went back to the Hotel to try for a limited recuperative nap. Fortunately, my paranoia of oversleeping helped to wake me in time for the meeting, not to mention the 2 alarms and a wake-up call.

### **Dinner with friends**

The dining facilities at the hotel appeared to be adequate for the number of people that typically attend our conference. In addition to the main restaurant, there's also a sandwich and coffee bar, a moderately sized buffet restaurant, and located near the pool, an outside bar that serves mixed drinks as well as snacks (beer selections are limited to only a few choices).

I eventually dragged myself to the patio bar area where we were to meet. When everyone was introduced and accounted for, we proceeded to the hotel restaurant, which turned out to be a pleasant surprise. The staff was attentive and efficient, and the menu had a fairly diverse offering accompanied by an excellent wine list. One thing that I always tend to forget when dining in Europe is the differences in food preparation and presentation. For example, shrimp or prawns are typically prepared in their natural, physiologically correct condition (head, feet, antennae, etc.) requiring additional skill to eat. Clearly I've been conditioned to expect the sanitized, beheaded and de-shelled version typically served in California cuisine.

### **Real sleep and the climate control**

When dinner ended, we all retreated to our respective rooms for some rest before the next days' organizational meetings. This is the moment I've been waiting for, anticipating a reasonable night's sleep and return to a somewhat functional state.

We were exceptionally fortunate to be in Rome during a particularly warm, spring-like period. One might think this was a very good thing, and for outside activities one would be correct. On the other hand, since it was still winter with normal temperatures still pretty cool, the hotel had not enabled the air conditioning system (according to hotel representatives). The result was a fairly temperate (hot and stuffy) room environment unless the windows and balcony door were open. Be assured, the air conditioning system certainly works – I

have the distinct memory of the system in my room being turned on around 3:30am, cooling the room and making a good amount of noise for about an hour, and then turning off again.

Speaking of noise, the hotel is located a bit off the main thoroughfare and therefore enjoys a quieter environment, insulated from most traffic noise. Additionally, I did not notice any unusual disturbances from adjoining rooms or the hallway.

### **First contact**

The next morning we began our preliminary conference organization meeting after a typical European style continental breakfast (complimentary for hotel guests). We spent a great deal of time touring the convention space and meeting rooms, currently being used for an exceptionally large exhibition concerning medically oriented beauty aids (implants, liposuction, etc.). I was simply amazed at the array of invasive procedures one could bring to bear on fighting the aging process (certainly a topic for another time).

The sales staff was very accommodating and arranged access to all of the facilities. Much of the hotel was engaged in the medical conference and had an estimated 1200 participants. I would guess that a large portion was exhibitors and their entourage, since about half of the large space was vacant. Even so, all activities seemed to be organized and flowing well. The hotel certainly had the required space to be able to house our conference activities and participants in a manor similar to a typical US location.

The overall convention space seemed to be a linear, rambling set of adjoining large and small meeting rooms with a fair amount of smaller offices interspersed. While there were several access points, most of the rooms were reached through a main corridor that wound its way through the convention center. At times, this corridor actually traverses part of a room. To walk the extent of the convention space would take a few minutes, as the main rooms are strung out along the main corridor. The Reception area modernization project will be adding yet another access point to the convention spaces.

There are a multitude of room sizes and shapes and the conference activities should easily fit. We made several attempts at an initial

layout and came to a few possible solutions. It's always interesting to go through this process and realize that there is no perfect conference location. Each hotel or convention center has its particular issues that require compromise.

We had lunch in the main restaurant and were served a special meal that essentially covered much of the offerings the hotel would provide during the conference. I was again impressed with the quality of the food and was assured that the same quality would be realized in the mass production atmosphere of the conference. I think I'll reserve judgment, but if they even come close, I believe that the attendees will be quite satisfied.

### **Sudden realization**

After a riveting afternoon and evening of conference organizing, we adjourned the meeting. We then walked (rapidly) to the metro station to go to a restaurant in downtown Rome. It almost took longer to get from the station to the train than to walk from the hotel to the station. Apparently the tunnels had to be excavated fairly deep to avoid ancient Roman ruins, so you must endure quite a few escalators taking you far down into the bowels of the earth before boarding a train.

We exited the metro at a station adjacent to the Spanish Steps, a large cut stone stairway connecting two main arteries completed in 1725. We proceeded to walk through the streets and alleys, through plazas and past incredible structures, fountains, and sculptures to enjoy a fabulous dinner at a restaurant named "Restaurant Carbonara." The restaurant is located in the Piazza Campo dè Fiori, another incredible place to visit.

It was during this walk and dining experience that made me realize the ridiculousness of visiting Rome for only a few hours. There is so much to do and see that you will want to spend as much time as possible in this beautiful place. I would encourage anyone who decides to attend the conference to bring his or her family and stay as long as possible to experience this amazing city.

*Anthony Laviertes' contact information is at the end of his report on the 2001 NSS/MIC. 📧*

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**Enough said**  
The secret of being a bore is to say everything.

*Voltaire*

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**For SUV owners**  
The stone age did not end because the world ran out of stones, and the oil age will end long before the world runs out of oil.

*Unknown*



Anthony Ephremides

## IEEE'S FRACTIOUS PAST

*Editor's note: The IEEE Information Technology Society's Newsletter regularly publishes a column by Anthony Ephremides in which he describes various events in IEEE's and the Society's past. Here is his "Historian's Column" that appeared in the September 2001 issue. Hope you enjoy it as much as I did!*

I have written before about the infamous Irwin Feerst. As many of you know (or recall), he was a feisty IEEE member who campaigned often for the Presidency of the Institute (and, once, came dangerously close to winning it). He was the ultimate populist whose main stance on almost everything was that IEEE should be an organization of (and for) "working" U.S. engineers and not of (or for) intellectuals, scientists, or ... "foreigners." Ordinarily he would command as much attention as a buffoon, but as he came close to rising to the top management position of the Institute, he posed enough of a threat to receive an inordinate amount of attention. The peak period of his activity was the 70s and the 80s.

Our Society was a frequent target of his. He singled us out as anathema to what he thought IEEE ought to be. The organizers of the 1977 ISIT in Ithaca had the bright idea to invite him for a debate with his opponent Ivan Getting (both were candidates for IEEE President) at the Symposium. I reported before briefly about that memorable event but my memory was refreshed recently as I was perusing old issues of our newsletter (that date from the era of Lalit Bahl's inimitable editorship).

So, during that debate, Irwin was challenged by several of our members who either asked him tough questions or reacted to his answers. Aaron Wyner was the first one to ask the following question: "Mr. Feerst, you have made some very disparaging remarks about the IT Transactions in your newsletter" (author's note: Feerst used to publish a notorious newsletter, more on which a bit later). I quote: "Many of IEEE's publications have taken on the aspect of a modern sewage plant – a lot of crap hidden behind a pretentious exterior. These include *Spectrum*, the *Transactions on Information Theory*, *Transactions on Antennas and Propagation*, and *Transactions on Electronics in Medicine and Biology*. We must change the management of these periodicals and present papers written by working EEs for working EEs'. Would you care to comment?" The answer was: "The IT Transactions are indeed full of crap. Most of the papers are written by academics and foreigners (author's note: remark-

able pairing of categories). There is nothing in there for working engineers like me." And he concluded with the famous quotation: "In fact, I can't even tell if I've got it right side up or upside down." There was pandemonium in the audience with catcalls and individual utterances like: "Maybe we should charge him double" or "If you think our Transactions are full of crap, you should read our newsletter." As the reaction subsided, Lee Davisson followed up with: "Since the Transactions are self-supporting, if we want to publish crap, then we should publish crap." To which Feerst replied: "I am glad you brought that up, I have ...", at which point Fred Jelinek intervened with: "Could you speak a little softer or move the mike a little further away?" Feerst complied and continued: "I have here in my hand document S3437 (author's note: no clarification about what kind of document that may be) which shows that the average cost of printing a technical journal is about \$131 per copy. So, your \$8 (of dues) doesn't go a helluva long way towards paying for the Transactions." Amidst new catcalls the following was overheard: "I told you we should charge him double." Dave Forney politely remarked that the Transactions are supported by page charges and library subscriptions. Marty Hellman wondered aloud: "The IEEE has about 180,000 members. Assuming that the average member gets 9 issues of IEEE journals per year, the total cost exceeds 200 million dollars. Where on earth do we get this money?" And Jim Massey concluded with "The reason that the Transactions look the same upside down or right-side up to Irwin Feerst is because we use the binary system!"

The session went on pretty much in the same vein and, as is evident from the above sample, it achieved high levels of entertainment value.

To be fair, however, we must grant Mr. Feerst that he was not wrong on all counts. Among his targets were some truly objectionable practices by the top IEEE brass which unfortunately persist even today. Generally speaking, these have to do with the use of IEEE funds for ventures by some individuals that are of dubious value and merit. For example, in the late seventies, the early

**Who are you?**  
Every successful  
enterprise  
requires three  
men - a dreamer,  
a businessman,  
and a  
son-of-a-bitch.

*Peter McArthur*

years of the China-U.S. “rapprochement,” there were many eager intrepid travelers from within the top ranks of IEEE management who wanted to visit China (in the name of cultivating bilateral technical contacts). In addition to the basic question of whether these ventures were planned properly, there were also questions of style and form. Take a look, for example, at a news release from the Institute entitled “IEEE delegation will visit mainland China.” It started by saying (note the grammar and syntax): “There will be ten delegates from the Institute who will visit the People’s Republic of China as well as their wives”(!!) A follow-up from that trip surfaced in Irwin Feerst’s newsletter a few months later. It quoted from the publication *Optical Spectra* (p. 43 of the 12/77 issue) that was reporting on the trip headed by IEEE President Robert Saunders that read “The IEEE chief (sic), who is a Professor of Electrical Engineering at the University of California, Irvine, recently returned from a three-week visit to mainland China. A ten-member IEEE delegation found many technical areas lagging behind, but noted a rapid change in the rate of progress.” Again, note the “quality” of the

writing. In any event, Feerst’s commentary was: “Naturally our curiosity was aroused as to who paid for this trip. We wrote to Robert Briskman, IEEE’s perpetual Secretary-Treasurer to ask him. Briskman’s straightforward reply was ‘I assumed you knew that the type of information requested is not normally furnished.’ Marvelous. Super. So, now, we ordinary working EEs are not permitted to know too much about IEEE’s finances. But we are, of course, expected to pay our dues. Sounds as though Saunders and his entourage ate their two favorite dishes while in China – ‘You Pay Dough and You know Zilch!’”

Apart from the crass style and the offensive (to our Chinese colleagues) use of phonetics, there was a point in Feerst’s fierce protest. And as recent financial woes of the IEEE demonstrate, the same type of misfeasance and malfeasance at the top of the Institute may very well persist and survive even today.

*Tony Ephremides, who kindly granted permission for his article to appear here, is a member of the Department of Electrical Engineering at the University of Maryland. He can be reached by e-mail at a.ephremides@ieee.org.*

**Eureka!**  
In such matters it is easy to mistake a great stupidity for a great discovery.  
*Wilhelm Ostwald*

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