NUCLEAR & PLASMA SCIENCES SOCIETY NEWS

A Publication of the Institute of Electrical & Electronics Engineers

Number 1, March 2011

CONFERENCES

The 18th International Pulsed Power Conference will be held in Chicago, Illinois from June 19 to June 23, 2011. The Pulsed Power Conference is held biennially and serves as the principal forum of information exchange on pulsed power science, technology, and engineering. In past years, the conference has had significant international participation. More than 25 countries were represented at the 2009 conference with attendance approaching 600 scientists and engineers. The 2011 Pulsed Power Conference is sponsored by the IEEE NPSS.

This year's conference will be held in the Midwest for the first time in the history of the conference. This year's venue is the Hyatt Regency McCormick Place near the John G. Shedd Aquarium and the Museum of Science and Industry. The Hyatt Regency McCormick Place is located minutes from these attractions and is centrally located to the museums and sports arena.

The conference is also collocating with the International Conference on Plasma Science (ICOPS) and the Symposium on Fusion Engineering (SOFE). This exciting venue allows participants to attend sessions at all three NPSS Conferences.

We are pleased to sponsor the conference in Chicago in 2011. Chicago offers a venue rich in cultural and architectural diversity. The home of Frank Lloyd Wright in Chicago is today one of the architectural oases of the Midwest. Chicago also hosts a large number of art, science, and history museums. These include the Art Institute of Chicago, the Museum of Contemporary Art, the Field Museum, the Lincoln Zoo, and the Chicago Skydeck. The night life is also exceptional with Chicago offering the finest restaurants and theatre in the Midwest. These include world-famous Chicago restaurants and Pizzerias. Shopping on the renowned magnificent mile is available for spouses, as is a companion program organized by the conference.

To enhance the cultural experience this year, we will hold the banquet offsite at the Field Museum. The banquet will include a reception and dining. The Peter Haas Award, the Erwin Marx Award, the Arthur H. Guenther

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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 April 10, 2011 for publication in the June 2011 Newsletter.

CONTRIBUTED ARTICLES
News articles are actively solicited from contributing editors, particularly related to important R&D activities, significant industrial applications, early reports on technical breakthroughs, accomplishments at the big laboratories and similar subjects. The various Transactions, of course, deal with formal treatment in depth of technical subjects. News articles should have an element of general interest or contribute to a general understanding of technical problems or fields of technical interest or could be assessments of important ongoing technical endeavors.

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

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CONFERENCES

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Pulsed Power Student Award, as well as the Best Student Paper Award will be announced at the banquet. The offsite dinner will be held on the Odyssey with an accompanying four-hour cruise on Lake Michigan. The Odyssey cruise will include live jazz music and a view of the beautiful Chicago skyline.

With an anticipated 400 oral and poster presentations, the 18th International IEEE 2011 Pulsed Power Conference speakers and attendees will address the following multidisciplinary topic areas:

- High Voltage Components and Insulation
- Microwave and RF Sources and Antennas
- Accelerators and Beams
- Radiation Sources
- Applications of Pulsed Power
- Explosive and Compact Pulsed Power
- Pulsed Power Systems
- Power Electronics for Pulsed Power

The topic areas include pulsed power for particle accelerators, one of the areas in which NPSS has strong participation.

The Chicago area is also well known for its exemplary collection of particle physics laboratories, and its unique universities. We have included sessions this year on pulsed power for particle accelerators and also are considering tours of either Fermi or Argonne National Laboratories. As we firm up these tours, we will notify the registrants by e-mail. We believe this cross-disciplinary interaction will benefit both communities.

The 2011 Pulsed Power Conference is managed under the auspices of the NPSS Pulsed Power Science and Technology (PPS&T) standing technical committee. Jane Lehr, the current Chair of the PPS&T committee, is an engineer at Sandia National Laboratories. The PPS&T was persuaded to hold the 2011 PPC in Chicago because of its exciting venue and museums.

The Conference General Chair, Randy Curry, a Distinguished Professor at The University of Missouri-Columbia, expects a large number of attendees this year. The 2009 Pulsed Power Conference had an attendance of both international and national scientists and engineers, both comprising about 50 percent of the presenters. The growing number of international speakers, according to the conference chair, is expected to continue to grow, for the pulsed power community is on a rapid growth cycle in the international community. There were more than 28 countries represented at the 2009 Pulsed Power Conference held in Washington, DC. We anticipate a similar international representation for the 2011 PPC.

Scientists from all countries are encouraged to attend the 2011 PPC. The conference is a forum for the senior scientist or engineer, as well as the student in the field of pulsed power. The conference sessions encompass high voltage design techniques, vacuum physics and insulation, accelerators, and physics of beam propagation, as well as many other topic areas. The conference provides a forum for the exchange of information in emerging areas and the state of the art design philosophy in cross-cutting, multidisciplinary fields.

We encourage attendees to bring their spouses and families. We have an exciting companion program, as well as easily accessible museums and shopping. The Hyatt Regency McCormick Place is located approximately 10 minutes from downtown Chicago, as well as a few minutes from the museums and restaurants.

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Randy Curry
General Chair

Bryan Oliver
Program Chair

Keisha Carr
IEEE Conference Management

And deserves it too!

Democracy is the process by which people choose the man who'll get the blame.

Bertrand Russell

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We anticipate an expanded exhibitor program this year whereby scientists, engineers, and students can review new products and components available to those designing high-voltage and pulsed-power systems. We will also have a Job Placement Center to aid those attendees seeking employment opportunities in industry, academia, and federal agencies.

The 2011 PPC organizing team includes Bryan Oliver, the Technical Program Chair from Sandia National Laboratory, Mark Rader, the Treasurer from the US ARMY Space and Missile Defense Command, Keisha Carr from the IEEE Conference Management Group, and Janice Ashby from the University of Missouri-Columbia. These individuals, along with the organizational team of technical chairs and other volunteers, are working hard to make this a memorable meeting. For the most up-to-date announcements, visit the website at http://ppc.missouri.edu.

If you have suggestions or wish to make a contribution to the conference, please contact me at curryrd@missouri.edu. We welcome your attendance and look forward to your participation at the 2011 IEEE Pulsed Power Conference in Chicago.

ICOPS/SOFE 2011 Minicourse

Plasma-Material Interactions in Fusion and Industrial Plasmas

ICOPS 2011 SOFE

The 38th International Conference on Plasma Science and 24th Symposium on Fusion Engineering will take place June 26-30, 2011 in Chicago, Illinois.

OVERVIEW

The aim of the minicourse is to provide a comprehensive introduction to plasma-material interactions with an emphasis on fusion and industrial plasmas. This minicourse will address rising interest in the area of plasma-material interactions and will in part introduce the breadth and depth of the subject in areas including: plasma-surface interactions in fusion edge plasmas, plasma processing of micro- and nano-electronics with industrial plasmas, biomaterials plasma treatments, plasma propulsion applications and other relevant areas where the plasma/material interface plays a crucial role in materials performance and behavior. A unique aspect of this minicourse is to bring instructors that not only have an expertise in plasma-material interactions but also extensive experience both in PMI experiments and atomistic/multi-scale computational PMI modeling. The course will describe the unique challenges of PMI experiments and computational modeling and the areas in which these two thrusts can complement each other. The title of the course uses the concept of *"industrial plasmas"* to include all non-fusion areas where plasmas play a critical role in the modification and processing of materials. This area has also included the use of both plasma and ion-beam interaction with advanced material surfaces modified at the nanoscale. Therefore this course will also discuss recent progress in the role of nanotechnology in the area of PMI both for fusion and industrial plasmas applications.

The course instructors include leading researchers in the areas of experimental and computational plasma-material interactions. They include: Prof. David N. Ruzic from the University of Illinois at Urbana-Champaign, Prof. Jean Paul Allain from Purdue University, Prof. Brian Wirth from University of Tennessee and Dr. Predrag Krstić from Oak Ridge National Laboratory.

Audience: Students, junior faculty or new faculty entering these fields, industry researcher scientists/engineers and postdoctoral researchers.

COURSE CONTENT

The course is divided into two categories: experimental PMI topics and computational PMI. The morning session will cover topics in experimental PMI: 1) *Fundamentals of Plasma-Material Interactions (Ruzic)*, 2) *PMI in Fusion (Allain)* and lastly 3) *PMI in Industrial Plasmas (Ruzic)*. The afternoon session will cover topics in computational PMI: 1) *Introduction to PMI Computational Science (Krstić)*, 2) *Multiscale Modeling in Fusion PMI (Wirth)* and 3) *Computational PMI of Industrial Plasmas*. The course will conclude with the topic, *Progress on PMI Nanotechnology (Allain)*.

INSTRUCTORS

Jean Paul Allain completed his Ph.D. degree in the Department of Nuclear, Plasma and Radiological Engineering at the University of Illinois, Urbana-Champaign. He received an M.S. degree in Nuclear Engineering from the same institution. Prof. Allain joined Argonne National Laboratory as a staff scientist in 2003 and joined the faculty in the School of Nuclear Engineering at Purdue University in the fall of 2007 with a courtesy appointment with the School of Materials Engineering. Prof. Allain is an affiliate faculty member of the Birck Nanotechnology Center. He is the author of over 50 papers in both experimental and computational modeling work in the area of particle-surface interactions in nuclear magnetic fusion science. His studies include developing in-situ surface structure and composition evolution characterization of heterogeneous surfaces under low-energy irradiation promoting structure and function at the nanoscale. Prof. Allain is also working in coupling post-ionization secondary mass neutral spectrometry techniques with in-situ surface characterization to design ultra-thin active films coupled to directed radiation synthesis with applications in semiconductor, biomaterials and nuclear energy technology areas. He is the recipient of numerous awards including the DOE Early Career 2010 Award and the Paul Zmola Young Scholar Award.

Predrag S. Krstić completed his Ph.D. degree in the Department of Physics at the City College of the City University of New York in 1981 on the theory of laser-atom interactions. He received an M.S. degree in Experimental Plasma Physics and B.S. in Technical Physics from the Faculty of Electrical Engineering, University of Belgrade, Yugoslavia. Dr. Krstić joined the scientific staff of the Institute of Physics, Belgrade, in 1976, and joined the scientific staff of the Physics Division of Oak Ridge National Laboratory in 1995, while also holding the position of adjunct professor in the Department of Physics and Astronomy at the University of Tennessee. Dr. Krstić is the author of over 150 papers on theoretical and computational simulations of slow ion, atom and molecule collisions as well as on the particle-surface interactions in magnetic fusion edge plasma, computational chemistry, molecular electronics, nanofluidics and nanobiotechnology, laser-atom interactions and plasma physics. His classical and quantum molecular dynamics studies on plasma-surface interactions include chemical sputtering, retention, reflection of hydrocarbon and metalized carbon surfaces, and rovibrational analysis of ejected molecules. Dr. Krstić is also working on the construction and functional analysis of various devices for localization and control of biomolecular

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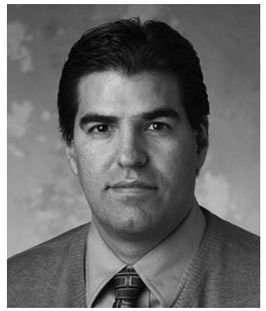
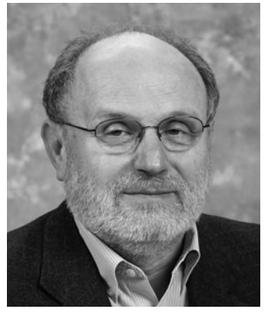
Call me ignorant

A knowledgeable fool is a greater fool than an ignorant fool.

Molière



Jean Paul Allain
Instructor



Predrag S. Krstić
Instructor

David R. Ruzic
Instructor

Brian Wirth
Instructor

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ions such as aqueous Paul nanotraps, carbon nanotubes, gold-plated nanopores etc. His theoretical research is closely coupled and validated through experiments performed in close collaboration with groups at ORNL, as well as at Purdue, Yale and Arizona State Universities. Dr. Krstić is a Fellow of the American Physical Society.

David N. Ruzic is the Director of the Center for Plasma Material Interactions at the University of Illinois at Urbana-Champaign. He is a professor in the Department of Nuclear, Plasma, and Radiological Engineering and is affiliated with the Departments of Electrical and Computer Engineering and Physics, having joined the faculty in 1984. His current research interests center on plasma processing for the microelectronics industry (deposition, etching, EUV lithography and particle removal) and on fusion energy research. Prof. Ruzic is a Fellow of the American Nuclear Society and of the American Vacuum Society (AVS). He is the author of the AVS monograph, *Electric Probes for Low Temperature Plasmas*, numerous book chapters, patents, and over 120 refereed journal articles. He obtained his Ph.D. and M.S., in Physics from Princeton University, and his B.S. degree in Physics and Applied Math from Purdue University. He really enjoys teaching and tries to blow something up during every lecture.

Brian Wirth is Professor and Governor's Chair of Computational Nuclear Engineering in the Department of Nuclear Engineering at the University of Tennessee, Knoxville, which he joined in July 2010. Brian received a B.S. in nuclear engineering from the Georgia Institute of Technology in 1992 and a Ph.D. in mechanical engineering from the University of California, Santa Barbara in 1998, where he was a Department of Energy Nuclear Engineering Graduate Fellow. In 2002 he joined the faculty at the University of California, Berkeley as an Assistant Professor of Nuclear Engineering, following several years in the High Performance Computational Materials Science Group at Lawrence Livermore National Laboratory, and was promoted to Associate Professor in 2006. His research interests involve the combination of multiscale modeling and advanced microstructural characterization to develop improved understanding and models of microstructure—property relationships and microstructural evolution during processing and service in hostile environments, with an emphasis on irradiation effects; and to use this knowledge as a basis for developing advanced materials. He has received a number of awards, including the 2007 Fusion Power Associates David J. Rose Excellence in Fusion Engineering Award and the 2003 Presidential Early Career Award for Scientists and Engineers (PECASE). He can be reached at (865) 974-2554 and by e-mail at bdwirth@utk.edu.

The "Plasma-Material Interactions in Fusion and Industrial Plasmas" minicourse is offered at the ICOPS/SOFE2011 venue at the Hyatt Regency McCormick Place, Chicago, IL on Saturday, June 25, 2011. You may register for it on the ICOPS/SOFE2011 website at https://engineering.purdue.edu/ICOPS2011/Registration.html. Registration for the ICOPS/SOFE2011 conference is also open. Early registration closes on May 15, 2011. The abstract deadline was February 15, 2011 with author notification by April 1, 2011. Please visit the website for current information concerning accommodations.

37th ICOPS 2010 Held in Norfolk, Virginia, USA, June 20-24

Mounir Laroussi
General Chair

Final Report

The 37th IEEE International Conference on Plasma Science (ICOPS 2010) was held in Norfolk, VA, USA, from June 20 to June 24, 2010 with a minicourse on June 24 and 25. The conference venue was the Marriott Waterside hotel located in the center of downtown Norfolk. Both the conference and the minicourse were great successes. Five hundred sixty-two abstracts from 37 countries were accepted. Most of the abstracts came from the USA (327), Germany (30), China (30), Japan (28), South Korea (28), the Russian Federation (26), UK (20), France (17), and the remaining from various other countries. The largest number of submissions was in area 5.0 (Industrial, Commercial, and Medical Applications) with a total of 188 abstracts, 98 of which were related to the biomedical applications subtopic. It was the opinion of the ICOPS chair and that of the technical committee that in the future the biomedical applications should be a separate topic. This gained the agreement of ExCom which unanimously voted for it during their Sunday June 20, 2010 meeting. Also, for the first time, ICOPS had a session (11 abstracts) on THz radiation and applications, organized by Baruch Levush of NRL, and two special sessions on the emerging field of Plasma Medicine, organized by M. Laroussi and M. Kong.

In total, the technical program had 217 oral presentations and 345 posters. There were 91 accepted abstracts in the Basic Processes in Fully and Partially Ionized Plasmas Technical Area (1.0), 89 accepted abstracts in Microwave Generation and Plasma Interactions (2.0), 37 accepted abstracts in Charged Particle Beams and Sources (3.0), 97 accepted abstracts in High Energy Density Plasmas and Applications (4.0), 188 accepted abstracts in Industrial, Commercial, and Medical Plasma Applications (5.0), 29 accepted abstracts in Plasma Diagnostics (6.0), and 31 accepted abstracts in Pulsed Power and Other Plasma Applications (7.0). All these papers were presented in four parallel morning oral sessions (preceded by a plenary session), four parallel afternoon oral sessions, and three afternoon poster sessions. There were only morning oral sessions on Thursday, with the minicourse kicking off in the afternoon.

The plenary talks for 2010 covered Dusty Plasmas (Prof. Laifa Boufendi, GREMI), Non-Equilibrium Plasma Sources (Prof. Erich Kunhardt, Polytech NY whose talk was sponsored by Springer), and High Energy Density Physics (Dr. Kimberly S. Budil, DOE). Dr. Manfred Thumm (KIT) presented the PSAC Award Plenary talk on the use of Gyrotrons for ITER and fusion reactors.

Students were especially encouraged to attend the conference. Twenty-eight students were selected from a pool of 41 applicants to receive travel grants; 22 of these accepted the award. There were various personal reasons for those students who did not accept including US entry visa problems. Each travel grant covered the registration fee and four hotel nights. An NSF grant helped cover these expenses. Student paper awards were also offered. Several dozen nominations were received. The Technical Area Coordinators selected 11 applicants for further consideration. These gave presentations in front of a committee the members of which were: Prof. Ravindra Joshi, Prof. Edl Schamiloglu, Dr. Don Schiffler, and Dr. Christine Coverdale.

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Manfred Thumm receives ICOPS Award from Brendan Godfrey while Mrs. Thumm looks on.

ODU reception for ICOPS attendees.

Igor Alexeff

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Two runners up were given certificates (David French, University of Michigan, paper 3B7; Vladislav Vekselman, Technion, Haifa, paper 7C6). Two winners were given certificates, $250 checks, and book vouchers worth $250 (from Springer-Verlag). The winners were Alexander Gorenstein, Cornell University (undergrad), paper 2P54 and Natalie Shainsky, Drexel University, paper 2P125. The student paper awards were sponsored by the European Physical Journal D.

As part of ICOPS 2010, a 1.5-day minicourse on low-temperature plasma modelling and simulation was offered on Thursday afternoon, June 24th and Friday, June 25th. The minicourse was held at the conference venue, the Marriott hotel. The minicourse organizer was Prof. Demetre Economou, University of Houston. Three instructors (in addition to Prof. Economou) participated in the lectures. These were Dr. Vladimir Kolobov (CFDRC), Prof. Lax Raja (UT Austin), and Dr. Yukinori Sakiyama (UC Berkeley). The instructors provided a set of comprehensive lectures on modelling techniques for low-temperature plasmas and their applications. Eighteen people registered for the minicourse, eight of whom were students.

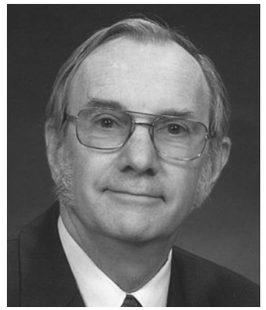
The social program and activities offered by the conference were well-attended and much appreciated by the participants. There was an activity/event scheduled for every full day of the conference. A welcome reception was held on Sunday evening. A reception with dinner was held on the Old Dominion University (ODU) campus on Monday evening. It was sponsored by the president of ODU. A two-hour boat cruise, with dinner, was organized on Tuesday evening. And finally the banquet/awards dinner was held on Wednesday night. During the banquet an award ceremony was held where Prof. M. Thumm received his PSAC award and the students received their best papers awards. New IEEE NPSS fellows were also recognized. In addition, Prof. Igor Alexeff who helped found ICOPS and chaired it (ICOPS 1) in 1974 was recognized in the opening ceremony of the conference. Dr. Robert J. Barker of AFOSR was recognized during Monday's special session on plasma medicine for his early support to this emerging field.

This year the participation in the exhibit program encountered only very limited success. This may have been in part due to exhibitors (of interest to ICOPS) attending the power modulator conference which was held just about 4 weeks earlier. Only four exhibitors participated. These were the Cooke Corporation, Tech-X, Virginia Diodes Inc., and K-Tech Corporation. In the exhibition area there were other booths such the NPSS member recruitment booth, the job placement center, journals exhibits (EPJ D, TPS, etc.), and the internet cafe (sponsored by Numerex).

A special issue of the *IEEE Transactions on Plasma Science* (TPS) devoted to the plenary and invited papers was organized. It is scheduled to be published in April 2011. The Guest Editors of this issue are R. Joshi (Old Dominion University), X. Lu (HuaZhong University), and Y. Sakiyama (UC Berkeley).

Mounir Laroussi, General Chair of ICOPS 2010 can be reached at the Electrical & Computer Engineering Department, 231 Kaufman Hall, Old Dominion University, Norfolk, VA, 23529. Email: mlarouss@odu.edu.

2010 IEEE NSS/MIC and 17th Symposium on Room-Temperature Semiconductor X-ray and Gamma-ray Detectors



Ron Keyser
General Chair

Final Report

The 2010 IEEE Nuclear Science Symposium, Medical Imaging Conference, and 17th International Workshop on Room-Temperature Semiconductor X-ray and Gamma-ray Detectors were held at the Knoxville Convention Center in Knoxville, Tennessee from October 30 to November 6, 2010. There were 1985 registered attendees from 47 countries and more than 1600 papers submitted. During the meeting the six Short Courses attracted more than 400 students. The three specialized workshops which ranged from Alternative Neutron Detectors to Advances in PET-MR also had record attendance. The total conference attendance was the largest ever for an NSS/MIC/RTSD conference held in the US, and second only to the 2008 conference. Almost the entire Knoxville Convention Center was used for the nine days of the meeting. This modern facility was well suited for the conference size and the poster session was spacious, allowing for comfortable interactions between the presenters and the attendees. The extensive concourses had WiFi and many tables making them popular interaction sites for the attendees. All of this contributed to a very successful and enjoyable week.

Attendees were treated to the finest of Tennessee food and beverage supplied by the KCC kitchen and local producers. Both local specialties and international favorites were available during the many breakfasts, lunches, receptions, and dinners served during the conference. Tennessee winery and microbrewery products were served to the delight of many.

The success of the meeting was made possible by the incredible work of the Organizing Committee members who contributed a massive effort both before and during the meeting to ensure that everything worked as planned. The Program Chairs, topic conveners and session chairs assembled a strong program with the help of the many reviewers. With over 1600 papers to be reviewed, this was indeed a major undertaking, especially given the time constraints. The NSS, MIC, and RTSD Program Chairs tried new ideas for the organization of the sessions. The NSS and RTSD Program Chairs worked together to eliminate as many overlapping and conflicting papers as possible. I am certain that the attendees appreciated their work to try and minimize session hopping.

In addition to the changes in the session and poster session organization, innovations were tried for the popular program book—colors, binding, contents, and distribution—and the "always open" registration website. Both were enthusiastically received and supported.

With the support from both long-term and new industrial and governmental organizations, we were able to provide grants to over a hundred thirty students, allowing them to attend the meeting, present their work, and make contacts with the worldwide community present

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Irrationality needed

Naturally, that study like any argument based solely on logic, physics and common sense, did not settle the matter.

R.L. Garwin & K. Gottfried

Ratiocination

He did not arrive at this conclusion by the decent process of quiet, logical deduction, nor yet by the blinding flash of glorious intuition, but by the shoddy, untidy process halfway between the two by which one usually gets to know things.

Margery Allingham

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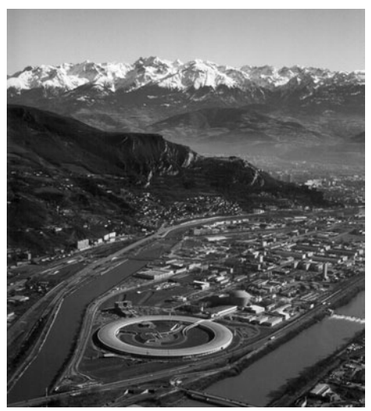
in Knoxville. Our industrial exhibitors also found this to be a very useful meeting and remarked on the numbers of valuable contacts they made.

The area around Knoxville is home to many Laboratories, Institutions, and Companies who participate and contribute to the fields of interest of the conference. The technical tours to some of these were well attended and so popular that additional tours were added. Even the East Tennessee weather (known for being totally unpredictable) cooperated.

It is the attendees of the Conference that deserve the most thanks, as it is their work that makes all of this possible. As you go through the CD of the Conference Record, I hope you will be able to review the papers and talks you enjoyed and read any you may have missed during the conference. The Conference and the Conference Record are truly your work and it is only through your participation that we have been able to make this meeting the premier meeting in the world for our fields.

Ronald M. Keyser, General Chair, 2010 NSS MIC RTSD, can be reached at ORTEC, 801 South Illinois Avenue, Oak Ridge, TN 37831; Phone: +1 865-483-2146; Fax: +1 865-481-2438; E-mail: Ron.Keyser@ametek.com



Aerial view of the National Center for Scientific Research, Grenoble.

ICALEPCS 2011 13th International Conference on Accelerator and Large Experimental Physics Control Systems

An IEEE NPSS Technically Cosponsored Conference

The 13th ICALEPCS conference will take place in Grenoble, France, capital of the French Alps, from the 10th to 14th of October 2011. The ICALEPCS conference series is held every two years in a different region of the globe. ICALEPCS is well established as the leading conference dedicated to control systems for accelerators and large experiments in physics. It is an ideal venue to discover the latest trends in control systems for accelerators, fusion reactors, laser facilities, telescopes, and all experimental physics systems. The conference welcomes all control system specialists working in the field of physics to attend. The high standard that the conference has reached is widely recognized. The IEEE Nuclear and Plasma Sciences Society has been the technical cosponsor of this conference since the very early days of the event. Many trends have emerged at previous sessions such as the standard model for accelerator control systems—the wide use of EPICS control system toolkit. The 2011 conference has as its theme open-source hardware and software. Talks and posters on new developments in these areas are strongly encouraged. Four preconference workshops are planned—EPICS, TANGO, Open Hardware and jDDD.

In addition to the scientific program and tutorials, the conference will offer an ideal occasion to meet new colleagues and set up or extend software and hardware collaborations, as well as the opportunity to partake in cheese and wine tasting and discover local products. The accompanying persons' program will include trips to the surrounding Grenoble area and Lyon, as well as French cookery classes. An excursion to nearby wine regions is planned for the weekend after the conference. For more information please consult the website http://icalepcs2011.esrf.eu.

President's Report

Writing in the first few days of 2011, I would like to welcome you to the IEEE Nuclear and Plasma Sciences Society and to what I hope will be a most productive and professionally satisfying year for all of you.

Membership in a professional society means many things to the engineering professional working in industry, academia or in government laboratories. To me it means up-to-the-minute access to the latest technical results in refereed journals, and staying current across the broad spectrum of advances in related fields. It means participation in specialized technical conferences and workshops, and networking with friends and colleagues. It means developing professional relationships, and it can mean very practical support services for the independent consultant or the proprietor of a small technical business. It means opportunities for service to your technical community, your profession, and, indeed, all of humanity. The IEEE, with its 38 member societies, is the world's largest professional organization aimed at the advancement of technology and offers the broadest possible range of services and opportunities to its members.

If you are an engineering or scientific professional working in the areas of radiation instrumentation, medical imaging sciences, radiation effects, plasma sciences, fusion technology, pulsed power, particle accelerators, nuclear power and technology, and computer applications, the IEEE Nuclear and Plasma Sciences Society is your local home in the larger IEEE family. If you are not already a member of NPSS, I invite you to explore the pages of this newsletter to learn about NPSS conferences, workshops, transactions, journals, technical committees, and policy and liaison functions. In the following pages you can taste the breadth and depth of the NPSS, and, I believe, you will find several reasons to become a member.

If you are already a member of NPSS, I invite you to do two things: first, tell your colleagues in the next office, or in the lab next door, about some of what the NPSS means to you. The probability is high that what matters to you will be significant to your neighbor professional as well: share the opportunities. Second, I invite you to try something new for yourself. If you have regularly participated in NPSS conferences, volunteer to work on the organization of a future conference in that series, or on a Technical Committee of your choice. If you have published in NPSS Transactions or Journals, offer to help with editorial responsibilities. If you are beginning your career, consider our Graduates of the Last Decade (GOLD) activities, and if you live outside the US, you might want to look into our Transnational Activities efforts. If you are interested in IEEE policy or in learning about, and helping with, the details that make the Society run, contact me (bobr@lanl.gov). Try it; I think you will be amazed at the satisfaction it will bring.

As 2011 begins, I hope you will join me in thanking Craig Woody for his two years of service as President of the Society. I am awed by the diligence, hard work and thoroughness with which Craig serves the Society, with his care for the interests of the members of our Society and of the profession in general, and with his unfailing sense of fairness and for his good humor amidst all the challenges coordinating a truly remarkable team of volunteers. Craig's service sets an incredibly high bar, and I am humbled by the thought of following in his footsteps. Thanks Craig!

There are some changes ahead in the workings of the IEEE at the Board of

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Bob Reinovsky
IEEE NPSS President

Missing ingredient today

Perhaps the most central characteristic of authentic leadership is the relinquishing of the impulse to dominate others.

David Cooper

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Directors level. In a series of changes, scheduled for completion in 2015, the membership of the Board is being revamped, and the method of selection of members is changing. The rationale for the changes include the perceived need to respond to increasing complexity and workload, and a perceived need to decouple Board positions from the IEEE Operational Units—Societies, Councils and Regions in which they serve. A decentralized selection pattern, as currently, sometimes falls short of providing the appropriate range of skills and experience needed to guide and direct a complex organization. The new proposal contains term limits, and establishes a (growing) pool of candidates for Board positions. You will be hearing more in the future.

Again wishing you all a most successful year!

Bob Reinovsky, the IEEE NPSS President, can be reached at Los Alamos National Laboratory, PAT Program Office MS T087, Los Alamos, NM 87544; Phone: +1 505-667-8214; Fax: +1 505-665-2227; Email: bobr@lanl.gov.

Albe Larsen
NPSS Secretary and Newsletter Editor

Secretary's Report

The Nuclear and Plasma Sciences Society held its annual AdCom meeting on Nov. 6, 2010 in Knoxville, TN. Our treasurer, Ed Lampo, reported that IEEE has yet another new algorithm in the works to support IEEE. The new algorithm will decrease our income, possibly significantly. We have had three penalties in 2010 for late closure of conferences. A reiteration of previous messages to conference chairs and treasurers: close out your conferences without paying the last late bills. These can be paid directly by IEEE and NPSS won't be penalized! The web site for conference treasurers is close to completion. It will provide a uniform budgeting format and will have archival budget copies to allow comparison with past budgets. Both original accepted budgets and actual expenses will be tracked and maintained. Insurance will automatically be added to budgets.

This will align with IEEE's reporting requirements and the package has a conference status checklist and can be sent directly to IEEE all ready for audit. This only applies to new conference budgets, not for existing ones.

The software will ultimately be transferred to and maintained by IEEE. The Network Shop provides computers, projectors, microphones, audio mixers, and wired and wireless network capability for conferences. This was started because of the very high commercial rental charges at hotels and from hotel-selected vendors. Equipment and software need periodic upgrading. The number of computers needed in the conference computer rooms has gone down since many people bring their own laptops, but connections to the internet are still desired, despite the wide availability of wireless. Projectors also need to be replaced, and the replacement of our server is coming. In 2007 we lost a lot of equipment due to bad shipping containers. In 2008 the meeting in Dresden got support from other local sources, and the Network Shop is working on developing an amortization scheme to increase reserves to cover obsolete or damaged or stolen equipment. Consider using the Network Shop for your conferences.

Craig Woody, the NPSS President, reported on the death on August 22 of Roger Sudbury, our Division IV Director. Peter Clout has had to step into the Division Director's role earlier than planned, without a mentor. Craig also invited Ingrid Gregor of DESY, the chair of the Conference Information and Promotion Committee (CIP), founded to help the 2000 NSS/MIC attract attendees to the very first NSS/MIC in Lyon, an historic moment for NPSS. The group works actively at each NSS/MIC to introduce attendees to the venue for the next conference and to gather input on the current conference. They also have CIP booths at related conferences, place ads in appropriate places such as the CERN Courier and various physics journals. Ingrid and Craig both recommend such a group, comprised principally of young scientists, to be formed for each TC. Not only have their efforts been highly successful, the group has formed fast friendships and good collegial contacts. Working with the GOLD members in your community might be a good way to start.

Expect some TAB structural changes in the future. These are still being looked at. Roger Pollard and Donna Hudson from TAB are looking at councils and societies that are failing financially. There is no straightforward solution, especially as each entity works in its own culture. TAB is also looking at how to absorb new technical communities into IEEE. There is some jumpstart money and a five-year watch plan to see where the new community might fit: as a new technical society, a technical council or a new journal or conference. Technical council budgets are set annually with money coming from sponsoring societies and with any earnings going back to the societies. IEEE plans to look in greater depth at entities in trouble in 2011.

There is also an IEEE visibility initiative. They are looking for individuals who might help promote the Institute and provide PR for us. Do you like being in the public eye and talking about what our community does? If so, contact our new president, Bob Reinovsky, at bobr@lanl.gov.

Peter Clout spoke a bit about the reorganization possibilities for the Board. He also talked about Roger Sudbury as a long-standing, experienced member of the IEEE community. Peter's first question is: What is a Division Director and what is s/he meant to do? Meeting with and helping Society presidents and AdCom members in the division seem foremost. Meeting with other Division Directors and with TAB is also important. The other societies in Division IV, should you wonder, are: the Antennas and Propagation Society, Broadcast Technology Society, Consumer Electronics Society, Electromagnetic Compatibility Society, Magnetics Society, Microwave Theory and Techniques Society and the Council on Superconductivity. Peter has met with Division IV presidents and presidents-elect. Our Division is in good hands.

TECHNICAL COMMITTEE REPORTS

The 2010 CANPS-committee-sponsored Real-Time conference is close to closing, reported Stefan Ritt, PSI, CANPS chair. The Portuguese auditors are reviewing books before they go to IEEE. The Conference Record is complete. A special issue of TNS, with Sasha Schmeling as guest editor is near completion. The rejection rate (~47%) was high, with 51 of 92 papers accepted. The 2012 Real-Time conference will be held in Berkeley, CA with a couple of hotel options. There will be a TC webex meeting before the March AdCom meeting. There is some competition with CHEP being held in New York the week of May 21, 2012 that may be a problem.

Fusion Technology chair, Dennis Youchison of Sandia announced that Phil Heitzenroeder of Princeton Plasma Physics lab will be replaced by Tiana

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Never mind...

It's not enough to have a good mind: one must use it well.

Descartes

Been there, don't do that

Good advice is something a man gives when he is too old to set a bad example.

François de La Rochefoucauld

Knowledge isn't enough

We often stand in need of learning what we know full well.

Walter Savage Landon

And vice versa too?

How can you make sense of the beginning unless you know the ending?

Julian Barnes

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Dodson as the Fusion Awards chair. Charles Neumeyer is chair of the 2011 conference and Wayne Meier will chair the 2013 conference. There is a request for technical cosponsorship of TOFE, the ANS topical conference on fusion engineering for 2012. More information is needed.

Nuclear Medical and Imaging chair Robert Miyaoka, reported on the new rules of 1.5 candidates per position for Technical Committee open positions, which requires a bylaw change (See NMIS Bylaws under Technical Committee Reports). There was also an election to an open AdCom seat. Alberto Del Guerra of Pisa is the winning candidate. See his bio on p. 21. The 2010 MIC conference had 538 accepted abstracts distributed as 88 oral, 440 posters and 10 joint presentations in four joint sessions with NSS. There were three MIC short courses. The joint conference had 1992 attendees and 58 exhibitors. MIC also featured a PET workshop and morning refresher courses. Award recipients (see the Awards section) were Richard Leahy of USC who received the Edward J. Hoffman award, and Xin He of Johns Hopkins who received the Bruce Hasegawa Young Investigator award.

The NSS conference, according to Chuck Melcher, Radiation Instrumentation TC chair, had refresher courses and also had three short courses, with close to 400 students in attendance. The industrial tours to Oak Ridge and Siemens were sold out. Future MIC and NSS Conferences: 2011, Valencia, Spain; 2012, Anaheim, CA; 2013, Seoul, Korea; 2015, Seattle, WA.

The Particle Accelerator Science and Technology TC chair, Stan Schriber, reported that PAC 2009 is closing. The 2011 PAC conference will be held at the New York Marriott Marquis with Thomas Roser of BNL as chair. The 2011 IPAC will be in San Sebastian, Spain.

John Luginsland reported that Brendan Godfrey will take over as Plasma Sciences and Application TC chair in January 2011. The 2012 ICOPS will be held in Edinburgh, Scotland, 2013 in San Francisco as PPST, in 2014 there may be a joint BEAMS/ICOPS conference and there is a proposal for a 2015 meeting in Turkey. There were very few exhibits at the 2010 ICOPS. This may be a function of not meeting with the Fusion community or of an overlapping conference slightly earlier than ICOPS.

Edl Schamiloglu reported that the 2009 Pulsed Power conference books remain unclosed, but the DVD of the proceedings has been completed. The 2011 conference will be held in Chicago the week before the combined ICOPS/SOFE conference. The banquet will be held at the Field Museum and there will be a Lake Michigan cruise. Randy Curry of University of Missouri is General Chair. The 2013 conference will be in San Francisco as part of the PPST. Bryan Oliver will be General Chair. Jane Lehr becomes the Pulsed Power TC chair in January. The committee membership is being realigned and will, in future, add three international members. The constitution and bylaws will be revisited in 2011 and brought into alignment with the NPSS's constitution and bylaws.

Dan Fleetwood reported a successful 2010 NSREC, with good attendance. The books will close in 4-5 months. The December *Transactions on Nuclear Science* will include selected, reviewed papers from the 105 papers submitted for consideration. Future conferences will be in Las Vegas, 2011, with Kay Chesnut of Boeing as chair; 2012 in Miami with Ken LaBel as chair; 2013 in San Francisco, which will be the 50th Anniversary of NSREC; and 2014 will be held in Paris and will be coordinated with RADECS.

FUNCTIONAL AND APPOINTIVE COMMITTEE REPORTS

The Meeting Planner Project is winding down, reported Conferences Chair Bill Moses. The last few dollars are being used by ICOPS. However, site selection and contract review services remain in place. Those wishing to use these services for NPSS conferences should first contact Bill Moses (wwmoses@lbl.gov). Technically cosponsored conferences have to have an MOU in place and need AdCom approval. If there is a conference that you feel we should technically cosponsor (no financial involvement) and that has heavy involvement of NPSS members, contact your Technical Committee chair to bring this forward to AdCom.

The deadline for Award nomination submittal was January 31 for the Society awards (Merit, Shea, Young Investigator and Graduate Scholarship). Jane Lehr now heads the Awards Committee. Bill Moses serves on the awards committee for the Curie Award (deadline January 31). The Innovations in Health Care Technology Field award (deadline: July 1, 2011) is also important to our community and there is time to submit nominations for that prestigious award.

Vernon Price reported on 2010 membership activities. IEEE is now offering an electronic membership in regions where the GDP is less than $15k per person. There are 153 countries that fall into this classification. Only higher grade members are eligible. This is being done for a number of reasons, including humanitarian ones, but it is being done with some revenue risk. IEEE predicts 400,000 members worldwide at the end of 2010, with half of those members from outside Regions 1-7 (North America). NPSS, despite the annual fluctuation in membership, has seen an overall increase in base membership of 4.5% over the last 5 years.

Publications are doing well. The editorial scheme for both TNS and TPS of having an Editor-in-Chief, a group of senior editors and a group of editors in specialized fields seems to improve efficiency and get pubs out swiftly, with fewer pressures on any one individual. *Transactions on Plasma Science* has an improved impact factor. It is also continuing to publish many special issues each year. *The Transactions on Nuclear Science* has seen a small decrease in NSS papers offered for review and publication, but the number of contributed papers is increasing slightly. Paul Dressendorfer, Editor-in-Chief and Publications Committee chair, would like to see time to publication drop a bit more, but we are well within IEEE guidelines.

Chapters continue to grow although one NPSS chapter will close in 2010, according to Steve Gold, Chapters chair. A new chapter has formed in Vancouver, BC with Ewart Blackmore and Tim Meyers of TRIUMF playing key roles. A number of chapters received assistance from NPSS in 2010. Chapters are eligible to invite and receive support for NPSS Distinguished Lecturers. So far in 2010 there were nine known lectures; three received support for some or all expenses. Student chapters can invite one NPSS DL per semester.

Jane Lehr, Fellow Candidates chair, said she had a great committee and good applicant pool. Are you eligible to be a Senior Member? You need to be one before you can even be considered as a Fellow candidate. Contact Vernon Price (v.price@ieee.org) if you meet the requirements. Vernon can help you launch your application.

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Let's make a deal

Free trade with the Americans is like wife-swapping with a bachelor.

Ray Hnatyshyn (Former Canadian Energy Minister)

The reverse would be better!

... there are no bad guys in Washington, there are only good guys doing bad things.

Art Buchwald

Kept the wrong thing

A madman is not someone who has lost his reason. A madman is someone who has lost everything but his reason.

G.K. Chesterton

Part of our problem today

People pay money for the pleasure of escaping reality, not the privilege of confronting it.

Nicholas Fraser

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This year the Nominations Committee used a single ballot for both AdCom and technical committee elections. This did not work well and there has been a request to split the elections. The biggest delay is in getting candidates to submit material in a timely way.

Peter Clout, Communications chair, would like good photos from Women in Engineering events to use in our brochure. If you have any, send them to clout@vista-controls.com. If you see gaps in our publicity literature, please let either Peter or me know.

Our GOLD chair, Christoph Ilgner, reported attendance of ~50-60 at the NSS/MIC event. This provides an opportunity for new grads to meet seasoned professionals and develop networking contacts. Newly recruited members were also invited. There will be a GOLD event at the PAC meeting in New York. Does your community sponsor a GOLD event? Perhaps you could offer your help to your conference chair to organize an event for your community's GOLD members. Contact Christoph for guidance(Christoph.ilgner@cern.ch). The Transnational Committee under Jean-Luc Leray and the transnational liaison, Patrick LeDû, have been updating their web pages. Jean-Luc has added members from Brazil and Korea to the Transnational Committee. Jean-Luc is also working with others to provide a list of NPSS members in Regions 8-10. When meetings are held in these regions there are many more attendees from these countries. This is also true for technically cosponsored conferences.

The nuclear power initiative continues and we have technically cosponsored a number of conferences including NPIC & HMIT in 2009 and 2010, ANIMMA in 2009 and again in 2011, and have seen relevant papers at NSS and at the Real-Time conference.

LIAISONS

Ray Larsen, the Social Implications of Technology and Humanitarian Technology Challenge liaison, brought us up-to-date on the Haiti rural electricity project. Their new home is the Community Solutions Initiative program (CSI) of the IEEE Power and Energy Society. The plan is to build three trailers with six 265 W solar panels each, 40 batteries for home use (to power LED lights, charge cell phones, etc.) and trailer storage batteries as a proof of concept test. Initial money was received from the IEEE Foundation and from PES. The plan is to develop entrepreneurial businesses in Haiti to provide jobs in remote rural areas, to allow kids and adults to read, sew, study at night. The next phase will be a larger number of units, with an increased number of entrepreneurs to operate them. The final phase, based on success of phases 1 and 2, will be for large infusions of capital from social venture capital firms, to bring electricity to about a million Haitians in five years and to develop manufacturing and assembly facilities in Haiti to provide well-paying jobs. See AdCom actions below for NPSS's commitment to this work.

Peter Clout, the ICALEPCS liaison, reports no change in status of our relationship. We will continue to technically cosponsor this conference under the new IEEE guidelines for technically cosponsored conferences.

The Sensors Council continues to hold its annual AdCom meeting in conflict with ours. The Council is on the IEEE watch list, but has had improved financial performance in 2009 and 2010. Their *Sensors Journal* is successful, publishing about 2000 pages a year, with a 60% paper rejection rate. Our relationship with the Sensors Council will be discussed more in future.

RADECS met in Langenfeld, Austria in September. There were 287 participants from 25 countries, 102 papers accepted, and 18 exhibits. Of the accepted papers, 72 were submitted to TNS. Future meetings: 2011—Seville, Spain; 2012—Bordeaux; 2013—UK; 2014—Paris (NSREC). Seventeen new IEEE members were recruited.

Women in Engineering has held events at NSS/MIC, Pulsed Power in 2007, and PAC in 2009 with another event planned for 2011. The focus remains on students and academia.

Ron Jaszczak, our liaison to the TMI Steering committee, reports that TMI remains ranked first among 94 journals in the field. It has an impact factor of ~4, which is very high, and it rejects over 60% of manuscripts received. At the journal review a concern expressed was the tenure of associate editors who are appointed by the Editor-in-Chief.

ADCOM ACTIONS

- AdCom will, subject to executed MOUs, technically cosponsor the 2012 Technology of Fusion Energy conference (TOFE) sponsored by the ANS Fusion Energy Division.
- NPSS will sponsor the Symposium on Radiation Measurement Applications (SORMA) when it is held in Berkeley, CA in May 2012. The chair and the treasurer are both NPSS members.
- Approve change to Bylaw 2.1 NMISC. (see full Bylaws under Technical Committee reports).
- It was moved, seconded and passed that AdCom accept the NPSS Constitution and Bylaws as presented by the Constitution and Bylaws Committee.
- The IEEE Community Solutions Initiative (CSI), on behalf of its Sirona Cares Foundation local entrepreneur partnership, moves that NPSS grant a seed funding donation of $75,000, the current amount needed to complete the Pilot 1 program of deploying three stations at three locations in Haiti.

AdCom will meet at the Marriott Marquis Hotel in New York on March 25th for a retreat and on March 26th for its first meeting of the year.

Albe Larsen, NPSS Secretary and Newsletter Editor, can be reached at SLAC National Accelerator Laboratory, MS17, 2575 Sand Hill Road, Menlo Park, CA 94025; Phone +1 650 926-2748; Fax: +1 650 926-3570; E-mail: amlarsen@slac.stanford.edu.

Glad to see you!

Change of address for Roland Jacob. My new address in the Rehalp Cemetery, plot no. 4276. I look forward to your visit.

Death notice in Tages-Anzeiger

THE GOOD SCIENTIST

Dedicated to those scientists who tirelessly labor, often in obscurity, to advance science and to serve humanity

He labored tirelessly in his laboratory
Night or day made no difference
One track mind is his story
Scientific truth is his reference
Looking intensely on his contraption
No one knows what he is thinking
His assistant waiting for a reaction
Even he does not have the slightest inkling
The scientist eyes light up with surprise
He gestures to his assistant with urgency
Eager to pursue the suspenseful enterprise
The assistant changes the device frequency
Something suddenly happens and they get excited
The assistant as giddy as a fair-bound kid
The scientist, after drawing the results on a grid
Smiles and says, "A new method has just been created"

—Mounir Laroussi

Mounir Laroussi

New AdCom Officers and Members

Bob Reinovsky
IEEE NPSS President

ROBERT E. REINOVSKY
President

Robert E. Reinovsky is Program Manager for Primary Assessment Technology at Los Alamos National Laboratory, where he is responsible for scientific and programmatic planning, organization and execution of research programs addressing the physics issues and simulation methodologies for one aspect of the nuclear weapons program. This work allows him to explore issues in high explosive science; material behavior and properties under extreme conditions; hydrodynamics including implosion hydrodynamics and instabilities; nuclear processes; and high energy density plasma and radiation processes.

Previously, he focused on applications of pulsed power to problems in hydrodynamics and material properties. At the same time Bob harbors a career-long, and not always well-disguised, fascination with the physics and engineering of pulsed power systems that offer such enormous potential for manipulating and investigating the physical world in states ranging from condensed matter to plasmas.

Bob received his Master's degree in Electrical Engineering in 1971 and his Ph.D. in 1973, both, from Rensselaer Polytechnic Institute in the Electrophysics Department where his dissertation work focused on ion-beam diagnostics for magnetically confined fusion plasmas.

From 1974–1986, Bob worked at the Air Force Weapons Laboratory (now the AF Research Laboratory) in the areas of plasma and pulsed-power physics. At the AFWL, his principal interests were high-density plasma z-pinch implosions, radiation processes, plasma diagnostics, and pulsed-power physics. Bob was programmatically responsible for developing and building four generations of the world-class SHIVA family of high-current, low-impedance pulsed-power systems, and for developing and demonstrating world-record, fuse-opening switches using these systems.

Techniques in ultra-high-current high-explosive pulsed power developed in Los Alamos, starting in the 1950s, caught his imagination because they offer access to even more exciting conditions of high energy density. Bob joined the Shock Wave Physics Group (M-6) at Los Alamos in 1986 to learn more about applying these techniques to problems in national defense, plasmas and condensed matter; and to explore the engineering of compact pulsed power systems. Bob led the Shock Wave Physics Group at Los Alamos from 1990 to 1993 and then joined the Los Alamos High Energy Density Physics Program as Project Leader for the Athena Pulsed Power Project and then as Chief Scientist and Deputy Program Manager. From 1998 to 2006 he was the Program Manager for the Pulsed Power Hydrodynamics Program which sponsors the development and construction of the Atlas system and of the Atlas program of liner driven hydrodynamics experiments.

The end of the Cold War and the dissolution of the Soviet Union in 1991 raised significant issues about the stability of the Russian nuclear weapons laboratories and about the future of the world-class scientific staff of those institutions. Bob, along with a few Los Alamos colleagues, established an active program of unclassified, basic, joint scientific work with these outstanding scientists. These efforts, starting in 1992, and continuing to the present, have grown into a vigorous DOE program of joint activities in the areas of pulsed power, material dynamics, and computational mathematics for the mutual benefit of both nations.

Who was he?

He has experience enough in public affairs to make him a statesman, and not enough to make him a politician.

James Russell Lowell

Bob is a Fellow of the IEEE, has been elected an Academician in the International Academy of Informatization, and has been awarded the IEEE NPSS Peter Haas Award for work in pulsed-power technology, the Sakharov Medal for work in international cooperation by the All Russian Scientific Research Institute of Experimental Physics, and the Pavlovski Prize for work in ultra high magnetic fields. He begins a term as President of the IEEE Nuclear and Plasma Sciences Society in January 2011.

Bob Reinovsky, NPSS President, can be reached at the Los Alamos National Laboratory, PAT Program Office, MS T087, Los Alamos, NM 87544; Phone: +1 505 667-8214; Fax: +1 505 665-2227; E-mail: bnobr@lanl.gov.

JANET L. BARTH
Vice President/President-elect

Janet L. Barth
IEEE NPSS Vice President/ President-elect

Janet L. Barth is the Chief of the Electrical Engineering Division (EED) at NASA's Goddard Space Flight Center (GSFC) where she is responsible for the delivery of spacecraft and instrument avionics to several of NASA's science missions, including the James Webb Space Telescope, the Magnetospheric Multiscale (MMS) mission, the Global Precipitation Measurement (GPM) mission, the Hubble Space Telescope repair missions, the Solar Dynamics Observatory, Ice, Cloud, and land Elevation Satellite (ICESat), and the Lunar Reconnaissance Orbiter. She also oversees development of microwave and communications systems and suborbital avionics systems for the Wallops Flight Facility.

She began her NASA GSFC career as a coop student in the area of radiation environments and effects research. She became a lead radiation hardness assurance engineer for NASA flight projects and supported the Electronic Parts and Packaging (NEPP) Program which focuses on the electronic parts reliability for space programs. She was a member of the team that developed NASA's systems engineering approach to radiation hardness assurance for emerging technologies. Starting in 1999, she was a member of the preformulation/proposal team for NASA's Living With a Star (LWS) Program and the LWS Program Science Architecture Team. In 2001 she was selected as the Project Manager for the LWS's Space Environment Testbed and in 2002 to 2008, she was a branch manager in the EED.

Barth is a Senior Member of the IEEE and is an elected member of the IEEE Nuclear and Plasma Sciences Society Administrative Committee. She is actively involved with the IEEE Nuclear and Radiation Effects Conference (NSREC), teaching the Short Course in 1997 and serving as the Guest Editor of the *IEEE Transactions on Nuclear Science* from 1998-2000, the Technical Program Chairwoman in 2001, and the General Conference Chairwoman in 2006. She is a regular participant in the European Radiation and its Effects on Components and Systems (RADECS) Conference and has served as a session cochair, the NSREC liaison to the RADECS Conference Technical Committee in 2001, and a Short Course instructor at the 2009 RADECS Conference.

Janet Barth, NPSS Vice President, can be reached at NASA Goddard Space Flight Center, Code 560, Electrical Engineering Division, 8800 Greenbelt Road, Greenbelt, MD 20771; Phone +1 301 286-5118; Fax: +1 301 220-3118; E-mail: janet.l.barth@nasa.gov.

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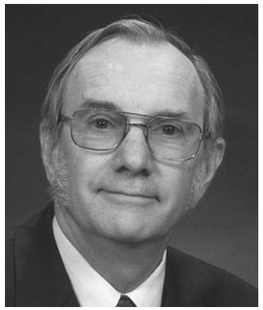

Ron Keyser
General Chair

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RONALD M. KEYSER

Treasurer

Ronald Keyser is currently a Senior Scientist at ORTEC, Advanced Measurement Technology Inc., working in the area of systems and analysis software for gamma and alpha spectra. He received the Ph.D. from the University of Florida in 1970. His work there was in experimental low-energy nuclear physics using a Van de Graaff accelerator. He also worked on software for data acquisition and reduction while at the University of Florida. After leaving the University, he worked at Computer Science Corporation developing software for use in scientific satellites. Since 1972, he has been at ORTEC working on a number of projects related to spectrum reduction and computer-related equipment. He was involved in CAMAC products and the early computer-based MCA development at ORTEC. He also developed the image analysis software for the ECAT PET medical scanner in cooperation with the Washington University PET Group. He has written over 90 papers on these subjects.
He is a member of the American Physical Society, American Nuclear Society, INMM, Sigma Xi, a Fellow of IEEE, past Chairman of IEEE-NPSS Standards Committee, past Chairman of IEEE-NPSS RISC, member of the NSS MIC organizing committees for 2003, and 2005 through 2013, General Chairman of the 2010 NSS MIC RTSD, member of ANSI N42 (working group on Radiation Instrumentation Standards), and serves as a US technical representative to Technical Committee 45 of the IEC.

Ron Keyser, IEEE NPSS Treasurer, can be reached at ORTEC, 801 South Illinois avenue, Oak Ridge, TN 37831; Phone: +1 865 483-2146; Fax: +1 865 481-2438; E-mail: Ron.Keyser@ametek.com

Brendan B. Godfrey
Plasma Science and Applications Chair

BRENDAN B. GODFREY

Plasma Science and Applications Chair

Brendan Godfrey is a half-time consultant to the DOD Directorate of Defense Research and Engineering, on loan from the University of Maryland, which he joined as a Senior Research Scientist in March 2010. He retired from the Air Force earlier in 2010, after almost 21 years as an executive manager of its research programs. His assignments included, most recently, Director of the Air Force Office of Scientific Research in Arlington, Virginia; preceded by Deputy Director of the 311th Human Systems Wing at Brooks City-Base, Texas; Director of Plans and Program at the Air Force Research Laboratory at Wright-Patterson AFB, Ohio; Director of the Armstrong Laboratory at Brooks AFB, Texas; Director of Advanced Weapons and Survivability at Phillips Laboratory; and Chief Scientist of the Air Force Weapons Laboratory, both at Kirtland AFB, New Mexico. Before that, he was Vice President and Regional Manager of Mission Research Corporation, Intense Particle Beam Group Leader at Los Alamos National Laboratory, and a plasma scientist at Kirtland Air Force Base. His personal research centered on computational plasma physics, intense microwave sources, and particle beam acceleration and propagation. He is a Fellow of the Institute of Electrical and Electronics Engineers and of the American Physical Society. He also is a three-time recipient of the Meritorious Executive Presidential Rank Award, as well as other federal recognitions. He holds a Ph.D. from Princeton University and a B.S. from the University of Minnesota.

Brendan has been a member of the IEEE since 1976, and has served on the PSAC ExCom almost continuously since 1994, including twice as its Vice-Chair and now as its Chair. He maintains the comprehensive NPSS Directory of Plasma Conferences and recently established the PSAC blog. Over the years he has helped to organize several plasma conferences and has served on a number of state, local, and university advisory committees.

Brendan Godfrey, Chair of the Plasma Science and Applications TC can be reached at 4628 35th Street North, Arlington, VA 22207; Phone 703-536-5117; E-mail brendan.godfrey@ieee.org.

SOCIETY GENERAL BUSINESS

ALBERTO DEL GUERRA

Nuclear Medical and Imaging Sciences Elected Member

Alberto Del Guerra received the degree in Physics in 1968 at University of Pisa; boursier in Physics *(1968-71)* at University of Pisa; researcher at INFN *(1971-72)* INFN Branch of Pisa and Lecturer in Physics *(1972-75)* at University of Pisa; Assistant Professor (with tenure) in Physics in 1975 and Associate Professor in Physics in *1982* at University of Pisa; Fulbright Scholar at Lawrence Berkeley Laboratory *(1981–1982)*; Full Professor in Physics in *1987* at University of Napoli "Federico II" and Full Professor in Medical Physics in *1991* at University of Ferrara.

Since 1998 Alberto has been Full Professor in Medical Physics, Head and Director of the Specialty School in Medical Physics and Research Group leader of the Functional Imaging and Instrumentation Group at the Department of Physics, University of Pisa.

His research activity is in the field of Medical Physics, and particularly in medical imaging for radiology and nuclear medicine and molecular imaging. He has been Principal Investigator for many research projects funded by Italian Research Agencies and by the Italian Ministry of University and Research. His group has participated in many research projects funded by the EU within the FP6 and FP7 programs. He is author or coauthor of over 200 journal articles and of another 200+ papers in national and international conference proceedings. He has been on review panels for several institutions in Italy, in Europe and overseas, and reviewer for many scientific journals.

He has chaired the Scientific Committee of EFOMP (European Federation of Organisations for Medical Physics) *(1998-2001)*, and been Vice-President *(2002)*, President *(2003-2005)*, Past President *(2006)* and Honorary Member *(since 2008)*. He has been the Physics representative with ECR and with EANM for many years. He has been Editor in Chief of the journal *Physica Medica-European Journal of Medical Physics (*1988-2008*)*, and Honorary Editor since 2009.

He joined IEEE in 1987 and is a Senior Member. He was Guest Editor for the 1996 IEEE NSS/MIC in Anaheim; NSS chair for the 1999 IEEE NSS/MIC in Seattle, General Chair of the 2004 IEEE NSS/MIC in Rome (Italy) and MIC Chair for the 2011 IEEE NSS/MIC in Valencia (Spain) He was a member of the RISC and NMISC committees. He is member of the CIP, TNC and Oversight Committees.

Alberto Del Guerra can be reached at the Specialty School in Medical Physics, Department of Physics "E.Fermi," University of Pisa, Largo Bruno Pontecorvo 3, I-56127, Pisa, Italy; Phone: +39 050 2214942; Fax: +39 050 2214333; E-mail: Alberto.delguerra@df.unipi.it.

Alberto Del Guerra
Nuclear Medical and Imaging Sciences Elected Member

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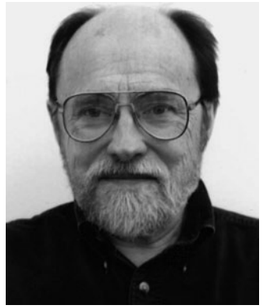

Edward J. Lampo
Radiation Instrumentation Elected Member

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EDWARD J. LAMPO

Radiation Instrumentation Elected Member

Edward J. Lampo (S'62-M'71-LSrM'10) received the B.S. (1963) and M.S. (1968) in Electronics Engineering and Computer Science from the University of California at Berkeley. He was Staff Scientist—Electronics Engineer (1963-2004) at the University of California, Lawrence Berkeley National Laboratory (LBNL). Ed worked primarily on radiation detector systems and the design of low-noise front ends. His career at LBNL included assignments as Physics Division systems group leader, head of Electronics Department instrumentation and technical support, project engineer for the first time-projection chamber of a SLAC/LBL collaboration, developer of biomedical electronics, and group leader for environmental instrumentation.

IEEE involvements are centered on the Nuclear and Plasma Sciences Society (NPSS). It all began with the Nuclear Science Symposium (NSS). In 1987, after many years of attending the NSS, Ed took on responsibility for Local Arrangements and has continued in various capacities ever since; General Chairman, Session Leader, Travel Coordinator, Arrangements Chair, Organizing Committee, and Site Selection. Since 1992 he has been NPSS Treasurer and an AdCom member. He served on the Technical Activities Board (TAB) Finance and Society Review Committees. He is a charter member and officer of an IEEE-NPSS chapter in the San Francisco Bay Area.

NPSS serves a vital role as steward of professional standards for a niche that otherwise might not be represented. It takes the breadth and flexibility of an "NSS" to cover the diverse research of the national and international labs. Moreover, the NSS/MIC conference issues of *IEEE Transactions on Nuclear Science* (T-NS) provide peer reviewed archival publication of especially noteworthy presentations. It is by just such publication that T-NS is recognized as having one of the highest number of citations and longest shelf retention time of all publications in its field of interest. It is important that these high standards are maintained. To do so requires planning and coordination for the financial as well as the technical success of our meetings and publications. I am honored to represent the Radiation Instrumentation community as an AdCom member and will serve in the best interest of all NPSS members.

Ed Lampo can be reached by phone at +1 925 930-7328 or by E-mail at e.lampo@ieee.org.

Robert A. Reed
Radiation Effects Elected Member

ROBERT A. REED

Radiation Effects Elected Member

Robert A. Reed (S'93, M'94, SM'10) is an Associate Professor of Electrical Engineering at Vanderbilt University. He received his M.S. and Ph.D. degrees in Physics from Clemson University in 1993 and 1994. After completion of his Ph.D., he worked as a postdoctoral fellow at the Naval Research Laboratory and later worked for Hughes Space and Communication. From 1997 to 2004, Robert was a research physicist at NASA Goddard Space Flight Center, where he supported NASA space flight and research programs. His radiation effects research activities include topics such as single event effects and displacement damage basic mechanisms and on-orbit performance analysis and prediction techniques. He has authored over 130 journal papers (more than 1170 citations, and several outstanding paper awards for the IEEE Nuclear and Space Radiation Effects Conference, NSREC), two book chapters, and three short courses on various topics in the radiation effects area. He was awarded the 2004 Early Achievement Award from IEEE/NPSS, 2000 Outstanding Young Alumni Award from Clemson University, and NASA Best of the Best Team Achievement Award in 2003 and Outstanding Conference Paper Awards at the 2007 and 2010 Nuclear and Space Radiation Effects Conference (NSREC). Robert has been active in the NSREC community since 1992, serving as 2011 Technical Program Chairman, 2009-2010 Associate Editor of the *IEEE Transactions on Nuclear Science*, 2006 Short Course Chairman, 2004 Finance Chairman, 2002 Poster Session Chairman, Short Course Instructor for 2008 and 2000, as well as NSREC (1999) and RADECS (2007) Single Event Effects Session Chairperson.

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Robert Zwaska
Particle Accelerator Science and Technology Elected Member

ROBERT ZWASKA

Particle Accelerator Science and Technology Elected Member

Robert Zwaska is a Peoples Fellow at the Fermilab Accelerator Physics Center. He was granted a B.S. from the University of Notre Dame in Physics, and a Ph.D. from the University of Texas at Austin in High Energy Physics. His general area of research is in the production of high-intensity proton and neutrino beams.

At Texas, his work was split between the development of high flux ionization chamber detectors and longitudinal manipulation of proton beams in the Fermilab Booster accelerator. The ionization chambers he developed were installed into the NuMI neutrino beam at Fermilab to measure the remaining hadron beam after conversion to neutrinos, and additionally the muons that are produced concomitantly with the neutrinos. The longitudinal manipulation of the Booster beam was a fast measurement and feedback system to synchronize the beam in the Booster with that in the Main Injector.

His present topics of research are the Electron Cloud instability, high-power targetry, neutrino beam design, and beam stacking. The Electron Cloud instability is a persistent collection of electrons within the vacuum of an accelerator that have the potential to limit the performance of high-intensity machines. High-power targetry and beam design are evolving areas of producing the ideal materials for conversion of proton beams into useful secondaries (neutrinos, muons, neutrons, etc.); these combine the aspects of particle production with the engineering of materials that can survive the thermomechanical shock and radiation damage from the beam.

At Fermilab he convened an Electron Cloud Working Group and an LBNE (Long Baseline Neutrino Experiment) Beam Simulation Working Group. He serves as subproject manager on the NOvA Project for Beam Physics, and on the LBNE project for Targetry. He is a member of the MINOS, NOvA, and LBNE neutrino experiments; he participates in the Project X accelerator design. He has also served as the secretary for the Prairie Section of the American Physical Society.

Bob Zwaska can be reached at Fermi National Accelerator Laboratory, PO Box 500, MS 220, Batavia, IL 60510; Phone: + 1 630 840-6842; E-mail: zwaska@fnal.gov.

Robert Miyaoka
NMIS Technical Committee Chair

Nuclear Medical and Imaging Sciences

Greetings! As 2011 begins and I complete my first year as Chair of NMISTC, I would to thank the Chairs of the Nuclear Medical and Imaging Sciences Council's subcommittees for all the work they have volunteered over the last year to serve our technical community. George Kontaxakis (Secretary and Chair of the Nominations Subcommittee), Anna Celler (Chair of the Awards/Fellows Subcommittee) and Raymond Muzic, Jr. (Chair of the Communications [Web] Subcommittee) have done an outstanding job taking minutes of meetings, getting nominations for the NMISC council, making arrangements for our annual NMISC meeting, getting nominations for our Hoffman Medical Imaging Scientist and Hasegawa Young Investigator Medical Imaging Science Awards, getting nominations for IEEE Fellows, updating our web site, etc. Again, thank you for all your efforts this past year.

In a recap of the 2010 IEEE NSS/MIC held in Knoxville, Tennessee, we had an outstanding meeting led by General Chair Ron Keyser, MIC Program Chair David Townsend, and MIC Deputy Chair Charles Watson. Between the NSS and MIC, we had 1985 attendees. In addition, we had attendees from 42 different countries making the IEEE NSS/MIC truly an international meeting.

While the MIC scientific program was excellent, I have to say the poster sessions were the highlight of the meeting for me. It was great to have room to walk through the aisles during the poster sessions and to be able to have small group discussions without feeling cramped. It was the best poster session experience that I can remember. In regards to the scientific program there were 98 (88 MIC and 10 Joint NSS/MIC) oral presentations and 440 poster presentations. Further, there were six short courses offered, a MR/PET workshop and three morning refresher courses. Finally, there was a plenary session with two very interesting talks, one by Dr. Greg Sorensen (MGH) on MR/PET research and the other by Dr. Anthony Campbell (Cardiff University) on "Life That Sparkles." In addition to his plenary session talk, Dr. Campbell was the MIC banquet speaker and spoke on "The Inspiration of Darwin."

The annual MIC meeting is also a time when we get to honor the excellence of our peers. This year's Hoffman Medical Imaging Scientist Award winner was Dr. Richard Leahy "for significant and sustained contributions to inverse problems in medical imaging and for dedication to graduate training." This year's Hasegawa Young Investigator Medical Imaging Science Award winner was Xin He "for contributions to evaluation of image quality for 3-class tasks." Congratulations Richard and Xin. For more details about each of the NMISTC award winners please see the Awards section in this newsletter. Also if you know someone who would make a good recipient of either of these awards please take the effort to nominate them (deadline for nominations is 15 July). Information about the NMISTC awards and additional NPSS level awards can be found on the NMISC web site (http://ewh.ieee.org/soc/nps/nmisc/MICAwards.html).

It was also fitting with the conference being held in Knoxville, Tennessee for us to recognize Dr. Ronald Nutt and Dr. David Townsend as recipients of the first IEEE Medal for Innovations in Healthcare Technology. Drs. Nutt and Townsend won "for the design, commercial development, and clinical implementation of hybrid PET/CT Scanners." Congratulations Ron and David. I would also like to recognize this year's NMISTC student paper award finalists and winners. The finalists were Yongzhi Yin, S.H. Maramraju, Junguo Bian, Xiaoli Li, A. Fieselmann, Xiaolan Wang, K. Little and S. Pedemonte. The winners of the student paper awards were Rony Wiener for "Signal Analysis for Improved Timing Resolution with Scintillation Detectors for TOF PET Imaging" and Chih-Chieh Liu for "The Observation and Correction of Positron Range for PET-Insert Scanner." Runners-up for the awards were Wenting Deng for "Fast Magnetic Resonance Spectroscopic Imaging Using Echo-Time Optimization" and Jean-Baptiste Michaud for "Results from Neural Networks for Recovery of PET Triple Coincidences."

In other news, election results for the Nuclear Medical and Imaging Sciences Council are complete and I would like to congratulate Adam Alessio, Freek Beekman, Jennifer Huber, Jinhun Joung, and Andrew Reader for their election to the council and thank them for their willingness to serve our membership. Their three-year terms started January 1st, 2011. I would also like to congratulate Alberto Del Guerra who was elected as one of our AdCom representatives. This is for a four-year term. If you have a desire to serve on the NMISC or know of someone that you think would make a good council member contact George Kontaxakis, Secretary and Chair of the Nominations Subcommittee, at g.kontaxakis@ieee.org. Please note that self-nominations are accepted and encouraged.

As mentioned in previous newsletters there have been ongoing efforts to get IEEE Publication Services and Products Board (PSPB) to implement automatic submission of IEEE TNS and TMI Journal manuscripts to PubMed Central. The motivation to have IEEE PSPB automatically submit articles from journals such as *Transactions on Nuclear Science* (TNS) and *Transactions on Medical Imaging* (TMI) is that the NIH now requires all papers resulting from NIH-funded research be submitted to PubMed Central within one year of publication. Unfortunately, PSPB decided that they will not submit the articles from IEEE journals for the authors. Instead each author will be responsible for submitting his/her article to NIH. However, IEEE staff has been asked to implement a process for sending an e-mail with the appropriate version of the article to the author for his/her submission.

In the last bit of news, there was a proposed change to NMISTC Bylaw 2.1 to make the NMISTC bylaw consistent with the IEEE TAB Operations Manual that states "The number of candidates on a slate for Society Officer, AdCom and BoD elections shall be no less than one and a half times the number of vacant positions. In the event that this cannot be reasonably accommodated, the Vice President, Technical Activities may at his/her discretion allow a smaller slate." Previous wording of NMISTC Bylaw 2.1 was "The Chairperson of the NMISC is responsible for ensuring that at least one nomination is made for each vacant post. Nominations may be made by any member of the NMISC or any member in good standing of the Committee. Self nominations are allowed." It has been changed to "The Chairperson of the NMISC is responsible for ensuring that the number of nominations is no less than one and a half times the number of vacant posts (e.g., a minimum of eight nominations is required for five open committee positions). Nominations may be made by any member of the NMISC or any member in good standing of the Committee. Self nominations are allowed." This amendment was voted on and approved by NMISC and AdCom. The amended NMISTC Constitution and Bylaws is published in this newsletter.

I know many individuals are looking forward to the 2011 IEEE NSS/MIC meeting that will be held in Valencia, Spain. David Townsend is the General

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Are you scared too?

My definition of an expert in any field is a person who knows enough about what's really going on to be scared.

P.J. Plauger

Need both

The error of youth is to believe that intelligence is a substitute for experience, while the error of age is to believe that experience is a substitute for intelligence.

Lyman Bryson

The peril of discovery

The reason for the sadness of this modern age and the men who live in it is that it looks for the truth in everything and finds it.

Edmond & Jules de Goncourt

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Chair, Alberto Del Guerra will serve as MIC Chair and Juan José Vaquero will serve as MIC Deputy Chair. Valencia is Spain's third largest city, situated on the eastern Mediterranean coast, with many cultural and recreational attractions. The meeting will be held in the Valencia Conference Center and the neighboring Sorollo and Hilton Hotels.

In 2012, the IEEE NSS/MIC meeting will be held in Anaheim, California. Tom Lewellen is the General Chair, Vesna Sossi will serve as MIC Chair and Alex Converse will serve as MIC Deputy Chair. The meeting will be held at the Disneyland Hotel. Along with having excellent facilities to host the meeting, the Disneyland Hotel will be undergoing a major renovation that will be complete for the 2012 meeting. The full committee has been formed and an on-site planning meeting is scheduled for March 2011.

In 2013, the IEEE NSS/MIC meeting will be held in Asia for the first time. Host city for the meeting will be Seoul, Korea. Hee-Joung Kim is the General Chair for the meeting and Jae Sung Lee is the MIC Chair. The meeting will be held at the Coex Convention Center within the Coex Mall. This site will provide us with plenty of space to host the meeting as well as offering many tourism opportunities. The 2013 committee met at this past year's IEEE NSS/MIC meeting and is making nice progress on the event planning. In 2014, the IEEE NSS/MIC meeting will be held in Seattle, Washington. Tony Lavietes is the General Chair for the meeting. The meeting will be held in the Washington State Convention Center located in downtown Seattle. There will be a nice price range of hotels (e.g., $92 to $185 per night) within walking distance of the convention center for attendees to select from.

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Fearful times

The desire of acquiring the comforts of the world haunts the imagination of the poor, and the dread of losing them that of the rich.

Alexis de Tocqueville

Never the twain shall meet

The first half of life consists of the capacity to enjoy without the chance, the last half consists of the chance without the capacity.

Mark Twain

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NUCLEAR & PLASMA SCIENCES SOCIETY

IEEE Advancing Technology for Humanity

Constitution and Bylaws of the Nuclear Medical and Imaging Sciences Technical Committee of the IEEE Nuclear & Plasma Sciences Society

Article I—Name and Object

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

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

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

Article II—Field of Interest

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

Section 2.

1) Radiation sources (including synchrotron radiation)

2) Detectors used for imaging and radiotherapy

3) Radiation standards and radiation monitoring for biomedical instrumentation and personnel

4) Theory, physics and instrumentation of medical imaging modalities including, but not restricted to:

a. Planar Nuclear Medicine (NM)

b. Single Photon Emission Computed Tomography (SPECT)

c. Positron Emission Tomography (PET)

d. Magnetic Resonance Imaging (MRI)

e. Magnetic Resonance Spectroscopy (MRS)

f. Magnetic Resonance Angiography (MRA)

g. Functional MRI (fMRI)

h. X-ray Computed Tomography (CT)

i. Digital Radiography (DR)

j. Related imaging systems and devices

5) Modeling and simulation of imaging detectors, devices, systems, and processes

6) Image analysis techniques

7) Image reconstruction algorithms

8) Quantitative imaging methods

Article III—Membership

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

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

Article IV—Administration

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

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

Section 3.

(a) The affairs of the Committee shall be managed by a Chairperson, as directed by the NMISC and in accordance with the powers and duties as defined thereunder and in the Bylaws. In the event of the Chairperson's absence or incapacity, his/her duties shall be performed by a Vice-Chairperson.

(b) The Chairperson shall appoint a Secretary for the NMISC. The Secretary need not be chosen from among the elected members at large.

Section 4.

(a) On alternate years a Vice-Chairperson (who shall be the Chairperson elect) is elected by the voting members of the NMISC from the eligible members-at-large of the NMISC. The term of office for the Vice-Chairperson shall be two years as Vice-Chairperson, followed by two years as Chairperson, and two years as the Most Recent Past Chairperson.

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

(c) In the event that neither the Chairperson or the Vice-Chairperson is able to take office as prescribed in the Bylaws, or if both are incapacitated or if both offices become vacant, the NMISC shall promptly elect an Acting Chairperson from among the members-at-large to assume the duties of Chairperson until either a Chairperson or Vice-Chairperson takes office or resumes their duties.

(d) The Vice-Chairperson will, except under circumstances deemed unusual by a majority of the voting members of NMISC, become the sole nominee for the succeeding Chairperson election.

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

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

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Article V—Nominations and Election of NMISC Members-at-Large

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

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

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

Article VI—Meetings

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

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

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

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

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

Article VII—Amendments

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

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

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

Article VIII—Revision

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

BYLAWS

1. NMISC: Article IV of the Constitution provides that the NMISC shall consist of a number of elected members-at-large plus certain ex-officio members. The ex-officio members of the NMISC shall be (unless they are already elected members-at-large), the Chairpersons of the Functional Sub- Committees, the Chairperson of the Radiation Instrumentation Technical Committee, the Secretary, the Editors and Associate Editors of the IEEE TNS and other publications as deemed appropriate by the NMISC and such other ex-officio members as are provided for in the Constitution and Bylaws of the NPSS.

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

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

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

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

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

2.1. The Chairperson of the NMISC is responsible for ensuring that the number of nominations is no less than one and a half times the number of vacant posts (e.g., a minimum of eight nominations are required for five open committee positions) . Nominations may be made by any member of the NMISC or any member in good standing of the Committee. Self nominations are allowed.

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

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

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

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

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

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

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

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

—A Fellows and Awards Subcommittee.

—Other Subcommittees as shall be required for the operation of the Committee.

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

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

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

3.4. Each of the Functional Subcommittees shall submit a written report of its activities to the NMISC prior to or at the Annual Meeting.

3.5. The Nuclear Science Symposium and Medical Imaging Conference Oversight Subcommittee shall be a Joint Subcommittee of the RISC and NMISC. Its Chairperson shall be appointed by a Joint Executive Subcommittee of the RISC and NMISC consisting of the current Chairpersons, the Most Recent Past Chairpersons, and Vice Chairpersons of the RISC and NMISC. The Chairperson of the Oversight Subcommittee must be a member of either the RITC or the NMISTC. The Chairperson of the Oversight Subcommittee shall appoint the committee's membership, subject to the approval of the Joint Executive Subcommittee. The charge of the Oversight Subcommittee shall be to provide for the continuation and long term planning of the NSS/MIC conference, including the selection of the sites and General Chairpersons of future conferences. The General Chair of a given year's conference shall, in consultation with the Oversight Subcommittee, the RISC and the NMISC, also select the NSS Program Chair and MIC Program Chair for that year's conference. The term of office of the Chairperson of the Oversight Subcommittee shall be one year, but the Chairperson may be re-appointed to the same position.

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

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

6. Election of the Vice-Chairperson of NMISC: The Vice-Chairperson of NMISC shall be nominated and elected from among the eligible members-at-large of the NMISC. A minimum of one month before the annual meeting of the NMISC, the NMISC Secretary will notify all current NMISC members of the upcoming election and solicit nominations (self-nominations are allowed). The nominations will be closed two weeks before the annual meeting of the NMISC, and the Chairperson of the NMISC is responsible for ensuring that at least one nomination for Vice-Chairperson is received by this time. The Secretary of NMISC shall announce to all voting NMISC members-at-large the identities of the candidates at least one week before the annual meeting, and also inform them of the procedure for casting a ballot if they are unable to attend the NMISC annual meeting. The vote will occur during the annual meeting of the NMISC. If there is only one candidate, then that candidate will be elected at the Annual Meeting by those NMISC members in attendance. If there is more than one candidate, a secret ballot will be taken during the annual meeting and the Chairperson shall designate tellers to immediately count the ballots. Voting NMISC members-at-large who are not attending the annual meeting of the NMISC may submit a ballot by notifying the NMISC Secretary of their choice. The results of the vote shall be announced and the nominee receiving a majority of votes cast shall be declared elected. In the event that no candidate receives a majority of votes cast, runoff elections shall be conducted by secret ballot at the Annual meeting of NMISC among the candidates receiving the two highest number of votes until one candidate receives a majority of the votes cast. For these runoff elections, only those NMISC members in attendance may cast a vote.

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

8. Alternates:

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

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

Revised October 2010.

Brendan Godfrey
Plasma Science and Applications Chair

Plasma Science and Applications

PSAC EXECUTIVE COMMITTEE NOMINATIONS OPEN

Nominations are requested to fill six positions on the Executive Committee (ExCom) of the Plasma Science and Applications Committee (PSAC), one of the eight Technical Committees of the NPSS. PSAC organizes the annual International Conference on Plasma Science (ICOPS), and is managed by an Executive Committee (ExCom) consisting principally of eighteen directly elected members who serve staggered three-year terms. The ExCom also elects the PSAC Chair. The ExCom meets twice a year, generally collocated with ICOPS and with the fall meeting of the APS Division of Plasma Physics. The next election will be held in the summer of 2011 to fill terms beginning in January 2012. Candidates must be IEEE-NPSS members in good standing with a professional interest in plasma science and applications, and self-nominations are encouraged. Consistent with the growing international role of PSAC, we seek nominations of plasma scientists and engineers from a diversity of nations. Please send nominations to Dr. Steven Gold, PSAC Secretary, at steven.gold@nrl.navy.mil with a copy to Brendan Godfrey, ExCom Chair, at brendan.godfrey@ieee.org. GOLD members and members living outside North America are especially encouraged to apply. Current ExCom membership and other information are provided at http://ewh.ieee.org/soc/nps/tc-psac.html.

Nominations may be submitted until July 1 of this year.

For further information contact PSAC Chair Brendan Godfrey or Steve Gold at the e-mail addresses above.

Jane M. Lehr
Chair, Pulsed Power Science and Technology Technical Committee

Pulsed Power Science and Technology

As with NPSS, the New Year brings changes in the terms of service for the Pulsed Power Science and Technology committee. It is an honor to take over the Chairmanship of this committee from Professor Edl Schamiloglu who has completed his term. The community has benefited widely from his leadership where he opened communication channels with a number of related organizations with common interests and welcomed a new crop of volunteers into PPST. Edl, however, will continue to serve on the committee and has taken on the roles of Secretary as well as Chair of the PPST Fellows Committee. We also thank David Price for his service on the Committee. Bryan Oliver, the Technical Program Chair for PPC 2011, has also served his term but remains on the committee in an *ex officio* capacity. Bryan will serve as the Chair of PPPS 2013—a combined meeting of the International Conference on Plasma Science, overseen by the Plasma Science and Applications Committee, and the Pulsed Power Conference

The New Year also saw the election of new members to the committee. By way of introduction, I am presenting brief biographies. Any member of the Pulsed Power Science and Technology Technical Committee can be contacted from information found on our website: http://ewh.ieee.org/soc/nps/tc-ppst.html

Susan Heidger has been an IEEE member since 2004. She has worked for the Air Force Research Laboratory (AFRL) since 1998, first in electrical technology for propulsion and now in high power microwaves. She received her Ph.D. in Physics from Case Western Reserve University, Cleveland, OH in 1993 where she studied diamond and diamond-like materials synthesis, characterization and mechanical properties with the Physics and Chemical Engineering Departments. Dr. Heidger has 20 years of professional experience in physics, surface science, vacuum technology, material processing and synthesis and diamond technology, and 10 years' experience in dielectrics, nanotechnology, capacitor development and high power switches. Her current research efforts are focused on compact pulsed power and high-energy-density capacitors. She looks forward to working with the other members of the IEEE NPSS Pulsed Power Science and Technology Committee to benefit the advancement of pulsed power science, technology and applications. Dr. Heidger has been a technical committee member for the IMAPS High Temperature Electronics since 2004 and the SAE Power Systems Conference since 2006. She is also a member of the American Physical Society and the Directed Energy Professional Society.

Weihua Jiang received his B.S. degree in engineering physics from National University of Defense Technology, Changsha, China in 1982 and M.S. degree in plasma physics from the Institute of Atomic Energy, Beijing, China in 1985, respectively. He received his Ph.D. degree in electrical engineering from Nagaoka University of Technology in Nagaoka, Japan in 1991. Dr. Jiang started working as a Research Associate in April 1991 in Department of Electrical Engineering, Nagaoka University of Technology, where he was promoted to Lecturer in 1996, Associate Professor in 1998, and Professor in 2007, respectively. He had also worked in the Department of Electrical and Computer Engineering, Texas Tech University in 1998-1999 and in the Department of Electrical Engineering, Tsinghua University in 2007-2009.

Dr. Jiang's research interest is in the areas of pulsed power technology, high power microwave, intense particle beam, and plasma application. He has authored or coauthored more than 150 journal papers on these subjects. Dr. Jiang has coauthored two textbooks on plasma and pulsed power in Japanese and has translated two technical books on pulsed power and high-power microwave from English to Chinese. Dr. Jiang has served as a member of International Advisory Committee of the International Conference on High-Power Particle Beams (BEAMS) and has been a member of International Organizers Committee of the Euro-Asian Pulsed Power Conference (EAPPC) since 2006. He also served as co-Guest-Editor for three IEEE Special Issues on pulsed power and high-power particle beams.

Ravindra P. Joshi (M'83-SM'95-F'08) received the B. Tech. and M. Tech. Degrees in Electrical Engineering from the Indian Institute of Technology in 1983, and 1985, respectively. He earned the Ph.D. degree in electrical engineering from Arizona State University, Tempe, in 1988. He was a Post-Doctoral fellow at the Center of Solid State Electronics Research, Arizona State University. In 1989, he joined the Department of Electrical and Computer Engineering, Old Dominion University as an Assistant Professor. He is currently a University Professor and Eminent Scholar. He is involved in research broadly encompassing modeling and simulations of charge transport, nonequilibrium phenomena, breakdown and high-field effects, and bioelectrics. He also has used Monte Carlo methods for simulations of high-field transport in bulk and quantum well semiconductors. He is the author of over

(continued on page 32)

Susan Heidger

Weihua Jiang

Ravindra P. Joshi

Luis M. Redondo

Mark Sinclair

(continued from page 31)

130 journal publications, and he has been a visiting scientist at Oak Ridge National Laboratory, Philips Laboratory, Motorola and NASA Goddard. He has served as a Guest Editor for three Special Issues of the *IEEE Transactions on Plasma Science*. He is a Fellow of the IEEE.

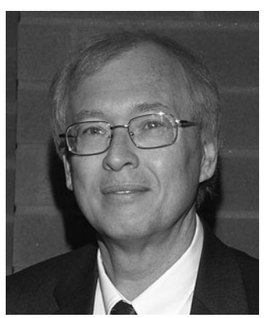
Luis M. Redondo (M'06) was born in Lisbon, Portugal in 1968. He received the Bachelor's degree in Power Systems and the Diploma degree in Electrical Engineering from the Lisbon Superior Engineering Institute (ISEL), Portugal, in 1990 and 1992, respectively; the Master's degree in Nuclear Physics from the Lisbon Science Faculty from Lisbon University (FCUL), Portugal in 1996, and the Ph.D. in Electrical and Computer Engineering (Pulsed Power Electronics) in 2004, from the Technical Superior Institute from Technical Lisbon University (IST-UTL), Portugal.

He is currently Coordinator Professor at ISEL, teaching Power Electronics and Digital Systems, and Head of the Automation and Electric Engineering Department of ISEL. His current research interests include the development of new solid-state pulsed power systems for industrial applications, nuclear instrumentation and ion implantation.

Prof. Redondo is a member of the Portuguese Engineering Society (OE) and Nuclear Physics Research Center of Lisbon University (CFNUL) where he is the Scientific Coordinator of the Instrumentation and Hyperfine Interactions Group.

Mark Sinclair received B.Sc. from the Victoria University of Manchester, UK, in 1990 and then went on to St Andrew's and Strathclyde Universities in Scotland to receive an M.Sc. in Laser Engineering and Pulsed Power Technology. In 1992 he joined the Pulsed Power Group at AWE. Initially he worked on the E Minor machine moving on to Mogul E which was optimized for radiography of dense objects. He then progressed on to machine design designing components and upgrades for PIM, Eros, Mogul D and EMU. Currently he is the technical lead and Team Leader for Pulsed Power at AWE overseeing a number of programs to develop fundamental knowledge and skills, to develop new X-ray sources and to use Pulsed Power for Hydrodynamic simulation.

Jane Lehr can be reached at Sandia National Laboratories, Exploratory Pulsed Power Department, PO Box 5800, Albuquerque New Mexico, 87185-1152, US; Phone: +1 505 844 8554; email: jmlehr@sandia.gov.



Daniel M. Fleetwood
Chair of the Radiation Effects Technical Committee

Nuclear and Space Radiation Effects News

The 2011 IEEE Nuclear and Space Radiation Effects Conference will be held July 25-29, 2011, in Las Vegas, Nevada, at the JW Marriott Resort and Spa. The conference will feature a Technical Program consisting of nine sessions of contributed papers (both oral and poster) that describe the latest observations and research results in radiation effects, an up-to-date Short Course offered on July 25, a Radiation Effects Data Workshop, and an Industrial Exhibit.

Technical Program Chaired by Robert Reed, Vanderbilt University, papers to be presented at this meeting will describe the effects of space, terrestrial, or nuclear radiation on electronic or photonic devices, circuits, sensors, materials and systems, as well as semiconductor processing technology and techniques for producing radiation-tolerant devices and integrated circuits. The conference will be attended by engineers, scientists, and managers who are concerned with radiation effects. International participation in the conference is strongly encouraged.

Poster and Data Workshop chairs will be Philippe Roche, ST Microelectronics, and Craig Hafer, Aeroflex Colorado Springs. The Technical Session chairs are:

Basic Mechanisms of Radiation Effects
Ron Pease, RLP Research, Inc.

Dosimetry
Reno Harboe-Sorensen, ESA

Hardness by Design
Ben Blalock, Univ. Tennessee

Hardness Assurance
Alan Tipton, APL

Photonic Devices and Integrated Circuits
Joe Srour, Aerospace Corp.

Radiation Effects in Devices and Integrated Circuits
Ron Lacoe, Aerospace Corp.

Single-Event Effects: Devices and Integrated Circuits
Heather Quinn, LANL

Single-Event Effects: Mechanisms and Modeling
Dave Heidel, IBM

Single-Event Effects: Transient
Jonathan Pellish, NASA/GSFC

Space and Terrestrial Environments
Jim Adams,NASA/MSFC

Teresa Farris
Radiation Effects Vice Chairperson of Publicity

OUTSTANDING PAPERS AT THE 2010 NSREC

2010 NSREC OUTSTANDING CONFERENCE PAPER AWARD:
"Mechanisms and Temperature Dependence of Single Event Latchup Observed in a CMOS Readout Integrated Circuit from 16-300 K", *by C.J. Marshall, P.W. Marshall, R.L. Ladbury, A. Waczynski, R. Arora,R.D. Fotlz, J.D. Cressler, D.M Kahle, D. Chen, G.S. Delo, N.A. Dodds, J.A. Pellish, E. Kan, N. Boehm, R.A. Reed, and K.A. LaBel*

2010 OUTSTANDING STUDENT PAPER AWARD:
"Impact of Delta-Rays on Single Event-Upsets in Highly Scaled SOI SRAMS," *by M.P. King, R.A. Reed, R.A. Weller, M.H. Mendenhall, R.D. Schrimpf, M.L. Alles, E. Auden, S. Armstrong, and M. Asai*

2010 OUTSTANDING DATA WORKSHOP PRESENTATION AWARD:
"Current Single Event Effects Compendium of Candidate Spacecraft Electronics for NASA", *by M.V. O'Bryan, K.A. LaBel, J.A. Pellish, D. Chen, J.M. Lauenstein, C.J. Marshall, R.L. Ladbury, T.R. Oldham, H.S. Kim, A.M. Phan, M.D. Berg, M.A. Carts, A.B. Sanders, S.P. Buchner, P.W. Marshall, M.A. Xapsos, F. Irom, L.G. Pearce, E.T. Thomson, T.M. Bernard, H.W. Satterfield, A.P. Williams, N.W. van Vonno, J.F. Salzman, S. Burns, and R.S. Albarian*

Dan Fleetwood, Chair of the Radiation Effects Technical Committee can be reached at Vanderbilt University, Department of Electrical Engineering and Computer Science, P.O. Box 92, Staion B, Nashville, TN 37235; Phone: +1 615 322-2771; Fax: +1 615 343-6702; E-mail: Dan.Fleetwood@vanderbilt.edu.

Teresa Farris can be reached at Teresa.Farris@aeroflex.com.

Because position indefensible?

A liberal is a man too broad-minded to take his own side in a quarrel.

Robert Frost

Awards

NUCLEAR MEDICAL AND IMAGING SCIENCES AWARDS

Richard Leahy
Edward Hoffman Medical Imaging Scientist Award recipient

RICHARD LEAHY RECEIVES THE EDWARD J. HOFFMAN MEDICAL IMAGING SCIENTIST AWARD

Richard Leahy received his Ph.D. from the University of Newcastle upon Tyne, England in 1985. He is a Professor of Electrical Engineering, Biomedical Engineering and Radiology at the University of Southern California, Los Angeles. Dr. Leahy is a former director of the USC Signal and Image Processing Institute, a Fellow of the IEEE, and was a General Chair of the 2004 IEEE ISBI and 2001 IPMI meetings. His research interests lie in the methodological aspects of image formation and analysis with applications in molecular imaging and brain mapping.

Citation: For significant and sustained contributions to inverse problems in medical imaging and for dedication to graduate training.

Xin He
Hasegawa Young Investigator Award recipient

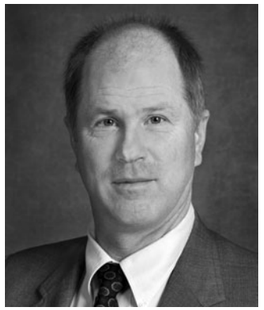
XIN HE RECEIVES BRUCE HASEGAWA YOUNG INVESTIGATOR AWARD

Dr. Xin He received her Ph.D. in Biomedical Engineering from the University of North Carolina at Chapel Hill in 2005. When she was a third year graduate student, she encountered the problem of three-class ROC analysis. Three-class ROC analysis was considered an unsolved problem for more than fifty years. She took on the challenge and among several projects she had worked on, she chose three-class ROC analysis to be her Ph.D. dissertation topic. After receiving her Ph.D., she worked as a postdoctoral researcher at Johns Hopkins University. During this time, she broadened her research areas in Gamma-ray imaging, developed and applied several innovative imaging techniques, such as Markov Chain Monte Carlo methods for imaging system optimization and fast convergent MAP algorithms for dual-isotope/modality reconstruction.

In 2007, she received an NIH K99/R00 grant to continue her research on three-class ROC analysis. During the funding period of the K99, she found a theoretically general solution to three-class ROC analysis, and initiated its applications in areas including cardiac imaging, breast cancer computer-aided diagnosis, as well as breast and ovarian cancer genetic counseling. In addition, she realized that the difficulties in solving the three-class problem were caused by the lack of understanding in binary ROC analysis, which shifted her research focus to binary ROC analysis. Recently, she has been working on synergizing the current ROC research with relative disciplines in social and behavioral science, mathematical philosophy and the philosophy of physics. With this new understanding, the solution to a fully general and practical three-class ROC analysis is straightforward. This understanding also opens a new avenue for binary ROC research, i.e., guiding image quality assessment as a normative practice. Dr. Xin He is the first author of 14 journal publications, among which 9 were published in IEEE Transactions on Medical Imaging. Currently she is living in Maryland, looking for new career opportunities.

Citation: for contributions to evaluation of image quality for 3-class tasks.

Nominations for IEEE Medals and Recognitions



Bill Moses
NPSS Awards Committee Chair

The IEEE Awards Program provides peer recognition to technical professionals whose exceptional achievements and outstanding contributions have made a lasting impact on technology, society, and the engineering profession.

The IEEE Nuclear and Plasma Sciences Society members may be particularly interested in the following IEEE Medals and Recognitions, whose nomination deadlines are 1 July 2011. The awards typically consist of a medal, certificate and honorarium and are presented at the distinguished IEEE Honors Ceremony.

- **IEEE Medal of Honor**, for an exceptional contribution or an extraordinary career in the IEEE fields of interest.
- **IEEE Founders Medal**, for outstanding contributions in the leadership, planning, and administration of affairs of great value to the electrical and electronics engineering profession.
- **IEEE James H. Mulligan, Jr. Education Medal**, for a career of outstanding contributions to education in the fields of interest of IEEE.
- **IEEE Dennis J. Picard Medal for Radar Technologies and Applications**, for outstanding accomplishments in advancing the fields of radar technologies and their applications.
- **IEEE Medal for Innovations in Healthcare Technology**, for outstanding contributions and/or innovations in engineering within the fields of medicine, biology and healthcare technology.
- **IEEE Jack S. Kilby Signal Processing Medal,** for outstanding achievements in signal processing.
- **IEEE Medal in Power Engineering**, for outstanding contributions to the technology associated with the generation, transmission, distribution, application and utilization of electric power for the betterment of society.
- **IEEE Service Awards**
- **IEEE Corporate Recognition Awards**
- **IEEE Honorary Membership**

Awards presented by the IEEE Board of Directors fall into several categories: The Medal of Honor, Medals, Technical Field Awards, Corporate Recognitions, Service Awards, and Prize Papers. The IEEE also recognizes outstanding individuals through a special membership category: IEEE Honorary Member.

Nominations are initiated by members and the public, and then reviewed by a panel of peers. Their recommendations are submitted to the IEEE Awards Board prior to final approval by the IEEE Board of Directors.

For nomination guidelines and forms, visit http://www.ieee.org/awards. Questions? Contact IEEE Awards Activities, 445 Hoes Lane, Piscataway, NJ 08854 USA; tel.: +1 732 562 3844; fax: +1 732 981 9019; e-mail: awards@ieee.org.

End of discussion

Science is amoral and should be. There is no right and wrong, only correct and incorrect.

Harvey Bialy

Canadian Cyclotron Named IEEE Historic Milestone

Standing, left to right: Richard Lee, BC MLA and former TRIUMF employee; Jeff Holm, Vice-president of the Association of Professional Engineers and Geoscientists of BC; Mike Craddock, Accelerator Physicist and Professor Emeritus, UBC; Dave Michelson, Chair of the IEEE Vancouver Section, EE Prof. at UBC; Nigel Lockyer, TRIUMF's Director; Margaret MacDiarmid, BC Cabinet Minister; Ray Larsen, former NPSS President and UBC Graduate; Ewart Blackmore, past TRIUMF Division Head

Seated from Left to right: Joop Burgerjon, Chief engineer during TRIUMF's construction; Ken Dawson, Professor Emeritus, University of Alberta, past TRIUMF Division Head, former NPSS President, past IEEE Division IV Director, Past IEEE VP Publications; Mike Williams, Chair IEEE History Committee; Eric Vogt, past Director of TRIUMF; Lorna Warren, wife of TRIUMF's first Director, J.B. Warren

On December 16, 2010, nearly a hundred people gathered atop what looked to be a three-storey concrete blockhouse in Vancouver, British Columbia. They were at TRIUMF—Canada's national laboratory for particle and nuclear physics—to celebrate the dedication of a special event thirty-six years earlier as an IEEE Engineering Milestone: the first extraction of 500 MeV protons from the world's largest cyclotron.

The main cyclotron at TRIUMF is a particle accelerator; it accelerates negative hydrogen ions (H^-) in an expanding spiral pattern using radio-frequency fields to provide the boost of energy on each orbit around the center of the machine and an overall static magnetic field to provide the curved orbits. As the particles move faster and faster, they spiral into ever larger orbits and eventually reach the edge of the evacuated accelerator chamber. They are now travelling at close to three-quarters the speed of light. A thin carbon foil strips off the electrons from the particle and the positively charged proton goes zinging out of the machine into an extraction line for focusing, steering, and delivery to scientific and technical users.

The December 1974 accomplishment was a global achievement not only because of the size of the device but also because of the revolutionary design. The main cyclotron is inherently flexible and robust; it can provide multiple beams of protons at different energies and intensities simultaneously. These key features have allowed it to serve as the chief engine of programs in particle physics, nuclear physics, materials science, pion and proton therapy, medical-isotope production, and irradiation services. The cyclotron also drives TRIUMF's flagship ISAC facility which produces, separates, and transports exotic rare isotopes for studies of nuclear structure and the origins of the chemical elements via nuclear astrophysics.

The December 2010 ceremony was a combination of memories and marvels. Nigel S. Lockyer, current TRIUMF Director, served as the Master of Ceremonies. He welcomed everyone and commented that Canada's other historic engineering achievements included first reception of a transatlantic radio transmission and the first phone call from Alexander Graham Bell. UBC Professor Dave Michelson opened the ceremony as chair of the Vancouver IEEE section.

Avoiding catatonia

The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function. One should, for example, be able to see that things are helpless and yet be determined to make them otherwise.

F. Scott Fitzgerald

Past-president of NPSS and long-time TRIUMF resident Ken Dawson (from the University of Alberta) shared his story of how the early development of the sophisticated control systems were designed and developed for the cyclotron. He described how early discussions about emerging instrumentation and control standards at TRIUMF contributed to the formulation and approval of the CAMAC standard and to TRIUMF's involvement with IEEE.

Three members of the original team then offered personal reflections. Joop Burgerjon, chief engineer of the TRIUMF cyclotron construction project, talked about the intense effort that went into engineering and building the mammoth machine. He also acknowledged the tight bond among the original team members as they worked round the clock for several years to get everything working. Historical film footage was shown that illustrated the many complex steps of engineering and assembling the entire facility. UBC professor emeritus Michael Craddock then talked about overcoming the key design challenges. The TRIUMF cyclotron took advantage of the latest tools and technologies of the early 1970s and combined them into one heroic push for breakthrough performance. Ewart Blackmore, past head of TRIUMF's Engineering Division, talked about his days as a graduate student at TRIUMF and then how the cyclotron's core capabilities were upgraded and applied to ever new and pressing research problems including early treatment of cancer using secondary beams of pions to today's use of the machine for proton therapy of ocular melanomas. And the main cyclotron is now used for the production of nuclear isotopes, some for medical use as commercial products and some for detailed nuclear-physics studies of structure and reaction rates.

The Honourable Gary Goodyear, Canada's minister of state for science and technology, provided written remarks and congratulated TRIUMF for the original tour de force and IEEE for the global recognition of Canadian prowess. British Columbia minister Dr. Margaret MacDiarmid spoke about the importance of science and engineering as an investment for the future and saluted the TRIUMF cyclotron as a perfect example. Ray Larsen, past president of NPSS, from SLAC, spoke about the culture of engineering and operating these "cathedrals" to the knowledge and wonder of physics and the basic workings of the Universe. Jeff Holm, vice-president of the Association of Professional Engineers and Geoscientists BC, spoke about his early days bicycling by the TRIUMF construction site and how impressive the feat of technology and engineering really was.

Professor Michael Williams, chair of the IEEE History Committee, then formally introduced and unveiled the pair of bronze plaques (one French, one English) dedicating the IEEE Engineering Milestone. He congratulated the entire TRIUMF community.

Acknowledging the impacts on technology and innovation, Richard Eppich, president and CEO of Advanced Cyclotron Systems, Inc., (ACSI) talked about how participating in the building of the TRIUMF cyclotron gave Ebco Industries the know-how to launch ACSI and begin Canada's first and most successful cyclotron manufacturing business for producing medical isotopes.

Timothy I. Meyer, Ph.D., Head of Strategic Planning & Communications can be reached at TRIUMF—Accelerating Science for Canada, 4004 Wesbrook Mall, Vancouver, BC V6T 2A3 CANADA: Phone +1 604 222-7674; Fax: +1 604 222-3791; E-mail: tmeyer@triumf.ca.

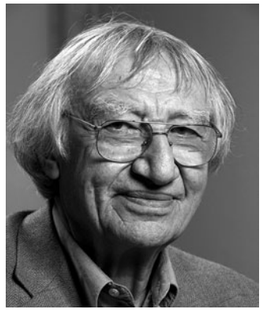
Margaret MacDiarmid, BC Minister of Education and of Science and Technology being given a tour of the lab.

Start now

It is not death that man should fear, but he should fear never beginning to live.

Marcus Aurelius

Obituaries


Dr. Muzaffer Atac

MUZAFFER ATAC 1931–2011

We are sad to report the passing on December 7, 2010 of Dr. Muzaffer Atac, a long time friend of NPSS. Dr. Atac was a physicist at Fermilab for 40 years, providing critical developments in particle detectors for experiments at Fermilab and around the world. The longtime head of Fermilab's detector development group, Dr. Atac also took great pride in education, working simultaneously in the 1980s as a physics professor at the University of California at Los Angeles and at the University of Texas at Dallas. And he helped to create detectors for demonstration purposes for Fermilab's education program, which teaches high-energy physics to junior high and high school students.

Muzaffer served as an Assistant Program Chair for the Nuclear Science Symposium for more than a decade, culminating as Chair of the Program Committee for the 1988 Nuclear Science Symposium in Orlando.


Carl Edward Baum

CARL EDWARD BAUM 1940-2010

Requiescat in pace

His ideas kept flowing like a mighty river.

Carl Baum, mentor to many, took his last breath peacefully on December 2, 2010 in Albuquerque, NM. Carl was born in Binghamton, New York, on February 6, 1940. He received his B.S. (with honors), M.S., and Ph.D. degrees in electrical engineering from the California Institute of Technology in 1962, 1963, and 1969 respectively. Following his B.S., he received his commission in the Air Force and was stationed at the Air Force Weapons Laboratory at Kirtland AFB, New Mexico. He served from 1963 until 1971 as an officer, and then accepted a civilian position and retired as a Senior Scientist in 2005. During his military career, he was awarded the Air Force Research and Development Award and the Air Force Nomination to Ten Outstanding Young Men of America. Since his retirement from USAF, he was a Distinguished Professor in the Dept. of ECE, the University of New Mexico.

In a career that spanned five decades, this remarkably creative engineer introduced innumerable new concepts in high power electromagnetics, pulsed power, mathematics and system design, many of which remain the standards of excellence today. From his earliest designs in nuclear electromagnetic pulse (EMP) sensors and simulators to the latest developments in high-power microwave and ultra-wideband antenna and system design, Dr. Carl Baum's research has remained ever on the forefront of technology. His advances in high power electromagnetic theory have left an indelible mark and a lasting legacy in High Power Electromagnetics and its application, including EMP, high power microwaves and Target ID.

His scientific contributions were prodigious. He has written innumerable technical notes, articles, books, and presentations and was the editor of the Note Series that has published state-of-the-art research results for the past 45 years. He was a founding member of the IEEE Albuquerque Joint Chapter of NPSS/EMC/APS/MTT. He received the Richard R. Stoddart award of the IEEE EMC Society (1984), and the Harry Diamond Memorial Award (1987), the AFSC Harold Brown Award (1990), and the Air Force Basic Research Award (Honorable Mention) in 1999. In addition, he has received 5 Best Paper Awards from the AMEREM/EUROEM Awards Committee, and he and his research team were honored as an AFOSR Star Team for 2000-2002 and received the 1st annual R. Earl Good Award from AFRL (2004) for their work in target identification. He was named an IEEE Fellow in 1984, an EMP Fellow in 1986, and the first Air Force Research Laboratory Fellow in 1996, but the honors that meant the most to him came in July of 2004 when he was bestowed with an Honorary Doctorate of Engineering by Otto von Guericke University in Magdeburg, Germany and received a special honor from his colleagues in Russia for his lifetime of achievements. He received the IEEE John Kraus Antenna Award (2006) and also the IEEE Electromagnetics Award from IEEE (2007). He was a member of Commissions A, B, & E of the U.S. National Committee of the International Union of Radio Science (URSI) and established the SUMMA Foundation which sponsors various electromagnetics-related activities including scientific conferences, publications, short courses, fellowships, and awards. He has led High Power Electromagnetics workshops and shortcourses around the globe. Dr. Baum was an active organizer of scientific conferences and workshops that bring together researchers from all over the United States and the world to share the latest in electromagnetic research.

When not putting his new ideas in mathematics and electromagnetics (EM) into new technical notes or organizing meetings, Dr. Baum enjoyed playing the piano and creating his own musical compositions, many of which have been heard at conferences. His compositions can also be heard at one of the many churches in Albuquerque that host the annual concerts of the Albuquerque Symphony Orchestra and Chorus, and even at his own church where he used to be the choir director. Twenty-three of these compositions have been recorded.

Carl is survived by his two nephews and sister-in-law, George, Spencer, and Martha Baum of Albuquerque.

GERALD L. ROGOFF 1939-2010

Dr. Gerald L. Rogoff, 71, of Framingham, died Wednesday, Dec. 8, 2010 in Framingham. He was born on June 7, 1939, the son of the late Samuel and Diana (Olderman) Rogoff. Devoted husband of Elizabeth (Preston) Rogoff of Framingham, he was also the loving brother of Myrna Zoll of New York City, N.Y., and uncle of Amy Zoll of Philadelphia, Pa., and David Zoll of Albany, N.Y. Dr. Rogoff earned a Ph.D. at MIT in physics and was a physicist and researcher for Westinghouse Research Labs in Pittsburgh, PA, for GTE in Waltham, MA and later Osram Sylvania in Danvers, MA where he retired with 30 years of research in plasma lighting sources for the plasma industry.

The following from Dr. Igor Alexeff of the University of Texas, Knoxville, TN, and Dr. Richard Temkin, MIT Plasma Science and Fusion Center, Gerry's long-time colleagues, sums his passion for teaching students, teachers, members of Congress and their staffs and the general public about plasma science: Gerald Rogoff was a founding member of the Coalition for Plasma Science, http://www.plasmacoalition.org/index.html. He was elected Chairman of the Coalition in 1998 and served in that capacity until 2004; subsequently, he served as Vice-Chairman. Gerry was responsible for seeing the Coalition through to a much stronger group that

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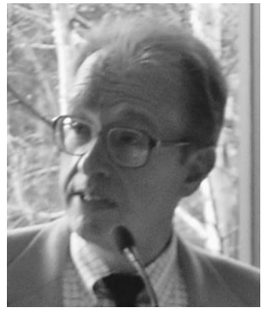
Gerald L. Rogoff

Name calling

The United States is probably the only country in which "realist" can be used as a pejorative epithet

Henry Kissinger

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achieved widespread support from the science community, including direct support by the IEEE NPSS and the APS. Gerry continued to be active in the Coalition until only a few weeks prior to his untimely death. Gerry also served as Chair for Membership and Recruiting for the Coalition. Gerry was very interested in promoting Plasma Science, and organized the Coalition for Plasma Science to inform the public of both the importance and the breadth of the field. He held public meetings to demonstrate the importance of various components of the field, supported student involvement at ICOPS and elsewhere and had regular information meetings with members of Congress. (Igor: I know, because I had a meeting with a congressman, and had to wait because the congressman was with Gerry.) His group developed plasma demonstration equipment. He once chaired a half-day session at ICOPS which Igor personally found informative and enjoyable. He found Gerry to be a dedicated and inspiring person, and was happy to help the Coalition obtain financial support from the IEEE.

His last position was a visiting scientist at MIT's Plasma Science and Fusion Center in Cambridge, MA where he worked closely with several staff members on producing informational leaflets for the Coalition on Plasma Sciences. Dr. Rogoff was a member of IEEE; American Physical Society; and AOPA as a private pilot. At the request of his family no services were held. In lieu of flowers, Mrs. Rogoff has made a special request for all to donate blood to your local medical facility or make a contribution in memory of Dr. Rogoff to the Dana Farber Cancer Research Center in Boston, MA or NPR (National Public Radio).

Contributions to the above are from Dr. Igor Alexeff, Dr. Richard Temkin, and Mr. Paul Rivenberg of MIT.

Gerald L. Rogoff (left) and Mounir Laroussi (right) at a student event at Old Dominion University