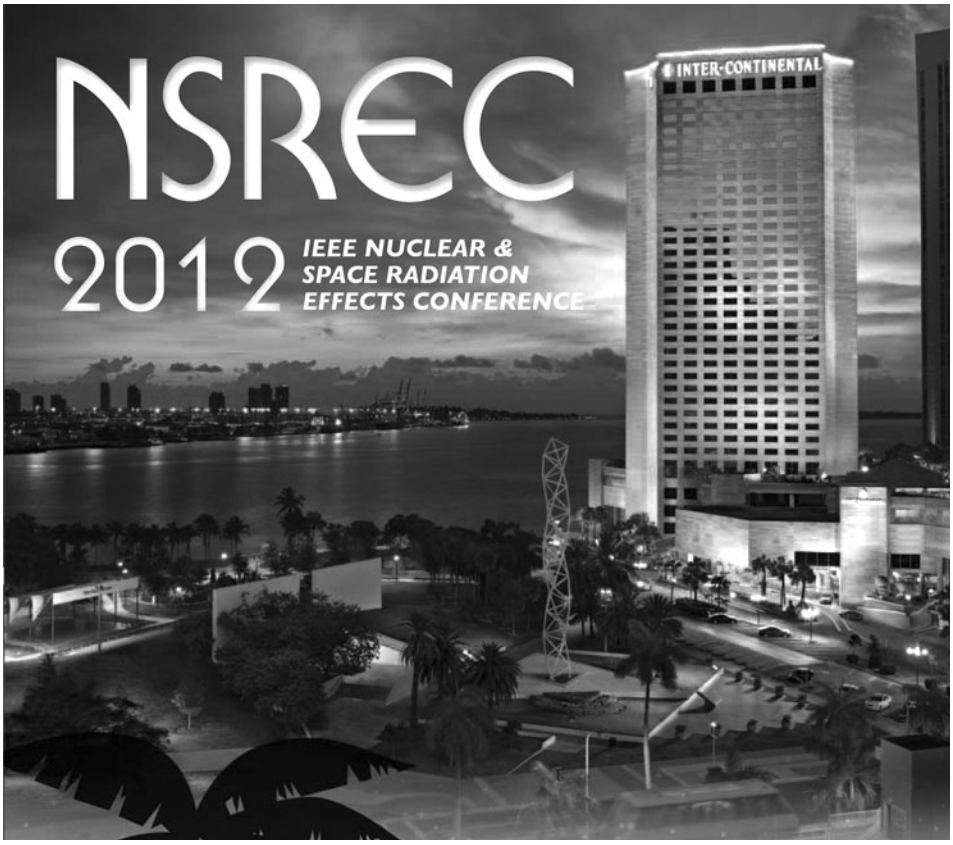
NUCLEAR & PLASMA SCIENCES SOCIETY NEWS

A Publication of the Institute of Electrical & Electronics Engineers

Number 2, June 2012

CONFERENCES



The 49th annual IEEE International Nuclear and Space Radiation Effects Conference (NSREC) will be held July 16-20, 2012, in Miami, Florida, at the InterContinental Miami. We will continue the tradition of previous NSRE Conferences by offering an outstanding Technical Program, a one-day Short Course, a Radiation Effects Data Workshop, and a sold-out Industrial Exhibit. Engineers, scientists, and managers from around the world who are interested in radiation effects will attend. Ken LaBel, NASA Goddard Space Flight Center, is the General Conference Chair.

A complete technical and social program is being planned to maximize opportunities for information exchange and networking in the areas of radiation effects on microelectronic and photonic devices, circuits, and systems. Supporters of the conference include the Defense Threat Reduction Agency, Sandia National Laboratories, Air Force Research Laboratory, the Jet Propulsion Laboratory, Aeroflex, Atmel, BAE Systems, Boeing, International Rectifier, Intersil, Honeywell, Northrop Grumman, Southwest Research Institute, Synopsys and Texas Instruments. Additional information on the conference is available on the Web at http://www.nsrec.com.

TECHNICAL PROGRAM

The Technical Program Chair, Christian Poivey, ESA ESTEC, and his committee have assembled an outstanding set of contributed papers that are arranged into ten sessions of oral and poster papers. They also organized a Radiation Effects Data Workshop. The Workshop consists of papers emphasizing radiation effects data on electronic devices and systems, and descriptions of new simulation techniques and radiation test facilities. In addition, there are three invited talks of general interest to both conference attendees and their companions.

Ron Schrimpf, Vanderbilt University, has organized this year's Short Course with a theme of "Testing and Simulation Methods for Characterizing Radiation Effects in Advanced Electronics," which will be held Monday, July 16th. This Short Course is an excellent learning opportunity for those who are new to the radiation effects community and need a quick introduction to the

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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 July 5th, 2012 for publication in the September 2012 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.

CONFERENCES

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field, as well as those who want to stay abreast of current issues. The Short Course is organized into four sessions starting with a session on single-event and total-dose testing for advanced electronics. The second session focuses on radiation effects in emerging technologies, while the third session focuses on Monte-Carlo-based single-event effect and soft-error rate prediction. The last session discusses system-level single-event effects.

INDUSTRIAL EXHIBITS

This year's Industrial Exhibits, organized by Penny Meeker and acting chair Chuck Tabbert from Ultra Communications, will permit one-on-one discussions between conference attendees and exhibitors on the latest developments in radiation-hardened and radiation-tolerant electronics, engineering services, facilities, and equipment. On Tuesday evening, attendees and their companions are invited to a reception that showcases the Industrial Exhibit. If you need more information on the exhibit, please visit http://www.nsrec.com. The exhibitors are as follows.

- 3D Plus USA
- AEI Systems
- Aeroflex
- AFRL/VSSE
- Aldec
- Atmel
- BAE Systems
- Boeing
- C-MAC MicroTechnology
- CORWIL Technology Corporation
- Crane Aerospace & Electronics
- Crocker Nuclear Laboratory, UC Davis
- CST
- DRTL
- EMP Consultants
- Honeywell
- Hopewell Designs
- Integra Technologies
- International Rectifier
- Intersil Corporation
- ISDE/Vanderbilt University
- J. L. Shepherd & Associates
- Jazz Semiconductor
- Lawrence Berkeley National Lab
- M.S. Kennedy Corp.
- Maxwell Technologies
- Micropac Industries
- Micro-RDC
- Microsemi Corporation
- Modular Devices Inc.
- NASA CRESSE
- NASA Electronic Parts and Packaging (NEPP) Program
- National Reconnaissance Office
- Naval Research Laboratory
- Northrop Grumman Corporation
- Novocell Semiconductor
- NSF Center for High Performance Reconfigurable Computing (CHREC)
- Peregrine Semiconductor Corp.
- Ridgetop Group
- Robust Chip

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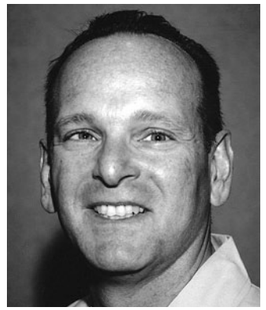
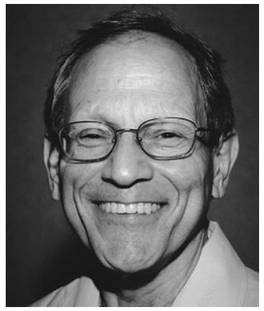


Ken LaBel
Conference Chair

Christian Poivey
Technical Program Chair

Ron Schrimpf
Short Course Chair



Lew Cohn
Local Arrangements Chair

Teresa Farris
Vice Chair, Publicity

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- Rochester Electronics
- Sandia National Laboratories
- SEMICOA
- Silicon Space Technology
- Silvaco, Inc.
- SVTC Technologies
- Synergy Health
- Synopsys
- Teledyne Microelectronics
- Texas A&M Cyclotron Institute
- Texas Instruments
- TRAD
- Ultra Communications
- ULTRA TEC
- VPT, Inc.
- White Sands Missile Range—SVAD
- Zephyr Photonics

SOCIAL EVENTS

Social events have been planned to give conference attendees and their guests many opportunities to discuss business informally and to become better acquainted. Local Arrangements Chair, Lew Cohn, National Reconnaissance Office, has planned an enjoyable and memorable social program. The main conference social on Wednesday night will be "A Trip to South Beach." Additional excursions during the week include a Miami Sightseeing Cruise, the Miami Science Museum and Coconut Grove and an optional Big Bus Tour to create your own event.

MIAMI, FLORIDA

Keys to the decision to select Miami were accessibility for both domestic and international visitors, the vibrancy of a major city, affordability for all attendees and, of course, a fantastic venue. The highly international InterContinental Miami Hotel is located in downtown Miami right along the Biscayne Bay. Impressive views of the water and cityscape are seen from many of the hotel rooms while myriad dining and shopping options abound within a few short city blocks. Just short distances away are spectacular tourist sites ranging from South Beach to the Everglades.

INVITED SPEAKERS

NSREC has three exciting talks scheduled. First, on Wednesday, is "Bizarre in Biscayne," by Gary Bremen, National Park Ranger, Biscayne National Park. Thursday will feature "Single Malt Scotch Whiskey," by Ron Pease, RLP Research, and Friday will lead off with "Working and Living in the International Space Station" by Paolo Nespoli, ESA Astronaut.

ADDITIONAL INFORMATION

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

You may contact the General Chair, Ken LaBel at (301) 286-4699 or E-mail: Kenneth.a.LaBel@nasa.gov.

Or you can contact the Publicity Chair, Teresa Farris, Aeroflex, at (719) 594-8035; E-mail: teresa.farris@aeroflex.com .

2012 NSS/MIC Set for Anaheim

Tom K. Lewellen
General Chair

The 2012 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), together with the Workshop on Room-Temperature Semiconductor X-Ray and Gamma-Ray Detectors will be held in at the Disneyland Hotel (Anaheim, California), from October 27th–November 3rd. This meeting has always provided a great opportunity to get together with old friends and to make new ones, to exchange ideas and share knowledge and experience in the nuclear science and medical imaging fields—and 2012 will be no exception.

As with previous meetings, there will be short courses on the preceding Saturday and Sunday (October 27th and 28th) continuing on through Monday and Tuesday. Currently we are planning short courses on: Radiation Detection and Measurement; Nuclear Science for Homeland Security; Integrated Circuit Front Ends for Nuclear Pulse Processing; Advanced Photodetectors; Biology for Imaging Scientists; Statistical Methods for Image Reconstruction; and Physics and Design of Detectors for PET and SPECT. There will also be short refresher courses on several topics during the MIC meeting. In addition, we anticipate having several workshops before or after the meeting. For example, there will be a two-day Linear Collider Event (October 29th–30th). Details are on the web site at www.nss-mic.org/2012.

The meeting will be held at the Disneyland Hotel Convention Center and we have a room block at $169/night (and some student rate rooms at $128/night) at the two hotels connected to the convention center. The site can be reached from a variety of airports, the main ones being Los Angeles International and Orange County. For both of these airports, there is a Disney bus service (the magic express) that will take you to the hotels. For those registering at the Disney hotels, the package will include one travel voucher for the magic express (round trip) per room. The hotel rooms have been recently renovated and will include free overnight parking, unlimited local telephone and 800 access, free internet access, and unlimited use of the fitness center. The hotels are a short walk (less than 5 minutes) from a collection of restaurants, shops, movie theaters, and other venues in the Downtown Disney area. The hotel reservations opened in March.

While the venue will be relaxing and offers many recreational possibilities when one is not attending sessions, the main purpose of this meeting continues to be the exchange of information in the many scientific and engineering disciplines represented by the attendees. The NSS portion of the conference is an ideal forum for scientists and engineers in the fields of nuclear science, radiation instrumentation, software engineering, data acquisition, and related applications to present their work and network with their colleagues from around the world. Similarly, the MIC has consistently provided one of the most productive forums for the exchange of information on the physics, engineering, and mathematics of nuclear medicine. The MIC goes further with many contributions from other areas of medical imaging including X-ray and magnetic resonance imaging. The RTSD is an ideal companion to both the NSS and MIC segments of the conference and impacts both interest areas.

As in past years, the conference will be making special efforts to obtain

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support grants for students to attend this important meeting and take full advantage of this unique scientific and educational opportunity.

The conference will also provide an industrial exhibits area where the providers and developers of many of the technical tools and services used by our attendees will be presenting their products and the opportunity to talk with their corporate scientists and engineers. The exhibit space will be specifically arranged to allow both the exhibitors and attendees ample space for discussions and exploration of common interests.

Overall, the traditional excellence of the NSS, MIC, and RTSD conferences will be continued, and we hope enhanced in 2012 with the combination of the outstanding presentations of current work, educational sessions, special emphasis seminars, and a venue that will promote the informal exchange of ideas and information.

Some of the social events include the exhibitors' reception on Tuesday, the general conference reception on Wednesday, and the NSS lunch and MIC dinner. As in past years, there will be other events for smaller groups such as the Gold Reception for graduates of the last decade and new members, and the Women in Engineering reception. And, if all goes well, we should have a few other surprises along the way for the attendees. All in all, this will be a very full week.

I look forward to seeing you in Anaheim!

Tom K. Lewellen, General Chair, can be reached by E-mail: nssmic2012@u.washington.edu or Phone: +1 206 543-2365

Of no account

Not everything that can be counted counts, and not everything that counts can be counted.

Albert Einstein

Janet Barth
IEEE NPSS Vice President/ President-elect

Vice President's Report

Dear Colleagues and Friends,

This is my second year as the Vice-President of the NPSS. In my first year, I had the opportunity to work with our President, Bob Reinovsky, to learn about the roles and responsibilities of the President and the other elected and ex officio AdCom members in the management of our Society. All of the AdCom members are volunteers who use their evenings and weekends and bits of time while at their "day jobs" to accomplish their AdCom responsibilities. It is exciting to work with individuals who bring energy, enthusiasm, and earnestness to fulfill the AdCom charter "to aid in promoting close cooperation and exchange of technical information among its members and affiliates."

To this end, a vital function of the NPSS is the sponsorship and technical cosponsorship of conferences in our technical fields of interest. A group of ex officio AdCom members who are critical to the success of our NPSS conferences are the Chairpersons of each Standing Technical Committee (TC); Stefan Ritt from Computer Applications in Nuclear and Plasma Sciences, Dennis Youchison from Fusion Technology, Suleman Surti from Nuclear and Medical Imaging Sciences, Stan Schriber from Particle Accelerator Science and Technology, Brendan Godfrey from Plasma Science and Applications, Jane Lehr from Pulsed Power and Technology, Dan Fleetwood from Radiation Effects, and Ed Lampo from Radiation Instrumentation. At AdCom meetings, each TC Chairperson presents the status of their past,

current, and future conferences and advice is generously offered by all TC Chairpersons on a variety of conference issues, including finances, hotel contracts, audio-visual setups, new presentation formats, the challenges of supervising volunteers, acceptance rates of papers, and lessons learned about those little "glitches" that occur. This free exchange of information among our conference-savvy TC Chairpersons helps to keep our NPSS conferences financially healthy and of the highest technical quality which, in turn, supports the retention and recruitment of NPSS members. I am grateful for their committee leadership and for their active participation on the AdCom.

I look forward to lively discussions at our future AdCom meetings as we follow the development of new business and financial models for the IEEE. Now that I am in my second year as Vice-President, I am preparing for my term as President by gaining an understanding on how the NPSS fits into the overall IEEE organization. I had the opportunity to shadow Bob at the IEEE Technical Activities Board (TAB) meeting in February. There I experienced the breadth of the IEEE and heard more about the business side of our large organization. During the open portion of the TAB meeting, the development of the new IEEE business model and the requirement to define a new financial model were presented. The need to invest in new initiatives, such as user interfaces to the IEEE knowledge base, was stressed. The Treasurer of the IEEE, our own Hal Flescher, noted that there is no source of income for these new initiatives. In the past, the IEEE relied on the stock market to generate income or funding was being taken out of reserves. With the fluctuations in the stock market and the reduction of the reserve fund, these options are less and less feasible.

Another concern that received a lot of attention at the TAB meeting was IEEE "branding infringement" in the form of local and regional conferences that do not have a sponsoring Technical Committee. These conferences tend to be of low quality, and many of the conference proceedings go into IEEE Xplore, thereby raising concerns about tarnishing the reputation of the IEEE. The Societies can dictate the use of the IEEE logos to their chapters; however, a means of enforcement is lacking. Bill Moses who wears two hats as our AdCom Chairman for Conferences and as the IEEE Conferences Committee Chairman is following this issue closely. A motion on how to address branding infringement will be put on the TAB agenda for the June meeting.

Finally, if you visit the IEEE homepage, you will note that written under the IEEE logo are the words "Advancing Technology for Humanity." Ray Larsen, a former NPSS President and a current AdCom liaison representative, has demonstrated outstanding leadership in the NPSS response to the 2008 IEEE Humanitarian Challenge. In the last newsletter, I provided a brief update on Ray's participation in the IEEE Community Solutions Initiative (CSI) to develop solar power stations on trailers that can be rolled into rural villages in Haiti to provide residents with electricity for the first time in their lives. A critical element of the project is a partnership with Sirona Cares Foundation to build local businesses that actually own leasing rights to the solar-power trailers and lease the home chargers to local families for less than they were spending on kerosene and candles. The first successful deployment of the units (SunBlazers) is detailed in the IEEE *Spectrum*, October 07, 2011, "Mobile Solar Energy Units Bring Lights to Haitian Homes."

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(K)night fall

When small men begin to cast big shadows, it means that the sun is about to set.

Lin Yutang

Indirect request

People ask you for criticism, but they only want praise.

Somerset Maugham

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The NPSS continues to support the CSI by helping to fund nine new units, and the U.S. Agency for International Development is paying for additional units of its own. Ray and the Sirona team are now working with the Haitian government, the United Nations, USAID and others to set up a factory in the Haitian capital, Port au Prince, to build thousands of SunBlazers, creating even more sustainable local jobs. Additionally, Ray is working to replicate the Haitian success in 2012 with a goal of 10 new startups in Africa and India. I would like to extend my gratitude to Ray on behalf of the AdCom for the many, many hours that he has selflessly devoted to "Advancing Technology for Humanity."

Janet Barth can be reached by E-mail at janet.l.barth@nasa.gov.

Albe Larsen
NPSS Secretary and Newsletter Editor

Secretary's Report

The Nuclear and Plasma Sciences Society Administrative Committee met in Santa Fe, New Mexico on March 2nd and 3rd, 2012 for a retreat day and a regular meeting. The retreat was used to address issues that our regular meetings don't have time to include. Some items considered were the relationship between our Real Time conference and the independent International Conference on Accelerator and Large Experimental Physics Control Systems (ICALEPCS) that we have technically cosponsored since its very early days. The whole position of technically cosponsored conferences was also discussed, especially because the IEEE's general position on these conferences is changing and requirements for and expectations of technical cosponsorship are becoming better defined. The Technology Navigator was also discussed as were overall IEEE and NPSS finances, concentration banking and conference management software.

At our regular AdCom meeting we welcomed newly elected members Kay Chesnut (Radiation Effects), Christine Coverdale (Plasma Science and Applications), Mark Crawford (Pulsed Power) and John Sethian (Fusion Technology) and new chairman Suleman Surti (Nuclear Medical and Imaging Sciences) to AdCom, and recognized Ed Lampo's dual role as elected AdCom member as well as chair of the Radiation Instrumentation technical committee. We also welcomed Tom Tierney of IEEE-USA and Los Alamos, who is active in the Energy community and two guests from the ICALEPCS organizing committee, John Fisher and Chris Marshall of Lawrence Livermore Lab.

Ron Keyser, our treasurer, reported that our finances are in good shape and that conference closings are getting better. Overall IEEE is also improving on closing conferences in a more timely way so that there are now very few delinquents. Our 2013 draft budget is due to IEEE in April and there will be a couple of opportunities for amendment and review before it is finalized. Our journals continue to do well, but this remains an uncertainty for the future.

Our President, Bob Reinovsky, discussed some of the issues from the February Directors' Series meetings. One particular item is the difference in perceived value in IEEE for those who are members of societies and those who are more involved in MGA activities. Society members tend to be focused on R&D while MGA tends to focus on practitioners. IEEE depends and serves both communities well but in different ways to meet very different needs.

There was considerable discussion of posting IEEE copyrighted papers on third-party web sites. This is strictly prohibited and may lead to stringent requirements for paper posting.

Peter Clout, our Division IV Director, talked about the somewhat random apportionment of societies into ten divisions based on a combination of size and technical relationship to attain ten Technical Activities Board seats. Peter also serves on the audit and benefits committees of the Board with duties related to appointing auditors, compliance, appropriate and improved financial procedures and controls. Conference closings as well as ongoing tracking through the conference budgeting and expenditure phases should be improved by a new web-based system that will provide information and tracking on close to a daily basis. Peter has initiated a private luncheon for the presidents of the societies in Division IV to make it possible to talk more closely with each other.

TECHNICAL COMMITTEE REPORTS

Stefan Ritt reported that there is a new Distinguished Lecturer from the Computer Applications in Nuclear and Plasma Sciences (CANPS) community, Dr. Jen-Wan Wu of Fermilab. See the article on the Distinguished Lecturers program under Functional Committee Reports (p. 20). The 2012 Real Time Conference to be held in Berkeley, CA from June 11-15 has its plans well in hand. The Executive Committee will meet in Berkeley after this meeting. There are four distinguished candidates for the CANPS award this year, and the conference has added three new topics. There are also two very exciting keynote talks scheduled. The site for the next Real-Time conference has been selected and will be announced on the last day of this June's conference; it will be held in Asia. The committee is working to identify sites in Europe for RT16.

Dennis Youchison reported that there was a Fusion Technical Committee teleconference on November 17th and that they discussed the 2011 and 2013 conferences as well as newsletter content since the editor continues her plea for articles from the technical community (note the article in the March Newsletter that came from that conversation). There had been talk of an MOU for technical cosponsorship of the ANS Topical Conference on Fusion Technology but that has made little progress. The 2013 SOFE will be held in San Francisco at the Stanford Court Hotel and the 2015 conference will be collocated with Pulsed Power in Austin, Texas. Once again there will be a special issue of TPS with articles from the 2011 SOFE. About half the papers submitted have been accepted for publication.

Ed Lampo reported that RISC has new steering committee members and thanked new and old members. He noted that the RI Constitution and Bylaws need revision. The CD of the 2011 NSS/MIC/RTSD conference record has been released. There were 1841 papers submitted in Valencia and of these 836 were NSS papers.

Suleman Surti, welcomed as the new chair of the Nuclear Medical and Imaging TC, noted that there are several new steering committee members and that Dimitris Visvikis has been appointed vice chair. There were bylaw changes that were published in the March Newsletter. Most particularly, the period for counting ballots has been reduced to 45 days from 60 days. A committee has been appointed to conduct their required five-year Bylaws review this year. The 2011 MIC had 764 papers submitted and a final number of

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Not right away?

It is not enough to do good, one must do it the right way.

Viscount Morley

That's politics

A great deal of intelligence can be invested in ignorance when the need for illusion is deep.

Saul Bellow

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684 accepted. For the 2012 meeting in Anaheim, with Tom Lewellen as General Chair, considerable funds have already been raised for student support. Plans for 2013 and beyond are proceeding well.

Stan Schriber reported that the PAST committee has assigned jobs with some shifts in responsibilities. Plans for the 2012 IPAC are proceeding well. The meeting will be held in New Orleans with Vic Suller as General Chair. So far 1886 abstracts have been submitted with ~45% from North America, 35% from Europe and 20% from Asia. Registration started early and the sign-up for industrial exhibits has been vigorous. The next North American IPAC will be in 2015. The PAC will meet in Pasadena in 2013 and in Richmond in 2015. A unique feature of PAC is the student poster session held the evening before the conference officially opens. This provides students a great chance to meet each other and also provided the poster paper judges early access to the posters.

Brendan Godfrey noted that the Plasma Sciences ExCom also has new members. The 2012 ICOPS conference, to be held in Edinburgh in July, has had over 800 abstracts submitted, meaning that this should be a very large conference, and the second Curie Award will be presented by Peter Staecker, IEEE President-elect. The planning for the 2013 meeting in San Francisco, a Pulsed Power Plasma Sciences combined meeting, is well along. Watch for information early in 2013. Plans for conferences from 2014 through 2016 are taking shape.

Jane Lehr noted that the program for the Pulsed Power side of the 2013 PPST is in the hands of Mark Crawford, with John Verboncoeur as deputy. There will be a minicourse the weekend prior to meeting launch. This is expected to be a very large meeting so early registration is important! The 2015 conference will be in Austin, TX with Mark Crawford as chair, and will be collocated with SOFE. Pulsed Power will sponsor the Megagauss Conference in 2014 in Hawaii. They have already begun to receive grants for this. The Pulsed Power Committee will see some changes in the coming year with some of the original leaders taking a less active role and some new people being engaged. They are also trying to clarify conference succession so that conference leaders are well trained. They are working on a 'strawman' conference manual specific to Pulsed Power's needs.

Dan Fleetwood reported on the Radiation Effects conferences, with 2012 all set for Miami in July. The 2013 conference, to be held in San Francisco, will be NSREC's 50th anniversary, so the meeting will have some very special events. And in 2014 they will hold their meeting in Paris at the Marriott Rive Gauche, the first non-North American NSREC ever. There will be no RADECS conference in 2014 to encourage large attendance and more interaction between these communities. In 2015 the conference moves to Boston. Radiation Effects is also having an election for technical committee members and Marty Shaneyfelt will become the next TC chair.

FUNCTIONAL AND APPOINTIVE COMMITTEE REPORTS

Bill Moses, chair of our Conferences Committee as well as chair of the IEEE Conferences Committee, noted that the quality of conferences is a big concern. Expect to see changes in what entities can sponsor or technically cosponsor conferences. There will also be changes in what will be accepted for Xplore, again to maintain a standard of excellence that is important across IEEE. This may lead to higher rejection rates for conferences and for what is published in conference records. This may be beneficial to quality. New conference software will also be rolled out this spring which will do

We are not amused

The art of medicine consists in amusing the patient while nature cures the disease.

Voltaire

All too often, alas

For sleep, riches and health to be truly enjoyed, they must be interrupted.

Jean Paul Richter

many jobs for a conference automatically such as set up concentration banking, deal with insurance, generate MOUs if needed and so on. Another Conferences/Publications initiative is that all conference records will be scrutinized by CrossCheck, a software package that looks for plagiarism, including self plagiarism. This software can be used by program committees in selecting papers for conferences as well. And a new tool will be released for conference treasurers to aid in budgeting and reporting. It will also provide standardization and expedite conference financial tracking and conference closing and should help satisfy the auditors.

Steve Gold reported about the Chapters and Distinguished Lecturers program. We have a budget to support Chapter activities, if chapters have filed timely reports. Funds to support Distinguished Lecturers' presentations are also available. If your chapter has an interest, see Steve's article and contact him or the speaker of interest.

Nominations chair, Craig Woody, noted that nominations are due by June 1st for various AdCom and technical committee positions. There will also be an election by AdCom of a new vice president/president-elect to be held in the fall. Only elected AdCom members are eligible for this position.

Paul Dressendorfer, Publications chair, noted that there had been some glitches found in Xplore where issues were missing or indexed incorrectly. Xplore will become interactive with new XTML to improve its value. Our journals are all doing well. We're proud to note that Paul is a candidate for the IEEE Publication Services and Products Board (PSPB).

Jane Lehr announced that she had a good Awards committee and announced the recipients of the 2012 Merit, Shea, Early Achievement and Graduate Scholarship awards. There will be information on the recipients in this and upcoming Newsletters. Remember that IEEE offers many awards for professionals and for students. Check out the Awards web site and nominate a deserving colleague for one of IEEE's prestigious awards!

Jane also chairs the Fellow Evaluation committee and in 2011 60% of our candidates received elevation to Fellow in the class of 2012. We also had two recipients nominated by the Magnetics Society and one nominated from Dielectrics. It isn't too early to start to think of nominees for the class of 2014, since nominations are due by March 1 and preparing a really good application takes time. Check our web pages for a list of NPSS Fellows and for tips on preparing good nominations.

Peter Clout reported for Vernon Price, a Membership Committee member and former chair, that membership in NPSS was down slightly in 2011. However, membership had some challenges in 2011 and we also haven't finished the campaign to regain lapsed members. In 2012 we expect improvement. Peter also noted that our promotional literature will be renewed in 2013. And the committee, together with the Transnational Committee chair Jean-Luc Leray and the Transnational Liaison, Patrick Le Dû, are working to improve storage and deployment of materials for European conferences. Our number of international conferences continues to increase so we will need a similar storage and shipment plan for Asia in the near future. We do need excellent graphics for the 2013 brochures, so contact Peter (clout@vista-control.com) if you have any wonderful photos of lab hardware or of conference activities. Color images should be at least 5x7 inches, 300 dpi, and around 10mb or larger.

Christoph Ilgner, our GOLD chair, noted that 15% of NPSS members are

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Sigh, I've neither

Being rich is having money, being wealthy is having time.

Margaret Bonanno

But not charge free

The advantage of owning [an electric car] is that you will always be driving a current model.

Jim Sanders

No contest, alas

Some decisions are so dumb that only governments can make them.

Rex Murphy

Nor contagious

When we are planning for posterity, we ought to remember that virtue is not hereditary.

Thomas Paine

(continued from page 11)

in this Graduates of the Last Decade category. A poll of these members indicated that job opportunities are a major concern. Our GOLD activities try to connect these members with some of the most senior NPSS members from industry, academia and national laboratories.

Leonard Bond sent a report given by Dick Kouzes, updating us on the IAEA-sponsored PLIM (nuclear plant life) conference hosted by the U.S. and technically cosponsored by NPSS. Following the Fukushima power plant problems, interest in nuclear power is again waning, but the issues related to maintaining existing plants are critically important.

LIAISON REPORTS

Most important here were discussions of our relationship with ICALEPCS, mentioned above (p. 8), and how ICALEPCS may be changing. The next ICALEPCS conference, in 2013, will be held in San Francisco with Lawrence Livermore National Lab as host. Chris Marshall is chair and John Fisher is technical program chair. They attended this AdCom meeting and shared some of their views, including that ICALEPCS is becoming less focused on accelerators and is broadening its sphere of interest.

Our RADECS liaison, Jim Schwank, reported that the 2011 RADECS conference had record attendance, with 122 papers submitted to TNS, an increase of about 50% over the usual. The 2012 RADECS will be in Biarritz and plans are underway for 2013 and 2015 conferences. Jim is developing guidelines for RADECS publications.

Allan Johnston, our Women in Engineering liaison, will attend the WIE meeting in May in Orlando. WIE has now officially moved to MGA. Allan will be working on some new documentation for WIE. Professional contact with WIE comes through society activities and these are funded by the societies themselves. Interestingly, only 6.5% of WIE members belong to a society. Only 170 of NPSS's +/-3000 members belong to WIE.

Alberto Del Guerra discussed the Life Sciences New Initiative. There is now an electronic newsletter; this is very much an Engineering in Medicine and Biology Society initiative.

ACTIONS TAKEN BY ADCOM

- It was moved and passed that in recognition of the 50th anniversary of the founding of the conference, IEEE NPSS will provide $75k in support of a special commemorative event at the 2013 NSREC.
- AdCom grants RE a waiver to its constitution and by-laws to hold its 2012 election electronically with a voting period of 45 days.
- It was moved and passed that the fees for the 2013 budget shall be:

$35 NPSS Membership fee requires IEEE membership and will include:

Electronic access to TNS and TPS

Electronic access to conference proceedings

Paper/electronic access to Newsletter

Paper subscription fees:

	TNS	TPS
Member IEEE/NPSS	$70	$70
Member IEEE	$105	$105

Nonmember fees are set by IEEE Pubs.

- It was moved and passed that NPSS budget up to $15,000 in 2012 and yearly thereafter to replace and enhance booth equipment for European conferences and to secure European warehouse and shipping capabilities to store and ship IEEE and NPSS booth equipment and literature for European conferences.
- It was moved, seconded and passed that voting AdCom members and functional committee chairs are budgeted up to $3000 per year reimbursement for travel expenses to AdCom meetings ($4,500 for trans-Atlantic or trans-Pacific travel). However, members are encouraged to use other sources of travel funds, if possible, and expenses will not be reimbursed for travel to meetings that they would otherwise attend.

Albe Larsen, IEEE NPSS secretary and Newsletter editor can be reached at amlarsen@slac.stanford.edu or by phone at +1 650-926-2748.

TECHNICAL COMMITTEES

Computer Applications in Nuclear and Plasma Sciences

Stefan Ritt
CANPS Chair

The 18th Real Time Conference (RT12, 11-15 June 2012) will probably be over when this newsletter is published in June. The conference is organized by Sergio Zimmermann from the Lawrence Berkeley National Laboratory. We have had 209 abstract submissions, indicating that we will have an attendance that is slightly higher than in previous years, so that the conference will once again be a big success. It will be interesting to see how some of the new topics such as "upgrades of large experiments" or "feedback and experiences" will be received by the audience.

A highlight of the Real Time Conference is the presentation of the CANPS prize. It is given to individuals who have made outstanding contributions in the application of computers in nuclear and plasma sciences. This year, the prize is awarded to Christopher Parkman for "outstanding development and user support of modular electronics for the instrumentation of physics applications." The next newsletter will contain a more detailed introduction to Christopher Parkman's achievements.

The 19th Real Time Conference is already on the horizon and will take place in spring 2014. We follow our traditional cycle Asia-Europe-North America, with RT10 in Lisbon, Portugal, and RT12 in Berkeley, California, RT14 will go to Nara, Japan. It will be hosted by Masaharu Nomachi from the Osaka University. Members of the committee visited the site in March this year, and it looks like one of the most beautiful spots to hold a conference. The historic town of Nara has many old temples and shrines recognized by the UNESCO world cultural heritage and is therefore a major center for tourism in Japan. Negotiations with the conference site and hotels have begun. We believe that going to Japan for the first time will be a great experience for all attendees of the Real Time 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

Suleman Surti
NMIS Technical Committee Chair

Nuclear Medical and Imaging Science and Technology

Preparations for the 2012 IEEE Nuclear Science Symposium and Medical Imaging Conference (IEEE NSS/MIC) are well under way and if you have not had a chance I would recommend visiting the conference website at http://www.nss-mic.org/2012/NSSMain.asp.

The meeting will take place at the Disneyland Hotel Convention Center in Anaheim, CA from Oct. 27th–Nov. 3rd and will be chaired by Tom Lewellen. Alex Converse will be the MIC Deputy Program Chair. By the time of this publication, the abstract submission deadline would have already passed and the organizing committee will be busy finalizing the meeting program. Joint sessions will be held on Tuesday, October 30th, and the main MIC program will extend from Wednesday through Saturday.

In other matters, nominations are solicited for this year's NMISC awards and for membership in the Nuclear Medical and Imaging Sciences Council. The Edward J. Hoffman Medical Imaging Scientist Award is given annually to an individual in recognition of outstanding contributions to the field of medical imaging science. The Bruce Hasegawa Young Investigator Medical Imaging Science Award is also given annually to a young investigator in recognition of significant and/or innovation technical contributions made early in their career. To be eligible for the Hasegawa award, the individual must have been awarded their highest degree no more than six years prior to the date of nomination. If you know of an individual you believe is deserving of either of these awards please take the time to nominate him/her. The deadline for nominations for these awards is July 15th. Instructions and nomination forms are available on the web site, http://ewh.ieee.org/soc/nps/nmisc/MICAwards.html. Nominations should be sent to Irene Buvat, Chair of the IEEE NMISC Awards/Fellows Subcommittee, buvat@imnc.in2p3.fr.

We also need five new volunteers each year to serve as NMISC committee members for a three-year term. Self-nomination is accepted and encouraged. 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.

In 2013, the IEEE NSS/MIC meeting will take place for the first time in Asia at the Coex Convention Center in Seoul, South Korea. Hee-Joung Kim is the General Chair for the meeting and Jae Sung Lee is the MIC Program Chair. The organizing committee had its first on-site meeting in April and conference preparations are ongoing.

In 2014, the 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. The 2015 site has not yet been finalized, but will probably be in the U.S. with proposals under consideration from Knoxville, Orlando, San Diego and Albuquerque. The 2016 IEEE NSS/MIC meeting will be held in Strasbourg, France.

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 no reason

Computers are like Old Testament gods, lots of rules and no mercy.

Joseph Campbell

Awards

Your editor apologizes that she omitted the following Fellow biography in March.

FELLOW CLASS OF 2012

Ahmed Hassanein

Prof. Hassanein holds five engineering degrees including the Ph.D. in Nuclear Engineering (1981), two Masters' degrees in Nuclear Engineering and Physics from the University of Wisconsin-Madison, and Master and Bachelor degrees in Nuclear Engineering (1976) from Alexandria University, Egypt. After graduation from University of Wisconsin he joined Argonne National Laboratory, where he was Senior Scientist, Group Leader, and Director of the Fusion Power Program. Currently Hassanein is the Head of the School of Nuclear Engineering and Director of the Center for Materials Under eXtreme Environment (CMUXE) at Purdue. He has extensive research activities in several areas of plasma physics applications including magnetic and inertial fusion, laser- and discharge-produced plasmas, nuclear detection, directed energy lethality, surface modification of materials, and next generation nanolithography. His scientific activities include reviews for more than 20 journals and professional organizations, and is chair and advisory member of several international committees. He was the General Chair of the 38th IEEE International Conference on Plasma Science (ICOPS-2011) in Chicago, USA.

He developed the powerful computer simulation package, High Energy Interaction with General Heterogeneous Target Systems (HEIGHTS), for the simulation and optimization of various interaction processes during intense energy deposition into target materials from different energy sources including plasma, laser, electron and particle beams. The HEIGHTS is being used in the design of the International Thermonuclear Experimental Reactor (ITER) chamber and divertor components to ensure reliable and successful operation and to find ways of mitigating plasma instability effects through advanced computer simulation, and implementation of detailed physics in realistic 3-D reactor geometry. The HEIGHTS package was benchmarked against fusion machines and plasma devices around the world. HEIGHTS identified plasma operating window regimes and upper transient limits that plasma-facing components(PFC) and chamber walls in both magnetic and inertial fusion systems can withstand during plasma instabilities or inertial debris deposition and studied/invented methods for PFC protection and mitigation techniques. His work was reported in peer-reviewed journals, at national and international conferences,and in books with contributions as author and editor including *Modeling and Key Issues of Plasma/Surface Interactions in Tokamaks* in **Fusion Engineering and Design** (2002) and *Hydrogen and Helium Recycling at Plasma Facing Materials* in the NATO Science Series(2002).

His early work in fusion plasma systems was instrumental in advancing current nanolithography and extending device lifetime. Prof. Hassanein is recognized worldwide for the development and optimization of EUV sources for the next generation lithography. His computational and experimental work predicted the performance and optimum parameters for enhancement of the efficiency and lifetime of both laser

(continued on page 16)

Ahmed Hassanein
Fellow Class of 2012

Or friends in high places

A cult is a religion with no political power.

Tom Wolfe

Hobson's choice

When you can't have what you choose, you just choose what you have.

Owen Wister

(continued from page 15)

and discharge produced plasma devices. He holds four patents in the nanolithography and nanotechnology. Prof Hassanein was also honored as an SPIE Fellow for his achievements in the development of EUV sources for advanced lithography. Prof. Hassanein is also a Fellow of the American Association for the Advancement of Science (AAAS) for distinguished contributions to the areas of interactions of energetic beams and plasmas with materials. Prof. Hassanein was also elected Fellow of the American Nuclear Society (ANS) for advancing nuclear science and technology.

He is the author of more than 400 journal publications and technical reports in more than 30 different national and international journals. He is a frequent speaker at world-class institutions in Russia, Japan, and Europe and has chaired national and international conferences and workshops. Selected 2011 talks include those at SPIE, San Jose, CA, the 19th International Conference on Composites or Nano Engineering (ICCE-19), Shanghai, China, Plenary Speaker at the 150th Anniversary of the National University of Colombia, Bogota, 8th International Symposium on Applied Plasma Science, ISAPS '11 Hakone, Japan, and the 11th International Conference on Laser Ablation (COLA), México.

Citation: for contributions to modeling and simulation of fusion, laser, and discharge-produced plasmas.

Mounir Laroussi
IEEE NPSAS Merit Award recipient

Society Awards

NPSS MERIT AWARD

Mounir Laroussi

Dr. Mounir Laroussi received his Ph.D. in Electrical Engineering from the University of Tennessee, Knoxville in June 1988. He is now Professor of Electrical and Computer Engineering at Old Dominion University (ODU) and is the Director of ODU's Laser and Plasma Engineering Institute (LPEI).

Dr. Laroussi's research interests are in the Physical Electronics area and particularly in the physics and applications of nonequilibrium gaseous discharges including the biomedical applications of nonthermal plasmas. He has more than 100 publications in journals and conference proceedings, and holds several patents. He served as an elected member of the Administrative Committee (2002-2005) and on the Plasma Science and Applications Executive Committee (2005-2007) of the IEEE Nuclear and Plasma Science Society (NPSS). He has also served as a Guest Editor of the *IEEE Transactions on Plasma Science* and as the General Chair of ICOPS 2010. He serves on the Editorial Boards of *Plasma Processes and Polymers* and the *International Journal on Plasma Medicine*. Dr. Laroussi was the recipient of the IEEE Millennium Medal, 2000; the Excellence in Research Award from the Batten College of Engineering and Technology, Old Dominion University, May 2005; the Excellence in Teaching Award from the Electrical and Computer Engineering Department, Old Dominion University, June 2006; the Excellence in Innovation Award from the Hampton Road Technology Council, May 2006; and the Research Achievement Award, Old Dominion University, May 2009. Dr. Laroussi is a Fellow of IEEE and an IEEE-NPSS Distinguished Lecturer.

Mounir Laroussi can be reached at mlarouuss@odu.edu.

NPSS 2012 GRADUATE SCHOLARSHIP AWARD

Peng Zhang

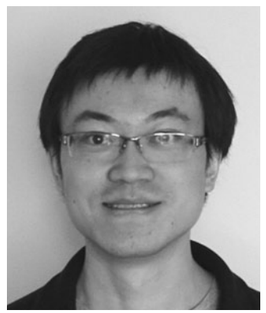
Peng Zhang is a fourth-year graduate student in the Department of Nuclear Engineering and Radiological Sciences at the University of Michigan, Ann Arbor. His Ph.D. thesis concerns studies of electrical contacts and the heating phenomenology of rough surfaces. He works under the supervision of Professor Y. Y. Lau, and is supported by the Air Force Office of Scientific Research.

He has worked on many different projects, ranging from quantum diode, electrical contacts of bulk materials and thin films, enhanced RF heating on rough surfaces, microwave plasma windows, and magneto-Rayleigh Taylor instability. He has authored or coauthored 12 refereed publications on these topics. His most extensive contribution is on electrical contacts, which have surfaced as a crucial problem for wire-array Z-pinch, high-power microwave generation and protection, triple point junctions, and others in ongoing projects at the University of Michigan. He constructed simple, accurate scaling laws for the contact resistance for both thin film contacts and bulk contacts with arbitrary electrical resistivity ratios in the different contact regions, which may assume various geometrical shapes. This work will find important applications to metal-metal contact, metal-semiconductor contact, thin films, and spot welding. His other works include robust protection of sensitive electronics against high-power microwaves, effects of magnetic shear on the magneto-Rayleigh-Taylor instability, and most recently on RF sources powered by nonlinear transmission lines.

He enjoys solving problems. He also spends time in the lab working on experiments with his peers, and also enjoys being with them at happy hours.

Peng Zhang can be reached at umpeng@umich.edu.

Biographies of our other Society Award recipients will be published in September.



Peng Zhang
Graduate Scholarship Award recipient

Particle Accelerator Science and Technology Awards

PARTICLE ACCELERATOR SCIENCE AND TECHNOLOGY AWARD

Hasan Padamsee

Prof. Hasan Padamsee of Cornell has been selected as a winner of the IEEE/NPSS Particle Accelerator Science and Technology Award for 2012. The award is described at: http://ewh.ieee.org/soc/nps/pastaward.html

Hasan Padamsee is a Senior Physicist and Adjunct Professor of Physics at Cornell University. His research is devoted to various aspects of radio-frequency superconductivity, especially its application to particle accelerators. Prof. Padamsee joined Cornell's Superconducting Radio Frequency (SRF) group in 1973 and was its head from 1987 to 2009. Mostly due to his tireless efforts and activities, the relatively small Cornell superconducting RF group remains an authority and world leader in a field that includes many big laboratories around the world. Hasan was elected Fellow of the American Physical Society in 1983.

Hasan's research encompasses a wide range of topics including the production of high-purity niobium material, basic

(continued on page 18)

Hasan Padamsee
Particle Accelerator Science and Technology Award recipient

(continued from page 17)

RF superconductivity research (studies of new materials, fundamental performance limitations of RF superconductors…), developing new techniques of SRF cavity preparation and conditioning, developing new cavity shapes, and more. His work led to numerous fruitful contributions that advanced two frontiers of particle accelerators: the energy frontier and the intensity frontier. The ultimate goal of his research is to develop new, better superconducting RF structures for accelerator applications. Padamsee is one of the key players in pushing accelerating gradients in SRF cavities. His contributions (with his students and colleagues) in this area include studies of field emission, multipacting and origins of non-BCS RF losses, developing high-power RF processing and vertical electro polishing, and finally developing new reentrant cavity geometry that reached the gradient tantalizingly close to the theoretical limit of niobium. Hasan also oversaw the development of a "single-mode" superconducting cavity for CESR. The Cornell superconducting RF system proved to be so successful that the design was transferred to two industrial vendors and has rapidly become the system of choice for new storage-ring-based light sources around the world.

Prof. Padamsee has served the accelerator community for many years by teaching courses on RF superconductivity at USPAS and other accelerator schools. He authored the only two textbooks on the subject, to which the whole community turns for information.

Citation: For contributions to the science and technology of RF superconductivity.

Hasan Padamsee can be reached by E-mail at hsp3@cornell.edu or by phone at +1 607 255-5727

Freedom fighters

Being in the army is like being in the boy scouts, except that the boy scouts have adult supervision.

Blake Clark

Vitaly Yakimenko
Particle Accelerator Science and Technology Award recipient

Vitaly Yakimenko

Dr. Vitaly Yakimenko of Brookhaven National Laboratory has also been selected a 2012 recipient.

Dr. Vitaly Yakimenko is a physicist and head of the Accelerator Test Facility (ATF) at Brookhaven National Laboratory (BNL). His research is devoted to investigating sources of high brightness beams and novel particle acceleration techniques with the use of lasers and plasmas. Dr. Yakimenko joined BNL's ATF in 1996 and became its director in 2005. He has achieved a number of "firsts" during his twenty-year scientific carrier: development of techniques to measure and achieve submicron emittance beams from radio-frequency photoinjectors; observation of SASE gain in the visible; successful staging of laser accelerators; observation of coherent synchrotron radiation-induced energy spread and its suppression with a pair of conductive plates; observation of monoenergetic ion beams produced with a CO_2 laser pulse; development of methods for nonlinear spin precision calculations that allowed accurate predictions of beam polarization levels in high-energy colliders (RHIC, HERA and LEP).

Citation: For contributions to high-brightness electron beams and to their application to advanced accelerators and light sources.

Vitaly Yakimenko can be reached by E-mail at yakimenk@bnl.gov or by phone at +1 631 344-7830.

PARTICLE ACCELERATOR SCIENCE AND TECHNOLOGY STUDENT THESIS AWARD

Erdong Wang

The IEEE/NPSS PAST Student Thesis Award winner for 2012 is Dr. Erdong Wang.

This award, established in 2008, is intended to recognize significant and innovative technical contributions to the field of particle accelerator science and technology as demonstrated in a student's doctoral thesis.

The prize includes $2000 and a plaque, which will be presented at the award ceremony on Thursday, May 24th during the 2012 International Particle Accelerator Conference in New Orleans. The ceremony includes a brief summary of the award winner's thesis research.

Erdong Wang is currently a Research Associate at Brookhaven National Laboratory (BNL). Before coming to BNL, Erdong completed his B.Sc. and Ph.D. at Peking University. A significant portion of his research was done at BNL, where he spent three years as an exchange student. His thesis research was conducted under the guidance of Prof. Kui Zhao (Peking University) and Prof. Ilan Ben-Zvi (BNL and Stony Brook University).

Dr. Wang's thesis research was devoted to developing high quantum efficiency photocathodes for superconducting RF (SRF) electron guns, namely GaAs photocathodes for polarized electron sources and diamond amplifiers for high bunch charge guns. He has worked on GaAs photocathode preparation techniques, including systematic studies of the influence of different parameters on the cathode quality. A prepared photocathode was then tested in a SRF gun. Erdong performed beam dynamic simulations and theoretical studies to estimate the electron bunch length and effect of ion back-bombardment, which resulted in developing the new test procedure. Dr. Wang has developed a technique to reproducibly fabricate diamond amplifiers after systematic study of diamond hydrogenation. He has demonstrated that the resulting negative electron affinity surface is robust and good electron emission could be recovered after exposure to air by heat treatment.

Erdong has developed a theoretical model detailing the impact of charge trapping at the surface on the instantaneous electric field inside the diamond, and its effect on the transmission gain. His model agrees well with the experimental results. Based on the model, Dr. Wang estimated the energy spread of electrons inside the diamond from measured secondary-electron emission. His results are extremely important because rugged diamond-amplified photocathodes promise to become the foundation for future high bunch charge and high average beam current electron guns.

Erdong Wang's research is at the forefront of the field and has produced high-quality results that have greatly advanced our understanding of GaAs and diamond-amplified photocathodes.

Citation: For contributions to the physics of high quantum-efficiency photocathodes.

Erdong Wang can be reached by E-mail at wange@bnl.gov or by phone at +1 631 344-8023.

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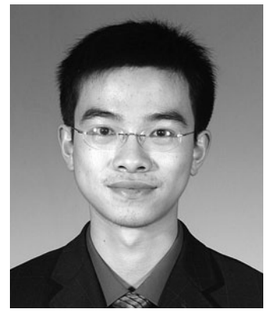
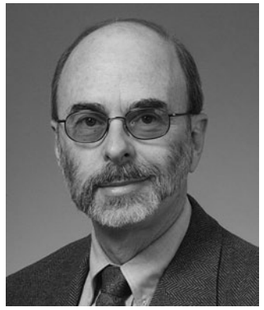


Erdong Wang
IEEE/NPSS PAST Student Thesis Award recipient

High, dry and alive!

I often wanted to drown my troubles, but I can't get my wife to go swimming.

Jimmy Carter



Steve Gold
Distinguished Lecturers Program Coordinator

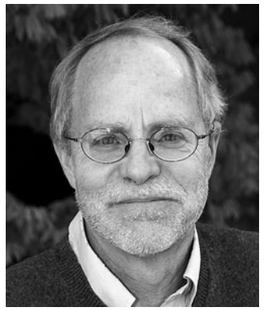
Distinguished Lecturers Program

The NPSS Distinguished Lecturers Program offers high-quality lectures by distinguished scientists and engineers from throughout the broad spectrum of technical fields covered by the NPSS. These lectures are offered as a means of technical outreach from the Society, and are available to NPSS chapter meetings as well as IEEE Section and Student Chapter meetings with lecturer travel and lodging costs reimbursed by the Society. In addition, they are available to other interested groups, but without a travel subsidy. For 2012, the NPSS has appointed 26 Distinguished Lecturers, each nominated by the Chair of one of the NPSS Technical Committees or by the Transnational Committee. These Lecturers are currently offering 44 different lectures (see Table). The lecture titles and abstracts, as well as biographical and contact information for each lecturer, can be found on the NPSS Distinguished Lecturers website, http://ewh.ieee.org/soc/nps/lecturers.html, and lecture arrangements can be made directly with the speaker.

For further information, please contact Steven Gold, the NPSS Distinguished Lecturers Coordinator, at steven.gold@nrl.navy.mil.

Subject	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 Non-Proportionality: 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 DTownsend@mc.utmck.edu
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

Subject	Presenter/Lecture Title	Presenter/Lecture Title	Presenter/Lecture Title
Plasma Science and Applications	**J. Pace VanDevender (SNL)** • Ball Lightning—New Physics, New Energy Source, or Just Good Entertainment jpvande@sandia.gov	**Igor Alexeff, UTK (ret)** • The Plasma Antenna—Now You See It, Now You Don't • The Plasma Sterilizer—Killing Bacteria With a Ceramic Floor Tile • Ball Lightning—Balls of Fire in The Laboratory • Thermonuclear Fusion Power Plants—The Ultimate Energy Source—Maybe alexeff@utk.edu	**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	**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
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 Instrumentation	**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
	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		



David Graves

Coalition for Plasma Science

On March 28, 2012, the Coalition for Plasma Science presented the 17th in a series of educational talks to members of Congress and their staffs. In a talk entitled "Plasma Power: Battling Contagion Using Electricity and Air," Prof. David Graves of the University of California—Berkeley provided a compelling argument for using plasma as a means of combating infectious disease.

After reviewing the broad range of temperatures used in plasma applications, from the very hot ionized gas involved in fusion research to the relatively low temperature plasmas used in plasma etching of computer chips, Prof. Graves detailed the growing threat of infectious disease. Our ability to move people and food—along with microbes—quickly across the globe; the rise of large cities, often with limited public health facilities; changes in climate that disrupt ecosystems; the emerging threat of bioterrorism; the rise of antibiotic resistance—all increase the potential for exposure to infectious, life-threatening disease.

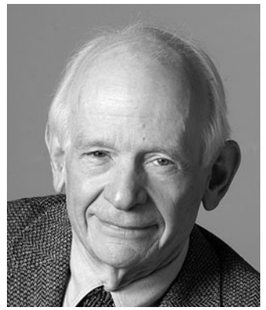
Prof. Graves spent time explaining the challenge of "Hospital-Acquired Infections" (HAIs) which, in 2002, were responsible for 99,000 deaths in the U.S. Patients can be exposed to disease via improper staff hand hygiene, catheter-associated urinary tract infections, catheter-related bloodstream infections, surgical site infections, ventilator-associated pneumonia, and transmissible spongiform encephalopathies (TSEs), such as prions. With the number of antimicrobial drugs decreasing while drug-resistant bacteria increase, nonthermal plasmas can help protect patients from infection. They do this by generating chemical species that are created naturally by plant and animal autoimmune systems—Reactive Oxygen and Nitrogen Species (RONS).

The fact that RONS have been part of immune systems for billions of years suggests that resistance development is not a long-term threat. Prof. Graves asserted that this is just one of the reasons plasma devices have an advantage over disinfection chemicals. Plasma devices can be made handheld or scaled to large areas; they need only electricity, which would be an advantage during pandemics, or in remote locations and countries with limited resources; they can be easily automated (e.g., integrated with catheters, bandages or surfaces); they can disinfect water, and synergize with UV; finally, the technology is inexpensive.

Prof. Graves's engaging presentation prompted many of those attending to comment and ask questions long after the scheduled close of the talk.

Lee Berry, Coalition for Plasma Science liaison, can be reached at berryla@ornl.gov.

Ned Birdsall, First Curie Award Recipient



Ned Birdsall

Charles Kennedy Birdsall, Professor Emeritus of Electrical Engineering and Computer Science at the University of California, Berkeley, died Tuesday, March 6, 2012, at his home in Lafayette, California. He was 86.

Known since childhood as Ned Birdsall, he was born in Manhattan, New York in 1925 to chemical engineer Charles G. Birdsall and schoolteacher Irene Birdsall. After graduating Valedictorian of his high school in Rocky River, Ohio, he attended the University of Michigan (UM), where he served in the Naval V-12 Program, and received B.S.E. (1946) and M.S.E. (1948) degrees in electrical engineering. At UM, he won the two-mile race twice at the Big 10 Outdoor Track and Field Championships. Ned met Betty Jean Hansen at the UM, and they married before heading to Stanford University, where Ned earned a Ph.D. in Electrical Engineering in 1951.

From 1951-1955 Ned worked on microwave tubes at Hughes Aircraft Company, and from 1955-59 he led the electron physics group at General Electric Microwave Laboratory, working on electron guns and traveling-wave tubes. Ned and his collaborators invented the resistive-wall, reactive-wall and rippled-wall amplifiers, as well as the ring-bar traveling-wave tubes that remain in use to this day; he also performed the analysis that led to the first multi-kilowatt TWT at X-band. The work at Hughes and General Electric led to the publication of 14 journal articles and granting of 27 patents (most coauthored). These significant achievements led to Ned's elevation in 1962 to Fellow of the Institute of Electrical and Electronics Engineers (IEEE) at the age of 36.

In 1959 Ned joined the Electrical Engineering Department at UC Berkeley (UCB), launching a four-decade academic career. He continued work on microwave sources, and pioneered the new area of many-particle simulation of plasmas. He and his Ph.D. student Bill Bridges discovered virtual cathode oscillation, one of the most important theoretical developments in diode physics, during the 1960s. He later led the development of the Cloud-in-Cell (now usually called Particle-in-Cell) concept. His book, *Plasma Physics via Computer Simulation* [C. K. Birdsall and A. B. Langdon, McGraw-Hill (1985)], has attained classic status and, with over 2100 citations in Google Scholar, continues to be cited at an average rate of over 300 citations per year, with continued use in classrooms and research. Ned also cofounded the Energy Resources Group (ERG) at UCB to study the intersection of energy and environmental science and policy. During his long tenure at UC Berkeley, Ned helped build two groups from scratch: the Plasma Theory and Simulation Group; and the Energy and Resources Group. These two groups, under Ned's mentorship, have nurtured a large number of Ph.D. students and junior faculty members, many of whom have become leaders in science and engineering. They include top experts in various fields, members of the National Academy of Science and National Academy of Engineering, and Science Advisor to the President.

In the early 1980s, Ned pioneered the area of bounded-plasma simulation. This effort represented a quantum

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jump in realistic simulations of whole plasma devices, culminating in a series of very powerful and versatile computer simulation codes that are used worldwide, from fusion (e.g., tokamak edge plasmas), to technologically relevant discharge plasmas (e.g., semiconductor materials processing, lighting, high-power microwave sources and pulsed-power systems) as well as teaching. The creation and free dissemination of plasma simulation codes by Ned and his group have helped thousands in conducting research.

Ned was the inaugural recipient of the IEEE Plasma Science and Applications Committee (PSAC) Award in 1988; he was awarded the Berkeley Citation in 1991, and the first recipient of the Dawson Award, given at the 2003 International Conference on Numerical Simulation of Plasmas. Ned was the inaugural recipient of the IEEE Marie Sklodowska-Curie Award in 2011, one of the highest awards in the IEEE hierarchy. His citation is "for theoretical investigations and fundamental discoveries involving microwave tubes, electron beam physics and particle-in-cell simulation of plasma physics."

Outside his professional life, Ned was known for his love of hiking and cross-country skiing in the Sierra Nevadas and the Alps. He maintained his love of long-distance running, completing many road races and marathons, including two Boston Marathons, and the Napa Marathon in his 70s. He also remained an avid bicyclist into his 80s.

Ned had five children with Betty: Beth, Anne, Barbara, Tom and John. In 1981 Ned married Ginger Pletcher. Ned is survived by Ginger, his wife of 30 years, daughter Barbara Hagen of Bend, Oregon, son Tom Birdsall of San Francisco, son John Birdsall of Yountville, Ginger's daughter Michele Proffitt of Modesto, son Andrew of Capitola, daughter Sandy Glendinning of Alameda along with eight grandchildren and one great grandchild.

A scholarship endowment has been established in Ned's honor: The Charles K. (Ned) Birdsall Endowed Graduate Research Support Fund at University Relations, 2080 Addison Street, MC #4200, Berkeley, CA 94720-4200. Checks should be made out to U.C. Berkeley Foundation.