NUCLEAR & PLASMA SCIENCES SOCIETY NEWS

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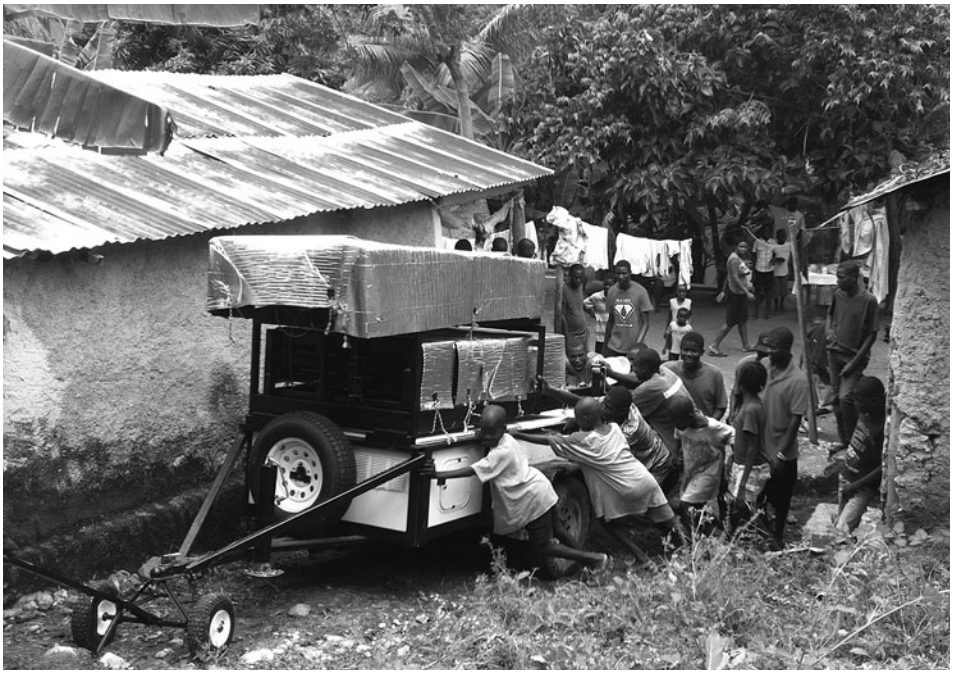
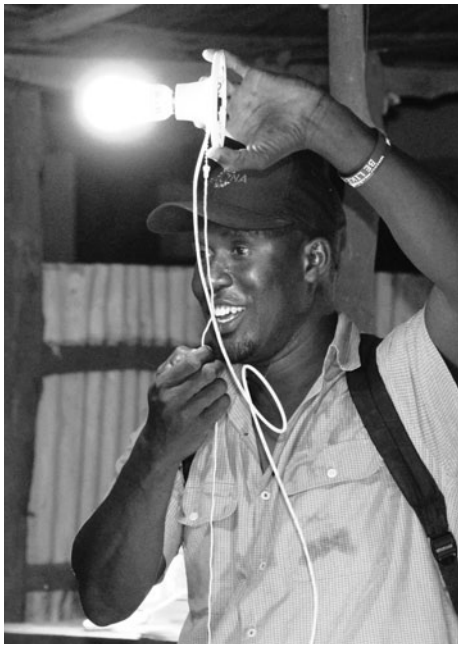
LIAISON REPORT



The Challenging Last Mile for the one-ton SunBlazer was no match for Haiti Boy-Power.



Sirona-Haiti Technician demonstrates the magic of LED lighting to a full house of new customers.

NEW DEVELOPMENTS IN AFRICA, INDIA AND BANGLADESH

Final SunBlazer Solar Generators Delivered To Haiti

In early August 2012 the IEEE Community Solutions Initiative (CSI) delivered the second and final shipment of fifteen planned SunBlazer solar stations to Sirona Cares Foundation in Port au Prince, Haiti. These latest nine stations augment the six stations already delivered and deployed out of Grand Goave in late June 2011. Each station currently serves 40 families or approximately 250 persons but the number of Portable Battery Kits (PBKs) is currently being doubled to 80 per unit to serve approximately 500 persons per mobile trailer or 7,500 for all fifteen units.

FINAL ASSEMBLY IN HAITI

A major goal of the program was to start assembly in Haiti instead of the U.S. This goal was scheduled following the pilot program but was partly achieved on this shipment when mobile units were delivered without a finished chassis, charging component mounting, wiring hookups or solar panels. These were all tackled by a crew of local workers hired by Sirona and completed in an impressive time of about twelve days in late July.

DEPLOYMENT

The nine units were deployed over a ten-day period in early August 2012. The deployments took place in an area around the northwest coast city

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CONTRIBUTED ARTICLES
Publicity releases for forthcoming meetings, items of interest from local chapters, committee reports, announcements, awards, or other materials requiring society publicity or relevant to NPSS should be submitted to the Newsletter Editor by January 5, 2013 for publication in the March 2013 Newsletter.

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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of St. Marc in village locations selected by USAID which supported Sirona to complete the assembly process and to provide funding for nine additional units to be completely fabricated in Haiti. All units are operating under the same local entrepreneur franchise business model as developed for the first six deployments. Several of the new deployments proved to be extremely challenging locations compared with earlier drive-up locations which were remote over very bad roads but usually on flat ground near a relatively accessible road. The first of the new locations was a nice flat rice paddy area with a 1-km trail to be negotiated over very narrow paths between paddies, too narrow for the trailer wheels. In two or three places along the way makeshift plank tracks had to be made and the hand-pushed unit was in danger of toppling over sideways. Several other places had very steep hillside access to marginally satisfactory final locations with partial tree cover that had to be dealt with.

EQUIPMENT PROBLEMS

It was with alarm that the team quickly noticed that a significant number of the new battery kits arrived in a discharged condition and the reason is still not completely understood but is believed to be a faulty protection circuit that was added to keep customers from discharging the batteries more than 50%; this is to extend the life of the battery. Some units were inadvertently shipped from Long Island, NY with the power switch turned on, but without a load plugged in. This should not have caused the unit to discharge and in no event should it have discharged more than 50%. As a result some PBKs could not be recovered and are out of commission. Sirona has a new shipment of PBKs in process of clearing customs which will allow immediate replacement of failed units, but it is still necessary to redesign the protection unit to prevent future failures and to retrofit faulty units in the field. A new circuit is near completion at

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Raymond S. Larsen, cochair
Community Solutions Initiative

The entire village turns out to guide and muscle the first SunBlazer over the last mile through a treacherous rice paddy near St. Marc on Haiti's northwest coast.

Imagine that!

Unemployment is of vital importance, particularly to the unemployed.

Edward Heath

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Nextek in New York and will be available shortly. A second problem, discovered as a result of the first, is that the secondary chargers from the 48V panel batteries to 12V PBKs had a fault. They could not recognize a load battery that was deeply discharged to around 5V; this has now been corrected by the manufacturer for future units but the older units will have to be augmented by one or two separate chargers to bring a discharged battery to about 9V before the 12V charger will turn on properly.

OPERATIONAL PROBLEMS

One of the enterprising franchise owners tried to tap power directly from the 48V-hour storage/charging batteries and managed to destroy at least one of these batteries; this generator is out of commission while repairs are made and the customers are very annoyed at the operator. The replacement units in this and in all future units built will be padlocked. Another generator sat idle for many days because the operator did not understand the simple power switch sequence and drained the house batteries to 50% where the controller cut them off. The reason was that the solar panels were being disconnected between PBK charging cycles until the main batteries drained. The only hard failure of a generator was of a solar Maximum Power Point Tracking (MPPT) controller which it is now suspected was also due to operator meddling. Clearly this will not be tolerated and all operators are aware that the community can lose the unit entirely if the operator behaves irresponsibly.

FUTURE CSI SUPPORT

Altogether these are minor technical problems but in a remote area with no skilled resources capable of trouble-shooting beyond the plug-in replacement stage these can take a very long time to correct. Add to these issues delays of transportation, customs holdups and a language barrier with the backup technical support in the U.S. and the situation quickly becomes serious. It is CSI's responsibility to correct any faults in its designs or manufactured units CSI specified, so a certain amount of backup support is needed until these capabilities are established in-country, which is the ultimate goal for all new systems.

NEXT STEPS FOR SIRONA-HAITI

As part of the business model goal a new for-profit corporation has been chartered to operate, support and grow the reach of electricity to rural areas throughout Haiti. The potential market is approximately 8 million of 10 million people without electricity, a situation which prevailed *before* the 2010 earthquake. In St. Marc, by the way, there are power lines along the whole main street of the town but none of them have been activated for years, and they do not extend throughout the town or beyond to rural areas. Sirona has a 2,000-home customer waiting list, about 80 SunBlazers worth, plus promises of significant future business from both USAID and UNEP. However its real goal is to reach at least a million customers in the first 5 years of operation which means producing about 2500 SunBlazers in that period. This will require low-cost loans or venture capital from social investors who are looking for leverage for their investment more than for quick profits.

SUNBLAZER II

Both Sirona Cares and Nextek have advanced the SunBlazer design to simplify assembly and cut costs. Mainly the trailer itself, once a unit is deployed, serves as a stationary platform. The original intent was to be able to remove the trailer from beneath the chassis once deployed. A new design is underway that will be smaller, more easily transported and with wheels that can be removed once in final location, probably moved

Bumpology?

It is a good rule in experimental work to seek to magnify a discrepancy when it first appears rather than follow the natural instinct of trying to get quit of it.

Lord Rayleigh

But what?

He who has a why can endure any how.

Friedrich Nietzsche

the last bit by hand. The solar frames themselves are being modified from the really nice but quite expensive rolling drawer design to a fixed frame which can also dial in a larger solar angle. This work is urgent since Sirona-Haiti needs to produce the next round of units very soon.

NEXT STEPS FOR CSI: AFRICA, INDIA AND BANGLADESH

CSI in July 2012 organized a Business Development Workshop with key members of Sirona, Seattle University and Regis University partners to provide three and a half days of tutorials and talks with three new African partners in Cameroon, Nigeria and South Sudan. This group now comprises a collaboration of its own, SunBlazer Manufacturers Users Group (SMUG) that meets weekly by phone to develop new business plans that CSI can support with seed funding in the new areas. Meanwhile CSI has put forth a plan to raise $2 million per year through the IEEE Foundation Fund for Affordable Electricity to enable ten new startups globally *per year*. Plans for the first major fundraising effort this fall are underway. Details of the Africa workshop, all reports, videos of the talks, and a summary report can be found at the CSI website at www.comunitysolutionsintiiative.org.

Another major component of the Africa workshop was the development of a synergy with global educational programs to address affordable professional education worldwide, along with a large consortium of new NGO partners all dedicated to the concept of market-based sustainable enterprises to help lift entire nations out of poverty. In addition to these programs, other exploratory programs are being launched in 2012 in India and Bangladesh. CSI is partially sponsoring two young interns for a year in India to work with the Hyderabad Section of IEEE as well as Engineers without Borders (EWB) on initiatives to alleviate energy poverty and to pave the way for larger power initiatives.

The nine SunBlazers around St. Marc were deployed in cooperation with USAID who sponsored the final assembly facility in Port au Prince and funded ten more units.

ACKNOWLEDGMENTS

CSI is greatly indebted to various IEEE entities that helped fund the Haiti experience. NPSS has been a major donor along with PES, official sponsor of CSI; the Humanitarian Technology Challenge which gave CSI its start as well as its first donation in November 2010; IEEE Canada and IEEE Region 9, both of whom gave donations through the IEEE Foundation which were very helpful in launching the second Haiti pilot program. CSI will continue to develop funding from Societies as well as strongly solicit the public, foundations and corporations for annual gifts to sustain and increase the program. With 1.4 billion people with candle and kerosene lighting we have only just begun.

Ray Larsen, cochair of the IEEE Community Solutions Initiative, can be reached at SLAC National Accelerator Laboratory, MS-50, 2575 Sand Hill Road, Menlo Park, CA 94025; Phone: +1 650 926-4907; E-mail: larsen@slac.stanford.edu.

And parental supervision...

College is a refuge from hasty judgment.

Robert Frost

And their wives?

Men shout in order to avoid listening to one another.

Miguel de Unamuno

Janet Barth
IEEE NPSS Vice President/ President-elect

Vice-President's Report

Serving as the Vice-president of NPSS for the past two years has given me an opportunity to see how broad and diverse our Society technical communities are. Coming from the Radiation Effects community, my perspective of and appreciation for the entire NPSS community has greatly increased through interactions with our leaders from plasma science, fusion, pulsed power, particle accelerators, radiation instrumentation and many others. One of my most rewarding experiences in the NPSS has been serving on Awards Committees where I had the privilege of reviewing our colleagues' remarkable achievements. I am thankful for the extensive awards program of the IEEE, NPSS, and our Technical Committees which permits us to acknowledge our peers' professional achievements. This is a special tribute which needs to be done more often. Therefore, I urge each of our NPSS members to review our IEEE and NPSS Awards portfolio and submit at least one nomination. We all know some remarkable individuals who don't have the accolades they deserve and, as seen in the summary of the Awards programs below, a broad range of options is available to us.

IEEE AWARDS

These high-level awards are administered by IEEE and open to all IEEE members. While there are many IEEE-level Awards (link - http://www.ieee.org/about/awards/index.html), there are a few that are particularly relevant to the technical fields of most NPSS members. Their nomination deadlines, forms, and submission instructions depend on the Award. These Awards with links to information are:

- IEEE Marie Sklodowska-Curie Technical Field Award http://ewh.ieee.org/soc/nps/docs/Curie_Award_Flier.pdf
- IEEE Medal for Healthcare Innovations and Technology http://ewh.ieee.org/soc/nps/docs/innovations_in_healthcare.pdf

NPSS AWARDS

There are also four NPSS Awards available to applicants who are in any of the technical fields of the NPSS. The deadline for receiving nominations for any of these Awards is January 31st of each year. All nomination forms and supporting materials must be received by this deadline to be considered. The article by Jane Lehr (pp. 13-15 below) provides details of our NPSS Awards.

TECHNICAL COMMITTEE AWARDS

These Awards are generally given only to people who work in a specific technical field. The Awards are administered by the individual Technical Committees, and so their nomination deadlines, forms, and submission instructions depend on the Award. Links to information on these Awards can be found on the NPSS website at http://ewh.ieee.org/soc/nps/awards.htm.

- Computer Applications in Nuclear & Plasma Sciences Award (CANPS)
- Fusion Technology Award (FTC)
- Edward J. Hoffman Medical Imaging Scientist Award (MIC)
- Bruce H. Hasegawa Young Investigator Medical Imaging Award (MIC)
- Erwin Marx Award (PPST)
- Arthur H. Guenther Pulsed Power Student Award (PPST)
- Peter Haas Pulsed Power Award (PPST)
- Particle Accelerator Science and Technology Award (PAST)

But it came

I couldn't wait for success, so I went ahead without it.

Jonathan Winters

- Particle Accelerator Science and Technology Doctoral Student Award (PAST)
- Plasma Science and Applications Award (PSAC)
- Plasma Science Outstanding Student in Plasma Science Award (PSAC)
- Radiation Effects Award (REC)
- Radiation Instrumentation Early Career Award (RITC)
- Radiation Instrumentation Outstanding Achievement Award (RITC)

CONFERENCE AWARDS

Most NPSS conferences present an Award for the Outstanding Student Paper presented at that conference. For complete information on these Awards, please contact the General Chairman of the relevant Conference. In addition, NPSS-sponsored Conferences that have Short Courses solicit nominations for Paul Phelps Continuing Education Grants. Please see the article in this issue by Jane Lehr for details on our Student Awards.

A useful summary of all NPSS and Technical Committee awards which includes the description of the award, prize, funding, eligibility, and basis for judging can be found at http://ewh.ieee.org/soc/nps/docs/npssawards.pdf. Please take a moment to review the summary and use it as guide to identify colleagues who have earned recognition in the categories.

Professional recognition is also gained by nomination for elevation of IEEE membership grade. IEEE has two elevations of membership: Senior Member and Fellow. The elevation to Senior Member requires experience reflecting professional maturity. Nomination information and the electronic application can be found on the IEEE web-site (http://www.ieee.org/membership_services/membership/senior/index.html). In addition, candidates for Senior Member grade must supply three references from current IEEE members holding the grade of Fellow, Senior Member, or Honorary Member. A Senior Member may be elevated to the Fellow grade by petition to the IEEE Board of Directors. In this issue, Jane Lehr, the Chair of the NPSS Fellow Evaluation Committee, provides a comprehensive overview of the eligibility requirements for the Fellow Grade and nomination process for the Fellow Grade.

In January 2013 I will transition to the role of the President of the NPSS. Foremost on my agenda is to address the challenge of keeping our conferences healthy in the face of the new U.S. federal restrictions on travel to scientific meetings. Participation in scientific conferences provides a critical opportunity for scientists and engineers to keep current in rapidly changing fields of science and technology. The AdCom has already taken action on this issue by exercising responsible oversight of our conference budgets and preparing data on the impact of possible reduced attendance. We must also consider how restrictions on attendance will affect the large cadre of volunteers who "make our conferences happen." That said, it is of upmost importance that we engage the Chairs of our Technical Committees to consider alternate conference program formats that are inclusive of attendees who are not able to travel so we do not lose the opportunity to collaborate with invaluable members of our research communities. Alternative conference formats will be an agenda item on the annual AdCom retreat in March. I invite all NPSS members to contact any member of the AdCom to share your ideas on additional formats for future conferences.

Janet Barth, IEEE NPSS Vice President/President-elect can be reached by E-mail at janet.l.barth@nasa.gov.

And by imagination

History is that certainty produced at the point where the imperfections of memory meet the inadequacies of Documentation.

Julian Barnes

Press lord's credo

News is what someone wants to suppress; all else is advertising.

Lord Northcliffe

Albe Larsen
NPSS Secretary and Newsletter Editor

Secretary's Report

The IEEE NPSS Administrative Committee will have met on November 3rd, 2012 in Anaheim, CA, too late to meet the deadline for this newsletter and will, therefore, be reported in March. A detailed report of the July meeting was presented in the September Newsletter.

The IEEE NPSS did hold society-wide elections this summer, however, and three new AdCom members have been elected. They are Ron Jaszczak, Nuclear Medical and Imaging Science and Technology who will take over from Tom Lewellen, Patrick Le Dû, Transnational Committee, who takes over from Jean-Luc Leray as Chairman, and John Luginsland, Plasma Science and Applications Technical Committee, who takes over from Steven Gold.

In addition, new members have been elected as follows: to the Radiation Instrumentation Steering Committee: Lorenzo Fabris, Michael Fiederle, Michael V. Hynes, Paul Lecoq and Craig L. Woody; to the Nuclear Medical and Imaging Sciences Council: Abhijit J. Chaudhari, Georges El Fakhri, Andrew L. Goertzen, George Loudos and Taiga Yamaya; and to the Plasma Science and Applications Executive Committee: John L. Giuliani, Michael Kong, Mark J. Kushner, Mounir Laroussi, Tom Melhorn and Peter Stoltz. All of these are for three-year terms.

Congratulations to all, and thanks to those whose terms are ending. Look for biographies of the newly elected AdCom members in the March newsletter.

Albe Larsen, IEEE NPSS Secretary and Newsletter Editor, can be reach at SLAC National Accelerator Laboratory, MS-64, 2575 Sand Hill Road, Menlo Park, CA 94025; Phone +1 650 926-2748; E-mail: amlarsen@slac.stanford.edu.

Computer Applications in Nuclear and Plasma Sciences

Stefan Ritt
CANPS Chair

After the successful 2012 Real Time Conference in Berkeley, California this past spring, authors, reviewers and editors are pretty busy right now in preparing the special issue of *Transactions on Nuclear Science* covering the presentations from that conference.

Although the upcoming RT14 is still one and a half years away, preparations are already going on. The conference will take place in the lovely deer park inside the city of Nara, Japan, in spring 2014. It will be organized by the University of Osaka, the RIKEN Research Institute and the KEK High Energy Accelerator Research Organization under the chairmanship of Masaharu Nomachi. The historic town of Nara has many old temples and shrines belonging to the UNESCO world cultural heritage and is therefore a major center for tourism in Japan and a perfect place to hold a conference.

In conjunction with the conference we will organize for the first time a summer school for real-time applications in particle and nuclear physics. This school will bring together interested students mainly from Asia and lecturers from our community who have many years of experience in this field. As the course will be held in the week before the conference, it will allow young scientists and engineers to learn the basics of real-time applications and then make better use of the following conference.

Stefan Ritt, chair of the Computer Applications in Nuclear and Plasma Science Technical Committee, can be reached at the Paul Scherrer Institute, CH-5232 Villigen, Switzerland. Phone +41 56 310 3728; E-mail: stefan.ritt@psi.ch

Nuclear Medical and Imaging Science and Technology

Suleman Surti
NMIS Technical Committee Chair

As you read this newsletter, the 2012 IEEE NPSS Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC) held at the Disneyland Hotel Convention Center in Anaheim, CA from Oct. 27th-Nov. 3rd will be over. I would like to thank Tom Lewellen (General Chair), Vesna Sossi (MIC Program Chair), Alex Converse (MIC Program Deputy Chair), and all other meeting organizers for their efforts and hard work in organizing a successful meeting.

A total of 755 abstracts were submitted for the MIC program. From among these submissions, 125 MIC talks were presented during three joint (NSS/MIC) and triple joint (NSS/MIC/RTSD) oral sessions and 13 MIC oral sessions. Also, 585 posters were presented over eight poster sessions. The 13 MIC oral sessions were split into five parallel and three single sessions, while the posters were distributed over four parallel sessions. Two plenary sessions were also held on Wednesday, Oct. 31st. The first plenary session had two invited talks. The first talk, titled "Multimodality Imaging and the Future of Alzheimer's Disease," was presented by Dr. W. Jagust (University of California, Berkeley). The second talk,

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Gödel revisited

Just because an idea is true doesn't mean it can be proved. And just because an idea can be proved doesn't mean it's true.

Johan Lehar

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titled "Practicing 'Astromedicine,'Lessons in imaging and inversion from a rocket scientist," was presented by Dr. J. Matthews (University of British Columbia, Vancouver). In the second plenary session we honored this year's Edward J. Hoffman Medical Imaging Scientist and Bruce Hasegawa Young Investigator Medical Imaging Science award winners, followed by four scientific presentations.

In terms of future meetings, the 2013 IEEE NSS/MIC meeting will take place for the first time in Asia at the Coex Convention Center in Seoul, South Korea from Oct. 27th-Nov. 02nd. The conference center is located in the southern part of the city with good transportation access to downtown Seoul and the airport. Hee-Joung Kim is the General Chair for the meeting, while Jae Sung Lee and Craig Levin will be the MIC Program Chair and Deputy Program Chair, respectively. The organizing committee is actively working to plan a successful meeting, and an early conference website is already online (http://www.nss-mic.org/2013/NSSMain.asp).

The 2014 IEEE NSS/MIC meeting will take place in Seattle, WA with Tony Lavietes as the General Chair for the meeting. Georges El Fakhri and Katia Parodi will serve as the MIC Program Chair and Deputy Program Chair, respectively.

For the 2015 IEEE NSS/MIC, San Diego, CA has been chosen as the meeting site with Vesna Sossi being the General Chair. The 2016 IEEE NSS/MIC meeting will be held in Strasbourg, France with Maxim Titov as the General Chair.

For this year's elections we had a total of eight candidates for five seats on the NMISC. In addition, we had also three candidates to fill one position representing the NMISTC on the IEEE NPSS AdCom. See the Secretary's Report, page 8, for election results. As a reminder, NMISC has oversight of the Medical Imaging Conference component of the annual IEEE NPSS NSS/MIC. This includes voting on site selection, approval of the MIC chair, and promotion of activities useful to all IEEE NPSS members who are interested in medical imaging. If you are interested in serving on the NMISC please contact George Kontaxakis, g.kontaxakis@ieee.org, NMISC Secretary and Chair of the Nominations Subcommittee.

Suleman Surti can be reached at University of Pennsylvania, Department of Radiology, 404 Blockley Hall, 423 Guardian Drive, Philadelphia, PA 19104 USA; Phone: +1 215-662-7214; Fax: +1 215-573-3880; E-mail: surti@mail.med.upenn.edu

And listening a wise man

Reading maketh a full man, conference a ready man, and writing an exact man.

Francis Bacon

Pulsed Power Science and Technology

Jane Lehr
Chair, PPST Technical Committee

Every six years, the International Pulsed Power Conference (PPC) and the International Conference on Plasma Science (ICOPS) are combined into what is known as PPPS. The upcoming conference is a combined one known as PPPS2013 and will be held at the Hyatt Regency in San Francisco, California, USA beginning on Sunday, June 16th, 2013. The venue is the perfect balance of location and luxury. Boasting the Guinness Book of World Records' largest atrium lobby, the Hyatt Regency San Francisco is situated right on the Embarcadero waterfront, with immediate access to both the Financial District and the city's most famous attractions, such as the historic Ferry Building, the ferry to Alcatraz and stunning views of the Bay. Please check the website http://www.ece.unm.ed/u/ppps2013 for the most up-to-date information.

Important deadlines for PPPS2013 are approaching. Abstracts are due by February 8th, 2013 and should be submitted via the conference website. Early submissions are encouraged and especially from those requiring visas and special accommodations such as oral presentations. Participants may choose to submit a conference paper to the proceedings or not. Additionally a Special Issue of the *IEEE Transactions on Plasma Science* focused on the conference topics is planned for publication in October 2014. The combined conference adheres to the traditions of both conferences. In that spirit, a minicourse, "Aspects of High Energy Density Physics," will be held beginning the Saturday before the start of the conference. Questions concerning the minicourse program should be directed to its coordinator, John Giuliani at john.giuliani@nrl.navy.mil.

An important distinction must be made regarding awards. There are two classes of awards. One is the Technical Committee Award and the other is a Student Paper Award. The Student Paper Award is a special conference competition between students nominated at the time of abstract submission. An endorsement letter from the student's advisor must accompany the entry. If selected, the student will be required to submit the completed paper prior to the conference and also present the work during a special evening session for judging. Students may be nominated both for a Technical Committee Student Award and enter the Student Paper Contest. Since the conference is combined, two winners and two runners up will be selected. The prize consists of a cash award and a certificate.

In the combined conference, the Technical Committee Awards for the Pulsed Power Science and Technology Technical Committee (PPST) as well as the Plasma Science and Applications Technical Committee (PSAC) will be given. The PSAC Award deadline is in October of the year preceding the award. Thus, for the 2013 Award, the deadline has already passed, but the recipients will be honored at PPPS2013. The PPST Awards, on the other hand, have a nomination deadline of January 18th, 2013. The IEEE Erwin Marx Award recognizes outstanding technical achievements in pulsed power engineering, science and technology by an individual over an extended period of time. The prize is a plaque, $3,000 cash award, and an invitation to present a talk at the Pulsed Power Plasma Science Conference and to have the text of the talk published as an invited paper in the *IEEE Transactions on Plasma Science*. The Peter Haas Award recognizes outstanding contributions to Pulsed Power Technology resulting from an

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If ever!

Doing nothing is very hard to do.... You never know when you're finished.

Leslie Nielson

(continued from page 11)

individual's continued effort to develop programs of research, education and information exchange that are the basis of the progress in Pulsed Power. The prize is a plaque, $3,000 cash award, and an invitation to present a talk at the Pulsed Power Plasma Science Conference and to have the text of the talk published as an invited paper in the *IEEE Transactions on Plasma Science*.

The Pulsed Power Science and Technology Committee's Outstanding Pulsed Power Student Award was renamed the Arthur H. Guenther Pulsed Power Student Award in 2007 following the passing of Dr. Guenther. A recipient is selected each year but awarded biennially at the Pulsed Power Conference Banquet. Nominations are sought for the 2012 and 2013 IEEE Pulsed Power Student Awards. Students who graduated in 2012 should be nominated for the 2012 award. However, graduation is not a requirement for the Student Award. The prize is $1,000 and Certificate. The criteria for judging the student awards are: 1) Quality of research contributions (40 points); 2) Quality of educational accomplishments (30 points); 3) Quality and significance of publications and patents (20 points). Further information and judging criteria can be found on the PPST website. Nominations and inquiries should be forwarded to PPST Awards Chair, Dr. Frank Peterkin at ppst.awards@gmail.com. Nomination forms and a list of prior award recipients can be found at the PPST/TC website.

In other Technical Committee news, December 31st is the date when PPST members rotate off and are replaced by incoming ones. As I write this, elections for the new committee members are underway and will be announced in the next newsletter. I would like to offer my deepest appreciation to our dedicated outgoing committee members Mark Crawford, Patrick Corcoran, Ray Allen and Peter Turchi as well as to our 2011 Technical Committee Awards Chair Ian Smith for their service. It is truly appreciated!

Jane Lehr, Chair of the IEEE NPSS Pulsed Power Science and Technology Committee, can be reached at Sandia National Laboratories, P.O. Box 5800, MS1193, Albuquerque, NM 87185-1152 ; Phone: +1 505 844-8554 ; E-mail : jmlehr@sandia.gov.

Impractical theory

In theory there is no difference between theory and practice. In practice there is.

Yogi Berra

Radiation Effects Annual Report

Marty Shaneyfelt
Technical Committee Chair

Marty Shaneyfelt is the present Chairman of the Radiation Effects Steering Group (RESG), which oversees NSREC Conferences.

The IEEE Radiation Effects Committee (REC) held its annual Open Meeting on July 19th, 2012, at the InterContinental Hotel, Miami, Florida, during the 2012 Nuclear and Space Radiation Effects Conference (NSREC). The meeting included presentations from the General Chairs of the 2011 through 2013 NSRECs. In addition, presentations were made on the upcoming RADECS 2012 and 2013 conferences (for information on RADECS, please see www.radecs.net).

An election was held during the Open Meeting for a new Junior Member-at-Large to the Radiation Effects Steering Group (RESG). Gary Lum, Lockheed Martin, was elected as the new Junior Member-at-Large. Gary joins Vincent Pouget of IMS-CNRS and Nick van Vonno, Intersil, who are serving as Senior Member-at-Large and Member-at-Large, respectively.

During the Open Meeting, Dan Fleetwood, the outgoing Chairman of the RESG, presented awards to other outgoing RESG members:

Pascale Gouker
Member-at-Large

Tim Oldham
Executive Vice-Chair—Past Chair

Jim Schwank
VP Publications

Teresa Farris
VP Publicity

Véronique Ferlet–Cavrois
RADECS Liaison

Ron Pease and Paul Marshall
Associate Editors for the TNS

After Dan finished presenting the awards, Marty Shaneyfelt gave an award to Dan for his service as Chairman of the RESG for the past three years. Marty also welcomed Allan Johnson as the new Executive Vice-Chairman and Pascale Gouker as the new Secretary of the RESG.

Future General Chairs were also announced. Jeff Black, Sandia National Laboratories, Robert Ecoffet, CNES, and Mike Xapsos, NASA GSFC, are the General Chairs of the 2013, 2014, and 2015 NSRECs, respectively.

Kay Chesnut, Boeing, General Chair for the 2011 NSREC, recognized her conference committee with award plaques. Kay and her team organized an outstanding NSREC conference in Las Vegas, NV.

Ken LaBel, General Chair for the 2012 NSREC, summarized some statistics about the 2012 conference. A total of 505 people attended the technical sessions and 358 people the Short Course. In addition, 93 attendees registered only for the Industrial Exhibits session and there were 194 guests. The technical sessions were very strong, with 138 papers presented during the four-day conference (48 oral presentations, 54 posters, and 36 Data Workshop). There were four outstanding tutorial reviews given during the Short Course on July 16th. A record 63 booths were sold to 58 exhibitors.

Jeff Black, General Chair for the 2013 NSREC, announced that the 2013 NSREC will be held July 8th-12th, 2013, in San Francisco, CA, at the Hyatt Regency Hotel. This conference will feature a technical program consisting of approximately ten sessions of contributed papers that describe the latest observations and research results in radiation effects, an up-to-date Short Course offered on July 8th, a Radiation Effects Data Workshop, and an Industrial Exhibit.

For the most current information on the Nuclear and Space Radiation Effects Conference, including information on paper submission, please visit www.nsrec.com.

Marty Shaneyfelt, Chair of the Radiation Effects Steering Committee can be reached at Sandia National Laboratories, MS 1083, PO Box 5800 Albuquerque, NM 87185-1083; Phone: +1 505 844-6137; Fax: +1 505 844-2991; E-mail: mrshaneyfelt@sandia.gov.

Teresa Farris can be reached by E-mail at: teresa.farris@aeroflex.com.

Teresa Farris
Radiation Effects Vice Chair, Publicity

And expensive!

Some tortures are physical
And some are mental
But the one that is both
Is dental.

Ogden Nash

Jane Lehr
Chair, Awards Committee

Awards

One of the greatest honors we can bestow on our colleagues is to nominate them for a distinguished award. IEEE provides numerous prestigious award opportunities for you to demonstrate the respect you have for both peers and students at both the Society and the Technical Committee level.

Nominations are due January 31st, 2013 for the Nuclear and Plasma Sciences Society Awards and encompass recognition of both scientific and technical achievement at various levels as well as one for professional service. The NPSS Awards are funded directly by the Society and are comprised of:

MERIT AWARD

Description: To recognize outstanding technical contributions to the fields of Nuclear and Plasma Sciences. The prize is $5,000, Plaque, and Certificate

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

Basis for Judging: Selection criteria, in order of importance are: 1) importance of individual technical contributions; 2) importance of technical contributions made by teams led by the candidate; 3) quality and significance of publications and patents; 4) years of technical distinction; 5) leadership and service within the fields of nuclear and plasma sciences and related disciplines.

Presentation: One award presented annually at an NPSS-sponsored meeting chosen by the Awardee.

RICHARD F. SHEA DISTINGUISHED MEMBER AWARD

Description: To recognize outstanding contributions through leadership and service to the NPSS and to the fields of Nuclear and Plasma Sciences. The prize is $5,000, Plaque and a Certificate

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

Basis for Judging: Selection criteria are: leadership roles and leadership quality; innovative and important contributions to Society activities; service and dedication to the NPSS; technical achievements.

Presentation: One award presented annually at an NPSS-sponsored meeting chosen by the Awardee.

EARLY ACHIEVEMENT AWARD

Description: To recognize outstanding contributions to any of the fields making up Nuclear and Plasma Sciences, within the first ten (10) years of an individual's career. The prize is $3,000, Plaque, and Certificate

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

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

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

But you have to spot it

The best way to have a good idea is to have lots of ideas,

Linus Pauling

GRADUATE SCHOLARSHIP AWARD

Description: To recognize contributions to the fields of Nuclear and Plasma Sciences. The prize is $1,500, Certificate, and one-year paid membership in the NPSS.

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

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

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

Additionally, NPSS funds a special category award—a Phelps grant—given to encourage Short Course attendance at NPSS conferences that offer them. The criteria are:

PAUL PHELPS CONTINUING EDUCATION GRANT

Description: To promote continuing education and encourage membership in NPSS.

Prize: Maximum of $8,000/year for all recipients, mostly for tuition in NPSS Sponsored Short Courses but in selected cases, also for partial travel expenses to NPSS Short Courses.

Eligibility: Outstanding Student Members of NPSS and unemployed Members of NPSS who need assistance in changing career direction.

Basis for Judging: Exceptional promise as a Graduate Student in any of the fields of the NPSS, exceptionally good work in those fields for currently unemployed NPSS members and an expectation that attendance to one or more of the Short Courses will result in improved possibility of obtaining a job in the NPSS fields.

Presentation: Presented each year at the NPSS-sponsored conference in which the Short Courses are given. The awards will be handled prior to the dates of the Conference, so that award recipients can apply the corresponding funds towards covering tuition and/or traveling costs to the Short Courses.

Those interested in applying for a Phelps Grant should contact the Technical Committee chair hosting the conference with a Short Course. There are also a larger number of Technical Committee Awards given each year. Nominations for these vary by the conference, but many conferences held in the summer have award deadlines at the end of January. More information on these and other relevant Awards, including submission information and tips for writing a successful award nomination, is available at http://ewh.ieee.org/soc/nps/

Jane Lehr, Chair of the IEEE NPSS Awards Committee, can be reached at Sandia National Laboratories, P.O. Box 5800, MS1193, Albuquerque, NM 87185-1152 ; Phone : +1 505 844-8554 ; E-mail : jmlehr@sandia.gov.

Order makes the difference!

Management is doing things right; leadership is doing the right things.

Peter Drucker

Which is its own reward

Prosperity doth best discover vice, but adversity doth best discover virtue.

Francis Bacon

Technical Committee Awards

Dave Alexander
2012 Radiation Effects Award

RADIATION EFFECTS AWARDS

Dave Alexander

The recipient of the 2012 NSREC Radiation Effects Award was Dave Alexander.

Mr. Alexander received his BSEE in 1968 from the United States Air Force Academy and his MSEE, in 1973, from the University of New Mexico. He began his professional career in 1968 as an Air Force Second Lieutenant at the Transient Radiation Effects Branch of the Air Force Weapons Laboratory in Albuquerque, New Mexico. His duties included radiation testing, model development, and circuit analysis of microcircuits exposed to nuclear radiation effects. In 1972, he received the Air Force Scientific Achievement Award for the development of a drift tube for high dose rate testing in the electron mode of a flash X-ray machine. In 1973, he joined the BDM Corporation, where he continued development of transistor and microcircuit models for the SPICE circuit analysis code. He also performed electrical overstress modeling and testing on large samples of transistor and microcircuits. In 1980, he began work at Sandia National Laboratories, where he developed testing and data analysis techniques for radiation-hardened, high-reliability microcircuits fabricated in the Sandia Microelectronics Development Laboratory.

In 1982, Mr. Alexander moved to Mission Research Corporation (MRC), and was the Microelectronics Division manager from 1992 until 2002. He continued his work in radiation testing, microcircuit modeling, and circuit design. He served as a technical advisor to the Defense Threat Reduction Agency and Space and Missile Defense Center for the development of radiation-hardened microcircuits. His team at MRC developed computer-aided techniques to evaluate radiation hardness from microcircuit layout files. He was an early advocate of the QML (Qualified Manufacturers List) approach for qualifying microelectronics for military and space applications. He assisted in writing several sections of Mil-Prf-38535 and served on the audit committee for qualifying radiation-hardened microelectronics manufacturers. He was an early advocate of hardening-by-design (HBD) techniques for developing radiation-tolerant microcircuits in commercial processes. In the 1996 NSREC Short Course entitled "Design Issues for Radiation Tolerant Microcircuits in Space" he described the foundational HBD approaches.

In 2003, Mr. Alexander began work at the Institute for Space and Defense Electronics, at Vanderbilt University, that supports the Space Electronics Division of the Air Force Research Laboratory in Albuquerque, and in 2005 he became a member of the AFRL staff. In addition to his responsibilities for radiation testing and development of space-qualified, nanoscale electronics, he advocated and demonstrated techniques for reliability evaluation and qualification for small sample microcircuit designs fabricated in multiproject lots. He retired from government service in 2010 and is currently a consultant working through the COSMIAC (Configurable Space Microsystems Innovations & Applications Center) of the University of New Mexico.

Mr. Alexander is author of numerous technical reports, presentations and papers in *IEEE Transactions on Nuclear Science*, the HEART Conference, International Reliability Physics Symposium, Electrical Overstress Symposium, and Government Microcircuit Applications Conference.

And qualifies as a politician

If a man is not a socialist at 20, he has no heart. If he remains a socialist at 30, he has no brain.

Georges Clemenceau

Citation: For contributions to the development of Qualified Manufacturers List (QML) procedures for radiation hardened components and to the foundations of radiation hardening by design concepts.

2012 PHELPS GRANTS AT NSREC

The 2012 Paul Phelps Continuing Education Grant was awarded to three student members from the radiation effects community. At the opening of the NSREC technical sessions (July 16th, 2012), Dan Fleetwood, Chairman of the Radiation Effects Steering Group, announced the grant awards. The grants included tuition for the 2012 NSREC Short Course and a check for $500.

The purpose of the Phelps Grant is to promote continuing education and encourage membership in the Nuclear and Plasma Sciences Society (NPSS). The bases for judging are exceptional promise as a graduate student working in any of the fields of the NPSS, "exceptionally good work" in those fields for currently unemployed NPSS members, and an expectation that attendance at an NPSS-sponsored Short Course will result in an improved possibility of obtaining a job within the radiation effects community. The three recipients of the 2012 Paul Phelps Continuing Education Grant were Cher Xuan Zang and Farah El Mamouni, Vanderbilt University, and Cedric Virmontois, Université de Toulouse.

Cher Xuan Zhang received the B.S. degree in electrical engineering from Huazhong University of Science and Technology, Wuhan, China, in 2008 and the M.S. degree in electrical engineering from Vanderbilt University, Nashville, TN, in 2011, where she is presently working toward the Ph.D. degree in the School of Electrical Engineering and Computer Science. Her current research interests include radiation effects and reliability of advanced materials and devices, including Ge pMOSFETs, SiC MOSFETs and carbon-based materials and devices.

Farah El Mamouni graduated with the B.S. degree in Applied Physics and an M.S. degree in Electronics Component and Systems from the University of Montpellier II, France in 2005 and 2007, respectively. She received an M.S. degree in Electrical Engineering from Vanderbilt University in 2009. She is currently pursuing a Ph.D. in Electrical Engineering at Vanderbilt University under the guidance of Dr. Ronald D. Schrimpf. Her research focuses on investigating the electrical behavior of microelectronic devices in radiation-rich environments. In particular, she is studying single-event transient effects on bulk and SOI FinFETs, analyzing the physical regions in the devices that are most sensitive to radiation effects and how they affect the radiation response. Farah has authored and coauthored 18 refereed conference and journal papers. She was nominated to receive the best student paper award at the 2011 NSREC.

Cedric Virmontois was born in Dieppe, France, in 1985. He received the Engineering degree in physics from the Institut National des Sciences Appliquées (INSA) de Toulouse, in 2008 and he just received the Ph.D. degree in electrical engineering from the Institut Supérieur de l'Aéronautique et de l'Espace (ISAE), Université de Toulouse, this year. His doctoral research was carried out as part of the Image Sensor Research Team at ISAE and was partly funded by CNES (French Space Agency) and ASTRIUM. He is currently working at CNES as a Detection Chain Architect in the Science Payload and Imaging Division. Cedric's research has focused on space radiation effects on CMOS Image Sensors (CIS).

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Cher Xuan Zhang
2012 Phelps Grant recipient

Farah El Mamouni
2012 Phelps Grant recipient

Cedric Virmontois
2012 Phelps Grant recipient

They hold the keys

Organised religions are not the problem. The people doing the organising are the problem.

Ivan Bachur

Grave fact

If you are teaching today what you were teaching five years ago, either the field is dead or you are.

Noam Chomsky

(continued from page 17)

He has been studying displacement damage due to proton and neutron irradiation in CIS. He has been modeling the dark current increase and deducing hardening-by-design techniques to mitigate the damage caused by protons and neutrons. He has also studied the Random Telegraph Signal (RTS) and has investigated the origins of this phenomenon. Today, he has extended his research to several solid-state detectors to find generic ways to predict and mitigate space-radiation effects on detectors.

Cedric has authored or coauthored 7 publications, including the NSREC 2011 Outstanding Student Paper Award. He is a member of the IEEE, NPSS and EDS societies. He has served as a reviewer for the summary selection for NSREC 2012 and for publications in the *IEEE Transactions on Nuclear Science*.

Nominations are due January 31st, 2013, for awards to be presented at the IEEE NSREC 2013 Conference July 8th-12th, 2013 in San Francisco.

RADIATION EFFECTS AWARD NOMINATIONS

Nominations are currently being accepted for the 2013 IEEE Nuclear and Plasma Sciences Society (NPSS) Radiation Effects Award. The purpose of the award is to recognize individuals who have had a sustained history of outstanding and innovative technical and/or leadership contributions to the radiation effects community. The $3000 cash award and plaque will be presented at NSREC San Francisco. Nomination forms are available electronically at http://www.nsrec.com/nominate.htm and must be submitted by January 31st, 2013. Additional information can be obtained from Vincent Pouget, Senior Member-at-Large for the Radiation Effects Steering Group. Vincent can be reached at 33-5-4000-2859 or at vincent.pouget@ims-bordeaux.fr..

PAUL PHELPS GRANT NOMINATIONS FOR STUDENTS

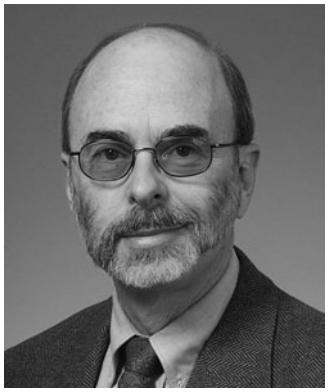
Nominations are currently being accepted for the 2013 Paul Phelps Continuing Education Grant. The purpose of the grant is to promote continuing education through attendance at the 2013 NSREC Short Course and to encourage membership in NPSS. University professors are invited to nominate outstanding student members of NPSS. Unemployed members of NPSS who need assistance in changing careers can also be nominated for the award. The $500 cash award will be distributed before the 2013 NSREC in San Francisco, so that the award recipient can apply the funds towards covering travel costs to the Short Course. The award includes complimentary Short Course registration.

Nomination forms are available electronically at http://www.nsrec.com/steering.htm and must be submitted by January 31st, 2013. Additional information can be obtained from Nick van Vonno, Member-at-Large for the Radiation Effects Steering Group. Nick can be reached at 321-724-7546 or at nvanvonno@intersil.com.

Chapters

Chapters are organizations that serve their members by holding meetings at the local level. They are part of their Region and local IEEE Section, but are also affiliated with one or more IEEE Societies or Councils. The NPSS currently has 18 active chapters or joint chapters, including nine in North America, six in Europe, and three in Asia. To find out if you have a local NPSS chapter, please check the list at http://ewh.ieee.org/soc/nps/chapters.htm. This list includes six chapters that were formed in the past four years: Seoul, Korea Section (2009), Richland, WA Section (2009), Toronto Section (2009), Czechoslovakia Section (2009), Vancouver Section (2010), and Singapore Section (2011). If no local chapter exists, please consider starting a new one. Efforts to form new NPSS chapters are currently under way in several locations. This action requires a petition signed by 12 Society members who have belonged to the IEEE for at least six months and must be coordinated with the leadership of the local Section. The NPSS can provide up to $500 per year to a chapter to support local meetings, and can also provide speakers at no cost to the chapter through the NPSS Distinguished Lecturers program (see http://ewh.ieee.org/soc/nps/lecturers.html) and the following article by Dick Kouzes.

For more information, please contact the NPSS Chapter Coordinator, Steve Gold (steven.gold@nrl.navy.mil).



Steve Gold
Coordinator, Distinguished Lecturers Chair

Distinguished Lecturers Program

Would your group be interested in hearing lectures by distinguished speakers on state-of-the-art research in a wide range of topics selected from all of the technical fields covered by the Nuclear and Plasma Sciences Society, at NPSS expense?

If so, the NPSS Distinguished Lecturer program (http://ewh.ieee.org/soc/nps/lecturers.html) may have something of interest for you. The NPSS supports a panel of distinguished lecturers, all experts in their fields, who have agreed to travel to give lectures from time to time to interested groups. This panel is constantly reviewed and new distinguished lecturers are added to fill in technical and geographic gaps.

The NPSS Distinguished Lecturers Program provides support to NPSS chapters by providing high quality scientific and technical lectures by distinguished experts from the NPSS technical communities. These lectures are provided at no cost for NPSS chapter meetings as well as IEEE Section and Student Chapter meetings. Additionally, these speakers are available to other IEEE groups, as well as to outside organizations such as universities, as a means of technical outreach from the NPSS.

Being appointed as a Distinguished Lecturer provides an opportunity for NPSS members to be recognized as leaders in their technical communities, while providing a valuable service to the broader educational, scientific and technical community. For 2012, the NPSS has appointed 27 Distinguished

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Richard Kouzes
Web Master

(continued from page 19)

Lecturers, each nominated by the Chair of one of the NPSS Technical Committees or by the Transnational Committee, and these Lecturers are currently offering 46 different lectures. The lecture titles and abstracts, as well as biographical information on each lecturer, can be found on the NPSS Distinguished Lecturers website, http://ewh.ieee.org/soc/nps/lecturers.html. The topics of lectures cover all the fields of NPSS including topics in plasmas, radiation detection, accelerators, electronics, medical imaging and applications.

To invite a specific lecturer, please contact that lecturer directly using the e-mail links provided on the website.

Steven Gold, NPSS Distinguished Lecturers Coordinator, can be reached by e-mail at steven.gold@nrl.navy.mil.

Richard Kouzes, author of this article, can be reached at the Pacific Northwest National Laboratory at rkouzes@pnnl.gov.

2013 DISTINGUISHED LECTURERS AND LECTURES OFFERED

Subject	Presenter/Lecture Title	Presenter/Lecture Title	Presenter/Lecture Title
Computer Applications in Nuclear and Plasma Science	**Martin Purschke (BNL)** • Handling of Petabyte-Scale Datasets in Modern Physics Experiments • Introduction to Programming with CUDA purschke@bnl.gov	**Jinyuan Wu (FNAL)** • Conventional and Unconventional Applications of Field-Programmable Gate Arrays jywu168@fnal.gov	
Fusion Technology	**Prof. Farrokh Najmabadi (UCSD)** • Characteristics of an Economically Attractive Fusion Power Plant fnajmabadi@ucsd.edu	**Brad Nelson (ORNL)** • Engineering Challenges for ITER nelsonbe@ornl.gov	
Nuclear Medical and Imaging Sciences	**William W. Moses (LBNL)** • Fundamentals of Nuclear Medical Imaging • Time-of-Flight PET • Advances in Scintillators for Medical Imaging Applications • Scintillator Nonproportionality: Present Understanding and Future Challenges • Selected Topics in Nuclear Medical Imaging and Radiation Detection WWMoses@lbl.gov	**David W. Townsend (National University, Singapore)** • The Evolution of Hybrid Imaging • Lost in Translation—From Basic Science to Clinical Reality David_Townsend@CIRC.a-star.edu.sg	
Particle Accelerator Science and Technology	**Patric Muggli (USC)** • Miniaturization of Particle Accelerators Using Plasmas • Plasma-based Radiation Sources • Ultra-fast Beam Diagnostics muggli@usc.edu	**Thomas Roser (BNL)** • Accelerating and Colliding Relativistic Heavy Ions roser@bnl.gov	
Plasma Science and Applications	**J. Pace VanDevender (SNL)** • Ball Lightning—New Physics, New Energy Source, or Just Good Entertainment jpvande@sandia.gov	**Mounir Laroussi (Old Dominion Univ.)** • Interaction of Cold Plasmas With Biological Cells: Can Plasmas Play a Role in Modern Medicine? mlarouss@odu.edu	**Dr. Giovanni Lapenta (Katholieke Universiteit Leuven, Belgium)** • The Particle In Cell (Pic) Method as a General Tool for Plasma Simulation and Beyond • The Challenge of Multiple Scales in Space Weather and Fusion Plasmas giovanni.lapenta@wis.kul

FUNCTIONAL COMMITTEES

Subject	Presenter/Lecture Title	Presenter/Lecture Title	Presenter/Lecture Title
Plasma Science and Applications *(cont.)*	**Dr. John W. Luginsland (AFOSR)** • Directed Energy—Advanced Technology for Defense at the Speed of Light John.Luginsland@afosr.af.mil	**Dr. Andrew Ng** • Solid-plasma Transition: the New Frontier of Warm Dense Matter nga@phas.ubc.ca	**Dr. Manfred Thumm (KIT)** • High-Power Low-Loss Micro- and Millimeter Wave Transmission • State-of-the Art of High-Power Gyro-Devices manfred.thumm@kit.edu
Pulsed Power Science and Technology	**Dr. Charles H. Stallings (Stallings & Associates)** • Pulsed Power—What is it and Why Should You Care? cstallings11@comcast.net	**Dr. Peter J. Turchi (LANL)** • Plasma and Megagauss Fields turchi@lanl.gov	**Ravi Joshi (Old Dominion University)** • Pulsed Power Opens a Gateway to Biomedical Engineering: Tumor Treatment and Drug Delivery, to Nerve Stimulation and Beyond rjoshi@odu.edu
	Dr. Luis Redondo (Lisbon University) • Solid-State Pulse Power on the Move! lmredondo@deea.isel.ipl.pt	**Dr. Juergen F. Kolb (University of Rostok, Germany)** • Bioelectrics: Pulsed Power for Medical and Environmental Applications juergen.kolb@inp-greifswald.de	
Radiation Effects	**Dr. John D. Cressler (Georgia Tech)** • Radiation Effects in Silicon-Based Heterostructure Device Technologies john.cressler@ece.gatech.edu	**Dr. Allan Johnston (JPL)** • Radiation Effects in Optoelectronic Devices • An Introduction to Space Radiation Effects in Electronics Allan.H.Johnston@jpl.nasa.gov	**Dr. Ron Schrimpf (Vanderbilt)** • Radiation Effects and Soft Errors in Advanced Technologies ron.schrimpf@vanderbilt.edu
Radiation Instrumentation	**Dr. Ralph James (BNL)** • Past, Present and Future for Nuclear Radiation Detectors • Solid-State Gamma-Ray Detectors • Homeland Security R&D at Brookhaven National Lab rjames@bnl.gov	**Dr. Paul Lecoq (CERN)** • Development of New Scintillating Crystals for High Energy Physics, Medical Imaging and Other Applications • Spin-off From Particle Detectors in the Field of Medicine and Biology • Metamaterials for Novel X or Gamma Ray Detector Designs • Molecular Imaging Challenges with PET and SPECT techniques Paul.Lecoq@cern.ch	**Dr. Marek Moszynski (Soltan Institute for Nuclear Studies, Poland)** • Energy Resolution and Non-Proportionality of Scintillation Detectors marek@ipj.gov.pl
Transnational Committee	**Dr. Alessandro Rizzo (Politecnico di Bari)** • Soft Sensors and Artificial Intelligence: Exploiting Experimental Data and Human Expertise to Design Effective Tools for Modelling, Monitoring, Validation and Control rizzo@deemail.poliba.it		

Jane Lehr
Chair, NPSS Fellow Evaluation Committee

Fellow Evaluation Committee

IEEE Fellow Nominations for the Class of 2014 are due by March 1st, 2013

I encourage you to nominate a colleague, co-worker or friend whose career and body of work you consider eligible for elevation to the IEEE Fellow Grade. Nominations for the IEEE Fellows Class of 2014 are being accepted until the deadline of March 1st. Apply online at http://www.ieee.org/membership_services/membership/fellows/

To be considered, a nominee must meet the following three basic qualifications:

- Significant accomplishments that have contributed importantly to the advancement of engineering, science and technology to society;
- Hold the grade of Senior Member in the IEEE at the time the nomination is submitted;
- Be a member in good standing in any grade for a period of five years or more preceding January 1st of the year of elevation. Note that IEEE affiliate membership within an IEEE society does not apply.

Additionally, a nominee is ineligible for elevation to the grade of Fellow if he/she is prohibited from publishing in IEEE publications or is a member of any of the following IEEE boards: Board of Directors, Fellow Committee or a Society/Technical Council Fellow Evaluating Committee.

The application process is initiated by the nominator; self-nominations by a candidate are not permitted. However, any person, including non-IEEE members, is eligible to serve as nominator. The nominator is responsible for:

- Preparing the IEEE Fellow Grade Nomination Form, making sure all information is current and the form filled out correctly.
- Soliciting at least five, but no more than eight, references capable of assessing the nominee's contributions.

A reference must be an IEEE Fellow in good standing but a nominator who is an IEEE Fellow may not serve as a reference for a nomination he/she is submitting. There is an exception for candidates and nominators from Region 9. Please see the Fellows page on the IEEE website for the details of this exception.

There is the option of soliciting no more than three endorsements capable of supporting the nomination. Any person, including non-IEEE members, may submit an endorsement. Individuals involved in the Fellow selection process are generally ineligible to serve endorsers. In addition, a nominator may not serve as an endorser for a nomination he/she is submitting.

The Fellow evaluation process consists of two evaluations. The first evaluation is completed by the IEEE Society/Technical Council which the nominator may identify on the nomination form. The Society evaluation is an extremely important ranking process by persons who are familiar with the nature of the nominee's work. The NPSS Fellow Evaluation Committee is comprised of IEEE Fellows from across NPSS with a consideration of both technical and geographic diversity.

After the Society Fellow Evaluation Committee review is complete, those

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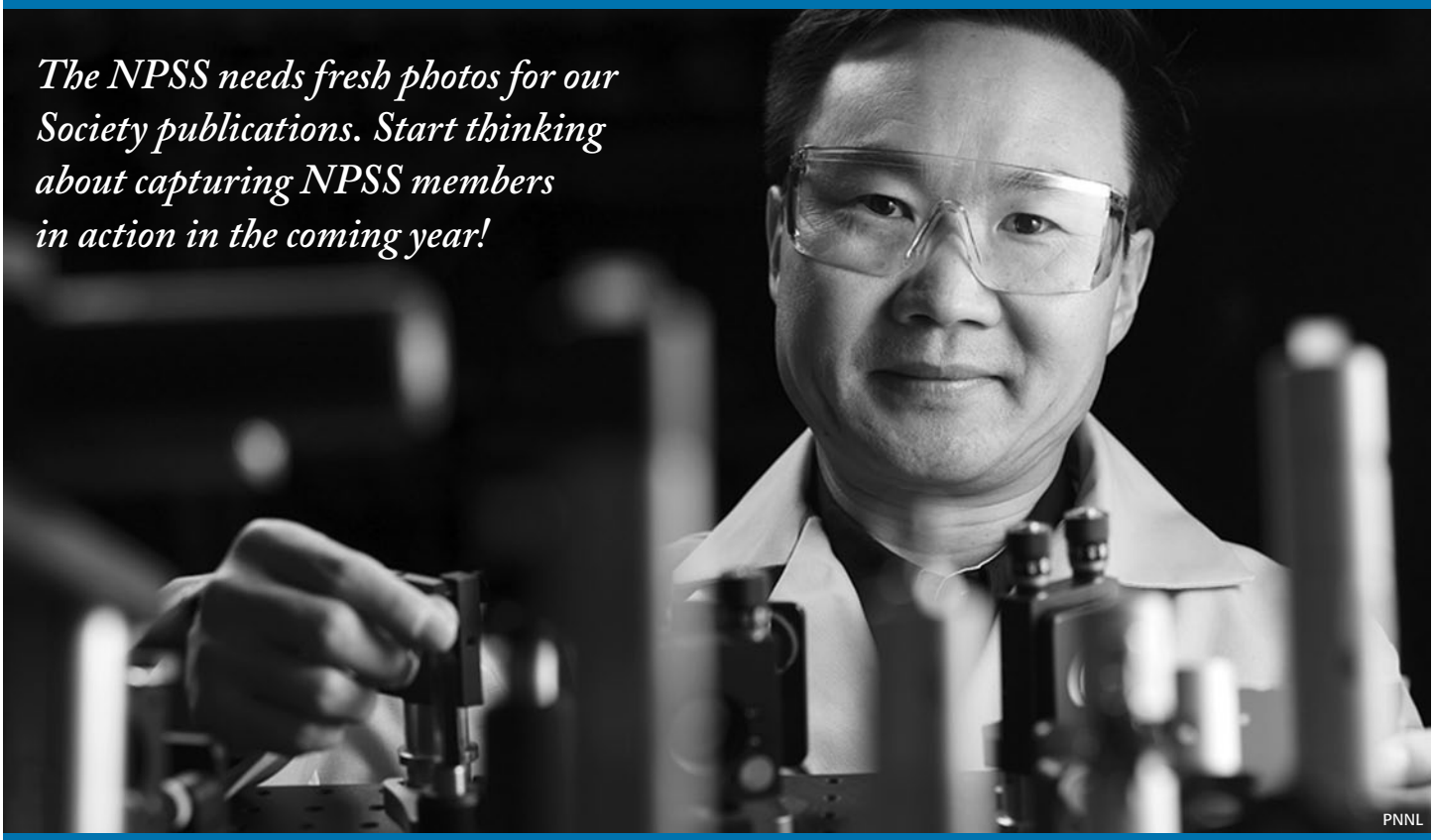
We Need Your Photo Submissions



The NPSS needs fresh photos for our Society publications. Start thinking about capturing NPSS members in action in the coming year!

SUBJECTS NEEDED:

- Experiments, applications equipment, people
- People interacting with each other
- Presentations at meetings, both papers and awards
- Conversations at meetings, people interacting with each other
- Poster sessions, people reading posters, talking to authors
- Exhibit halls—booths, people examining equipment, talking to the vendor representatives
- Any subject that says who NPSS *is* or what NPSS *does*

PHOTO SPECIFICATIONS:

- IEEE/NPSS must have copyright or permission to use all photos submitted
- High-resolution files (10MB minimum)
- Acceptable formats, RAW, TIFF or high-quality JPEG

TO SUBMIT PHOTOS:

Via FTP
ftp.vista-control.com
Username: ieee-npss
Password: npss-photos

E-mail to p.clout@ieee.org

Mail CD to:
Peter Clout
Vista Control Systems
2101 Trinity Drive, Ste Q,
Los Alamos, NM 87544-4103 USA

Contact Peter Clout, at p.clout@ieee.org with questions.

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IEEE
Advancing Technology for Humanity

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technical comments and nominee rankings are incorporated, along with other considerations, by the IEEE Fellow Committee into the final recommendations for elevation to the Fellow grade. The IEEE Fellow Committee consists of 52 members, all of whom are IEEE Fellows with expertise in the technical areas represented by IEEE societies/technical councils and selected to represent the ten IEEE Regions.

The IEEE Fellow Committee recommends nominees to the IEEE Board of Directors, according to the following criteria:

- Significant contributions as Application Engineer/Practitioner, Educator, Research Engineer/Scientist, or Technical Leader;
- Evidence of technical accomplishments;
- Evaluation by the IEEE Society/ Technical Council selected by the nominator;
- Confidential opinions of references and endorsers;
- Service to other professional engineering societies;
- Total years in the profession.

According to IEEE Bylaw I-305.5, the total number of Fellow recommendations in any one year must not exceed one-tenth of one percent of the voting membership on record as of 31st December of the year preceding.

The IEEE Board of Directors makes the final selection at its November meeting.

On behalf of the NPSS Fellow Evaluation Committee, I urge you to nominate a deserving colleague for IEEE Fellow—a noteworthy milestone in anyone's career. It is an extremely competitive process—and it is always challenging to review these nominations—but I hope you can make the job of the NPSS Fellow Evaluation Committee even more difficult by increasing the number of nominations in 2013.

Jane Lehr, Chair of the IEEE NPSS Fellow Evaluation Committee, can be reached at Sandia National Laboratories, P.O. Box 5800, MS1193, Albuquerque, NM 87185-1152 ; Phone : +1 505 844-8554 ; E-mail: jmlehr@sandia.gov.