
# NPSS NEWS

ISSUE 2: JUNE 2018

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# Nuclear And Space Radiation Effects Conference NSREC 2018, Kona, Hawaii, July 16th–20th, 2018



Ron Lacoe
*General Chairman*

The 55th annual Nuclear and Space Radiation Effects Conference (NSREC) will be held July 16th -20th, 2018, in Kona, Hawaii, Hilton Waikoloa Village. Our committee has worked hard to offer an interesting venue and outstanding program for this year's conference. We will continue the tradition of previous NSRE Conferences by offering a Technical Program, a one-day Short Course that precedes the technical sessions, a Radiation Effects Data Workshop, and an Industrial Exhibit. Engineers, scientists, and managers from around the world who are interested in radiation effects will attend. Ron Lacoe, The Aerospace Corporation, is the General Conference Chairman.

Technical and social programs have been planned to maximize opportunities for information exchange and networking in the areas of radiation effects in microelectronics and photonic devices, circuits, and systems. Supporters of the conference include Boeing, Cobham Semiconductor Solutions, Freebird Semiconductor, Harris, International Rectifier HiRel Products, Jet Propulsion Laboratory, Renesas Electronics, Southwest Research Institute, and The Aerospace Corporation.

## TECHNICAL PROGRAM

Hugh Barnaby
*Technical Program Chair*

The Technical Program Chair, Hugh Barnaby, Arizona State University, and his committee have assembled an outstanding set of papers that are arranged in ten oral sessions and a poster session for the Technical Program. Those papers are eligible for publication after the conference in the IEEE *Transactions on Nuclear Science*, subject to further review. A Radiation Effects Data Workshop is also included in the Technical Program, with papers that emphasize data on electronic devices and systems, and descriptions of new simulation tools and radiation test facilities. In addition to the contributed papers, three invited talks will be presented that are of general interest to conference attendees and their companions. Guest speakers are:

**He Lani Ko Luna, A Sky Above**
*Chad Kalepa Baybayan, Captain and Navigator for Hokulea Voyages*

**Hawaiian Volcanos**
*Ken Hon, Professor of Geology, University of Hawaii at Hilo*

**Searching for the Building Blocks of Life in Planet-Forming Regions around New Stars**
*Dr. Greg Doppmann, Astronomer, W.M. Keck Observatory*

The WIE speaker will be Kim Binsted, UH-NASA Astrobiology Institute.

## SHORT COURSE

The Short Course Chair is Simone Gerardin, University of Padova. The theme of the 2018 course is "Variability in Environments, Devices and Radiation Effects—from Average to Extreme". Each short course attendee will receive a 1980-2018 Short Course Compendium CD.


**CONFERENCES** Continued on **PAGE 2**

# Conferences

Continued from **PAGE 1**

Simone Gerardin
*Short Course Chair*

Presentations and speakers for the four sessions are:

**A Brief History of Space Climatology: From The Big Bang to The Present**
Dr. Mike Xapsos,
NASA Goddard Space Flight Center

**Radiation Hardness Assurance: How Well Assured Do We Need to Be?**
Dr. Renaud Mangeret,
Airbus Defence and Space

**Process Variations And Radiation Effects in Advanced Transistors**
Dr. Marc Gaillardin,
CEA

**Addressing Device And Environment Variations in Single Event Rate Predictions**
Dr. Brian Sierawski,
Vanderbilt University,
Institute for Space and Defense Electronics

## SOCIAL EVENTS

Keith Avery
*Local Arrangements Chair*

Keith Avery, Air Force Research Lab, is the Local Arrangements Chair. He has arranged a very interesting social program in Kona. The Conference Social, A Sunset Luau, will be held on Wednesday evening. Two companion events include Kilauea Volcano and Kona Coffee Living History Farm and Kailua Kona Shopping.

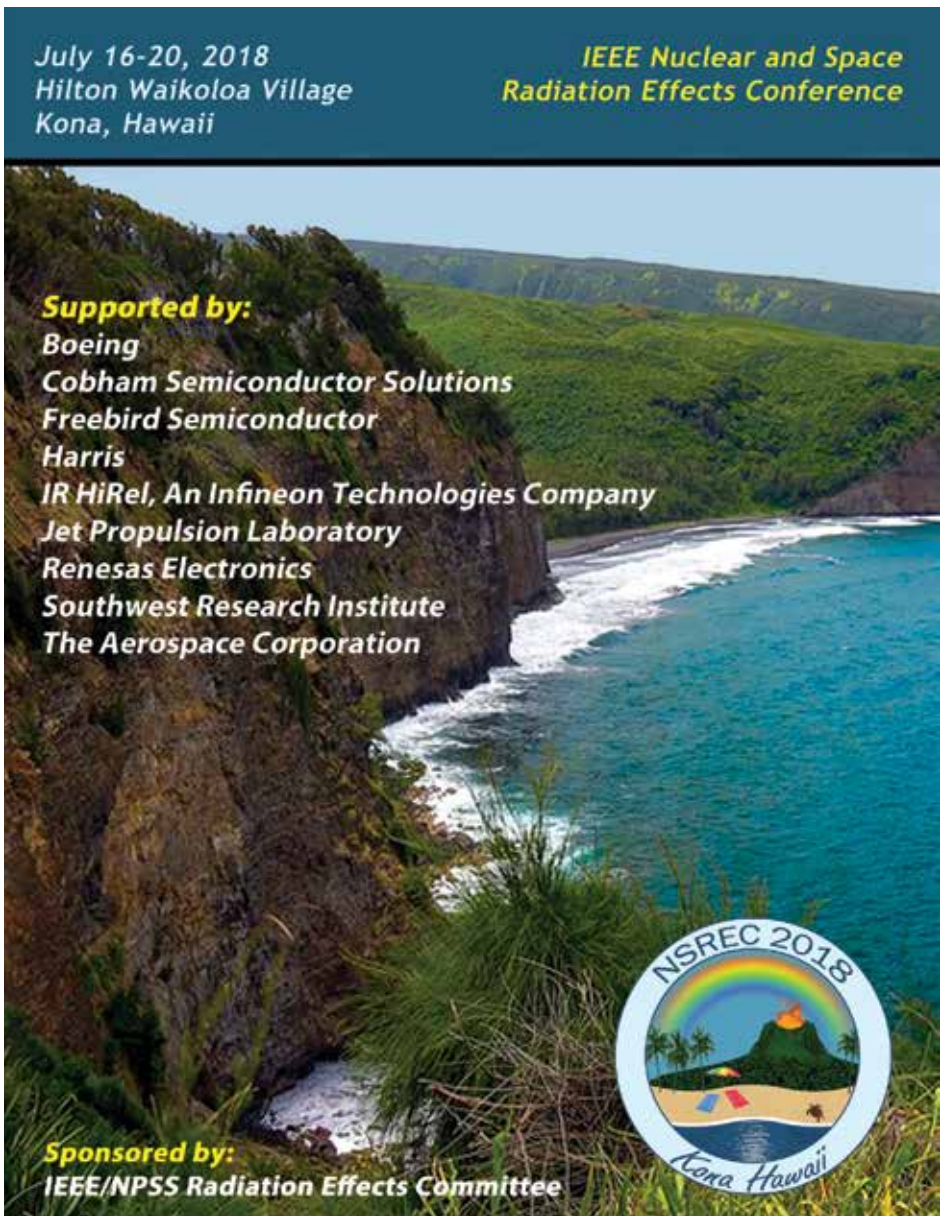
## INDUSTRIAL EXHIBIT

Tony Amort, Boeing, is the Industrial Exhibit Chair. The exhibit will allow conference attendees to discuss new developments in radiation-hardened and radiation-tolerant electronics, engineering services, facilities, and equipment with participating vendors. A reception will be provided on Tuesday evening in the exhibit area for attendees and their companions that showcases the Industrial Exhibit. If you need more information about the exhibit, please visit http://www.nsrec.com, or contact Tony at Anthony.Amort@boeing.com. We look forward to welcoming the 40–50 exhibitors!

## KONA, HAWAII

It's easy to feel awed on the Big Island of Hawaii. From the molten magma flowing from Hawaii Volcanoes National Park to the snow-capped heights of Maunakea; from the green rainforests of the Hamakua Coast to the jet-black sands of Punaluu Beach; Hawaii Island is an unrivaled expression of the power of nature. Hawaii Island is the youngest and largest island in the Hawaiian chain, but it's remarkable for more than just its size. Picture yourself visiting Kilauea, one of the most active volcanoes in the world, or talk history with a cultural demonstrator at Puuhonua o Honaunau, a historic park that was once a place of refuge. Whether you're walking on a black sand beach, snorkeling with manta rays, horseback riding in Waimea or sailing along the Kona Coast, Hawaii, the Big Island is your island for adventure.

You may never want or need to leave the Waikoloa Village. Feel the Aloha spirit at the 62 acre resort along the Kohala Coast. The resort features an ocean-fed lagoon with a white sand beach for snorkeling or other water activities, Dolphin Quest where you can swim, feed and play with dolphins, three pools featuring waterfalls, a 175 foot waterslide and an adults-only pool. Dine in one of the many restaurants on site, enjoy a day at the Kohala Spa or visit an eclectic array of shops, boutiques, and galleries throughout the Hilton Waikoloa Village. Cruise the resort on the mahogany canal boats along tranquil waterways or take one of the Swiss-made air-conditioned trams, which operate all day for your convenience. Just outside the resort, but part of the Waikoloa area are two championship golf courses and additional shopping/dining options at the Kings' Shops or the Queens' Marketplace available via the trolley for a small fee or a moderate walk. For a more adventurous walk you can take the Kings Highway Foot Trail and see the petroglyphs. Please join us for NSREC 2018 on the beautiful Big Island of Hawaii.




## ADDITIONAL INFORMATION

For the latest information on the conference, including the technical program, local arrangements, hotel and travel information, and registration forms, please visit our web site at http:/www.nsrec.com.

*Alternatively, you may contact the General Chairman, Ron Lacoe, The Aerospace Corporation, E-mail: ronald.c.lacoe@aero.org.*

Teresa Farris
*Publicity Vice Chair*

*You may also contact the Publicity Chair, Teresa Farris, Cobham Semiconductor Solutions, E-mail: teresa.farris@cobham.com.*

# President's Report

Opportunities! IEEE and NPSS offer many benefits and opportunities to you as one of our members. You may already know of many of them, but I'm sure there are things you are not aware of. I would like to devote this article to a review of the many opportunities you have and can find as a member of IEEE.

Let me start with conferences. Most of you have attended one of our conferences, and you had the advantage of a reduced membership registration fee. If you have the chance to go to more than one IEEE conference in a year, your savings would probably be higher than your annual membership fee. Therefore, I convinced my employer to pay my IEEE dues. Besides the reduced registration fee for members, most of our conferences offer awards and grants. Did you know about the Paul Phelps Continuing Education Grant or the Valentine T. Jordanov Travel Grant? These grants are mainly targeted to students and post-docs who want to attend a short course and travel to one of our conferences. They come with financial support of $500-$1500. You can find details and application forms at our awards web site at ieee-npss.org/awards/conference-awards. In addition, many conferences offer Young Professional (YP) as well as Women in Engineering (WIE) events. These are excellent occasions to meet with peers and do some networking. These events typically feature some training sessions to help your career by meeting some senior members of our community. Who knows, maybe you will meet your next boss?

If the conference of your choice does not offer YP or WIE events, please contact the general chair of that conference and make your request. Each NPSS conference can request considerable funding to invite speakers and offer a WIE or YP social event during the conference.

Another great opportunity is to participate actively in the organization of a conference. You might join the planning committee and bring in your new ideas. Maybe you know an excellent speaker for an invited talk, or you know some location for a nice social event during a conference. Each conference committee relies heavily on volunteers like you to make a conference a success. On the technical side, you could help in chairing a session, or in reviewing papers for the conference record.

Stefan Ritt
*IEEE NPSS President*

This brings me to the next topic, which is publications. Have you ever thought to review a paper and help with editorial responsibilities? This does not only help to improve our publications, but I guarantee you that you learn a lot during

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this process, which in the end improves your own papers. It will also look great on your CV if you do some paper reviewing, which is important especially for people at the beginning of their career. Inexperienced people can do their first reviews under the mentorship of a senior editor, so please don't hesitate to contact the editor-in-chief of your favorite NPSS journal. In addition to our Journals, this Newsletter is always looking for great articles. Some conferences offer the best student paper winners the possibility to publish a technical article in this newsletter. Or you might have some other idea of an article describing some IEEE activity you are involved in, or a general-interest article. Just contact our newsletter editor Albe Larsen at a.m.larsen@ieee.org.

Do you know an outstanding expert in your field, or do you perhaps even consider yourself to be one? Our society offers various awards to honor such people, which you can find described on our award page at ieee-npss.org/awards/. Another possibility for recognition is to become an IEEE senior member and later perhaps even an IEEE fellow. Senior members must be in professional practice for at least ten years and show significant performance over at least five years. Besides the recognition of your peers through the announcement in this newsletter, senior members can obtain a letter of commendation to be sent to their employers to help their career. In addition, they can serve as referee for other applicants for senior membership. Find more information at www.ieee.org/membership_services/membership/senior. Another opportunity is to become a volunteer in one of our eight Technical Committees or in one of our Functional Committees. You can run for an elected position or approach a chair of one of the committees directly if you want to get involved. You will find an overview of all committees and contact information on our web site.

In addition to technical activities IEEE offers local activities though geographic units. Every IEEE member is automatically a member of a local section, which usually consists of technical chapters, affinity groups and student branches. You cannot only join existing units, but also start a petition to form a new one. It takes only twelve signatures of IEEE members to form a new chapter and six IEEE student members to form a student branch chapter. A chapter is eligible for some financial support from NPSS and to invite supported speakers from our Distinguished Lecturers program. You can get an overview of offered lectures at ieee-npss.org/distinguished-lecturers.

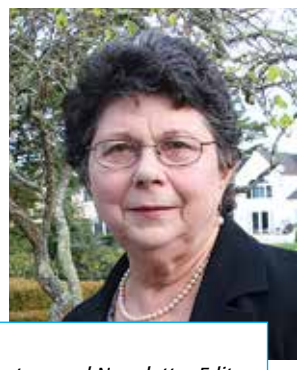
Last but not least IEEE offers various opportunities through electronic media. I'm sure all of you use the Xplore digital library ieeexplore.ieee.org to search though the several millions of our publications. In addition, we have now IEEE DataPort bigdata.ieee.org/ieee-dataport which I explained in detail my previous newsletter article and IEEE Collabratec ieee-collabratec.ieee.org, which is in a digital platform where technology professionals (members and nonmembers!) can network and collaborate. It offers, for example, authoring tools where professionals from different regions can easily collaborate electronically on common documents and store them in a virtual library.

I hope this review—although far from complete—gives you some idea of the various opportunities in our society. Maybe you will find something interesting and become active in one way or the other, maybe even become a volunteer. This will distinguish you from your peers and foster your career. At least it did for me!

Sincerely,

*Stefan Ritt, IEEE NPSS President, can be reached at the Paul Scherrer Institute CH-5232 Villigen PSI, WBWA/140, Switzerland; Phone: +41 56 310 3728; Fax: +41 56 310 2199; E-mail: stefan.ritt@psi.ch.*

# Secretary's Report



**Albe Larsen**
***IEEE NPSS Secretary and Newsletter Editor***

The IEEE NPSS Administrative Committee held its annual retreat and first AdCom meeting of 2018 at the La Fonda Hotel in Santa Fe, New Mexico on March 9th and 10th, respectively. The retreat addressed such issues as fiscal policies, Basecamp groups, technical committee operations, publication reviews and so on. This is the principal time AdCom has to bring new members up to speed on how AdCom operates and to address issues that are broader than those our regular meetings allow time to discuss.

Our treasurer, Ralf Engels, reports that we are doing a bit better with prompt conference closings. Income from conferences is down while that from periodicals is up a bit, but we are running in the red so far this year. Ralf also stressed the need for upcoming conferences to get their preliminary budgets approved in a timely way. Note that expense reports are due within 60 days of expense generation.

President Stefan Ritt addressed the Code of Conduct and standard slides that are to be used at each conference to explain clearly what constitutes acceptable conduct. Each conference should appoint an ombudsperson to address matters of inappropriate conduct. IEEE has clear codes of ethics, conduct and nondiscrimination.

Our Society Review, an every five-years event, will occur in February 2019. This requires considerable work by AdCom officers and members to assemble and provide all the necessary documentation for the review committee. NPSS has been one of IEEE's most outstanding societies by virtually every metric thanks to its hard-working volunteer leadership.

TAB is reviewing and working on how to better incorporate Young Professionals (YPs).

Our superb Fellow Candidate Evaluation Committee Chair, Jane Lehr, has timed out by IEEE metrics so we will see a new Chair soon. Many thanks to Jane for outstanding service. TCs should have Fellow Search Chairs to evaluate community members who might be strong Fellow candidates. Start early. Preparing good applications is a lot of work.

John Verboncoeur, our Division IV Director-elect, reported on a number of TAB activities and the six TAB Management and Board of Directors meetings he attended from November through February. A few numbers: IEEE's 1854 sponsored or technically cosponsored conferences had a net income of $32.2M. Member and nonmember revenue from optional subscriptions is down $1.8M; Periodical packages revenue is down $2.4M and magazine ad sales are down $0.6M. Total membership and higher grade memberships have dropped. The TAB Management Fund may move part of contingency to the Future Direction Committee allowing FDC projects longer into transition. Investment return for 14 months ending in February 2018 was good, but market is not a reliable source of funding.

Check out DataPort!

## TECHNICAL COMMITTEES

Our technical committees and our conferences are, over all, doing well. We do, however, continue to be plagued with visa issues for conferences held in the USA.

The Computer Applications in Nuclear and Plasma Sciences together with some Radiation Instrumentation aid, will host a summer school in South Africa this year.

See the NPSS web site for detail about upcoming conferences.

## FUNCTIONAL COMMITTEES

Conferences chair Susanne Kühn pointed out that there are requirements for photography at, and use of images from, conferences. Photos of copyrighted PowerPoint slides is not allowed, and photos of other presentations are only for an individual's use. Conferences must now post the photography rules on their web sites. Conference web sites are also required to post the Nondiscrimination Policy and Ethics and Compliance Codes found at the end of this report.

Our web sites need more detailed information. TCs and conference committees are working to bring them up-to-date.

Our Society Awards for 2018 were announced. See Janet Barth's article. Janet also noted that the new Kris Kristiansen, Emilio Gatti and CANPS awards were approved by TABARC, as well as changes to the Jaszczak Award. Janet encourages use of social media to announce award application deadlines as well as names of recipients.

Student membership is up a bit. If you are an academic, encourage your students to become involved with IEEE NPSS. It is to their benefit. We have added new chapters including one in Xi'an, China, one in France, and reopening of the Benelux and Cleveland chapters. Other chapters are in various stages of development including possibilities in Beijing, Nanjing and the UK and Ireland.

2017 also saw an increase in presentations by Distinguished Lecturers, a total of 37 lectures given by 20 of our lecturers. Of these, 60% got some support.

There will be elections for AdCom representatives from the following technical communities: Nuclear Medical and Imaging Sciences, Particle Accelerator Science and Technolog, Radiation Effects, Radiation Instrumentation. A number of TCs including NMISC, RISC, PSAC among others, will also have elections for their steering committees. Watch for the ballot and vote! Who do you want to represent you as a member of our society? A disappointing ~20% of our membership actually votes and determines how our society is run.

Our society's publications will undergo their five-year review in late June, not long after you receive this Newsletter. Overall our journals are well received. Our new journal, *Transactions on Radiation and Plasma Medical Sciences*, has had a successful first year and has plans for three special focus issues in 2018.

Our membership drives at conferences face the challenge of a number of overlapping conferences so additional banners have been ordered.

## ADCOM ACTIONS

» The PPST Committee moves that NPSS technically cosponsor the 16th International Conference on Megagauss Magnetic Field Generation and Related Topics, MG-XVI, to be held in Kashiwa, Japan in September 2018. NPSS to cover the $1,000 fee to MCE. Passed unanimously.

» The PPST Committee moves that NPSS technically cosponsor the 20th International Symposium on High-Current Electronics, ISHCE, to be held in Tomsk, Russia, on September 16th to 22nd, 2018 (the "Symposium"). NPSS to cover the $1,000 fee to MCE. Passed unanimously.

» NPSS approves a one-time grant of up to $25k to SOFE-2019 to be used for attendance of students from Chinese Universities. Motion passed with 16 Y, 7 N and 1 abstention.

» NPSS AdCom moves to reaffirm the TAB Ethics Statement: passed unanimously.

## TAB ETHICS STATEMENT

*IEEE members are committed to the highest standards of integrity, responsible behavior, and ethical and professional conduct. The IEEE Nuclear and Plasma Sciences Society reaffirms its commitment to an environment free of discrimination and harassment as stated in the IEEE Code of Conduct, IEEE Code of Ethics, and IEEE Non-discrimination Policy. In particular, as stated in the IEEE Code of Ethics and Code of Conduct, members of the society will not engage in harassment of any kind, including sexual harassment, or bullying behavior, nor discriminate against any person because of characteristics protected by law. In addition, society members will not retaliate against any IEEE member, employee or other person who reports an act of misconduct, or who reports any violation of the IEEE Code of Ethics or Code of Conduct.*

*Albe Larsen, IEEE NPSS Secretary and Newsletter Editor, can be reached by E-mail at a.m.larsen@ieee.org.*

### AND POLITICS TOO

But if thought corrupts language, language can also corrupt thought.

*George Orwell*

### CALENDAR CONFUSION

I said, 'It is most extraordinary weather for this time of year.' He replied. 'Ah, it isn't this time of year at all.'

*Oliver St. John Gogarty*

### WHAT'S LEFT?

Non-violence is a flop. The only bigger flop is violence.

*Joan Baez*

### ALAS, I'M PERFECT

Among the cheerful robots of the mass society, not human virtue but human shortcomings, attractively packaged, lead to popular success.

*C. Wright Mills*

### I'M SENSIBLE

Wisdom never proved to be much help to anyone (nobody ever said: 'I can't open this jar of marmalade—you do it—you're wiser than me.') and yet as we all get older, we would like to think we are acquiring wisdom. But why? Is it really wise to be wise? When the revolution comes, isn't it the wise who get the chop first. Perhaps it's more sensible to be unwise.

*Miles Kington*

### IT'S GOLDEN

Don't talk unless you can improve the silence.

*Jorge Luis Borges*

# Technical Committees

## FUSION TECHNOLOGY

**Charles Neumeyer**
*FTC Chair*

Planning is well underway for the 28th Symposium on Fusion Engineering (SOFE), to be convened June 2nd - 6th, 2019 at the Sawgrass Marriott in Ponte Vedra Beach, Florida. Dennis Youchison will serve as General Chair and Brad Nelson as Technical Chair. A strong technical program and an attractive venue are sure to make this a productive and enjoyable gathering for the fusion community. A Call for Papers will be issued, and a web site will be in place, by the time of issue of this newsletter.

A strong group of nominations were received for the 2018 Fusion Technology Award. As of the time of writing, the Fusion Technology Committee (FTC) is in the midst of selecting the winner who will be announced by the time of issue of this newsletter.

A major change in the operations of the FTC will take place in the coming months, namely the transition from an appointed to an elected committee. The objective is to reinvigorate the committee and diversify the range of geographic regions and institutions represented on the committee. The plan is to maintain a committee roster of 16 persons with annual elections to replace four candidates per year who will serve four-year terms. The FTC Chair will serve two-year terms. As required by NPSS, an FTC Constitution & Bylaws document has been written and is under review by the NPSS AdCom. A nominations subcommitee has been formed that will seek candidates from the fusion community. Candidates will be identified and submitted to IEEE/NPSS by the time of issue of this newsletter. Members of the community are strongly encouraged to vote during the annual IEEE election cycle, August-September 2018.

*Charles Neumeyer, chair of the Fusion Technology Committee, can be reached by E-mail at neumeyer@pppl.gov.*

## NUCLEAR MEDICAL AND IMAGING SCIENCE

As you read this newsletter the composition of the program for this year's 2018 IEEE NSS/MIC meeting at the International Convention Centre Sydney in Sydney, Australia is well underway. The meeting will take place from the 10th –17th November. Anatoly Rozenfeld (General Chair) along with Steven Meikle and Taiga Yamaya (MIC Program Chair and Deputy Program Chair, respectively) will be working on the abstract reviews with the aim of producing an exciting program for this latest edition of the meeting. Further details can be found on the conference website, http://www.nss-mic.org/2018/.

It is also at this time of the year when we are searching to replace five NMISC committee members with motivated volunteers to serve a three-year term starting from 1st January 2019. Self-nominations are encouraged. If you are interested in serving on the NMISC, please contact the NMISC Secretary Emilie Roncali eroncali@ucdavis.edu.

**Jae Sung Lee**
*NMISC Chair*

The nominees for the NMISC Awards have now been chosen. 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 given annually to a young investigator in recognition of significant and/or innovative technical contributions made early in their career. To be eligible for the Hasegawa Award the candidates must have been awarded their highest degree no more than six years prior to the date of nomination. I would like to take this opportunity to encourage all of you to nominate worthy colleagues for both these awards by the 15th of July deadline. All relevant information including the nomination form may be found on the NMISC website—http://ieee-npss.org/technical-committees/nuclear-medical-and-imaging-sciences/. Please send your nominations to the NMISC Awards & Nomination Subcommittee Chair, Paul Marsden paul.marsden@kcl.ac.uk, using the nomination form on the website.

*Jae Sung Lee, Chair of the NMISC, can be reached by E-mail at jaes@snu.ac.kr.*

## RADIATION INSTRUMENTATION

Dear Colleagues,

Election time is upon us. Every year, the Radiation Instrumentation Steering Committee elects five new members for a three-year term. The new members will be chosen by vote by the entire Radiation Instrumentation community. We have been and are collecting nominations, and I encourage every one of you to reflect on how you can be helpful to your own technical community. Personally, I made the decision to be more active many years ago, back in 2007. Since then, I have experienced many aspects of our community, beyond helping with reviewing papers or chairing a session at NSS/MIC. I have met several incredible people and made many dear friends. Volunteering for your society is not just participating in some meetings and helping in making decisions. If you want it to, it can be a window on a whole new experience that goes well beyond the confines of your office. If you are entertaining the idea of participating actively in your community, just let me or our secretary, Merry Keyser, know. We can be reached any time at our email addresses: fabrisl@ornl.gov and merrykeyser@ieee.org. All that is required of you is a short bio, a position statement and your volunteer spirit. Of course, membership is a requirement as well.

We are preparing to elect additional positions beyond the aforementioned new RISC members. The term of one of our NPSS AdCom representatives is coming to an end, and we will be also electing a new RISC deputy chair by the end of the year. The RISC deputy chair is in charge for two years and assumes chairmanship of the committee at the end of the term, serving for two more years in that position, followed by another two as past chair.

I have recently been at the NPSS AdCom retreat. This is an annual event where all representatives from the many NPSS technical committees get together and listen to, discuss and propose new ideas. At the past NSS/MIC in Atlanta, I was approached by an attendee who was concerned about our policies on discrimination, our code of conduct and how we make sure there is awareness and adherence within the community. The attendee pointed out that other societies, such as the American Physical Society, have resources that can be easily accessed during conferences. I immediately brought the issue to our society president, who immediately pointed out the relevant IEEE policies that can be found online. However, while we both are aware the policies exist, we also recognized that we do not have a structure in place at conferences to address compliance as other societies do. This point was one subject of discussion during the NPSS AdCom retreat, and I am happy to report that we may see some changes in the future. Another important topic of our retreat was the preparation of a policy and procedure manual, spearheaded by our president. This will be an important reference document which future society leadership can draw from.

**Lorenzo Fabris**
*RISC Chair*

Last but not least, the 2018 Nuclear Science Symposium and Medical Imaging Conference organization is in full swing. Many of you may have received invitations to serve as reviewers. I encourage everyone to respond to their invitation, if they have not done so already, and help out with the paper review process. The deadline for submission was set up for May 9th. Look out for any changes at the conference main page at http://www.nssmic.org/2018/. I also want to encourage all participants to check out awards and grant opportunities for help in attending the conference. The list of available opportunities, found at http://www.nssmic.org/2018/?s=awards-grants, is quite long.

Best wishes,
Lorenzo Fabris
RISC Chair

*Lorenzo Fabris, RISC Chair, can be reached by E-mail at fabrisl@ornl.gov.*

**HINDSIGHT?**

Never predict or forecast anything you know hasn't happened yet.

*Boo Chan Co*

# Functional Committees

## AWARDS

**Janet Barth**
*IEEE NPSS Awards Committee Chair*

Each year the NPSS Awards Committee is tasked with selecting the recipients of our Society awards. They are for individuals who have shown outstanding dedication to the Society and who have made significant contributions to one or more of our fields. The younger award recipients show strong early contributions in their technical areas or great promise in making contributions along their career paths. I would like to thank all of you who participated in the 2018 awards process, especially the nominators, those who wrote support letters, and the NPSS Awards Committees.

Our congratulations to all of our 2018 awards recipients!

### Merit Award

**Manfred Thumm**
*Merit Award Recipient*

Dr. Manfred Thumm (SM'94-F'02) was born in Magdeburg, Germany. He received the Dipl.-Phys. and Dr. rer. nat. Degrees in Physics from University of Tübingen, Germany in 1972 and 1976, respectively. At the University of Tübingen, he was involved in the investigation of spin-dependent nuclear forces in inelastic neutron scattering. From 1972-1975 he was Doctoral Fellow of Studienstiftung des deutschen Volkes. In 1976 he joined the Institute for Plasma Research of University of Stuttgart, Germany where he worked on RF production and heating of toroidal pinch plasmas for thermonuclear fusion research. From 1982-1990 his research was devoted to electromagnetic theory and experiments in the areas of component development for transmission of high-power millimeter waves through oversized waveguides and of antenna structures for RF plasma heating with microwaves. In June 1990 he became a Full Professor at the Institute of Radio-Frequency Engineering and Electronics of University of Karlsruhe, Germany and Head of the Gyrotron Development and Microwave Technology Division, Institute for Technical Physics, Research Center Karlsruhe (FZK). From 1999-2011 he was the Director of the Institute for Pulsed Power and Microwave Technology, FZK. In October 2009, the University of Karlsruhe and FZK merged with the Karlsruhe Institute of Technology (KIT).

Dr. Thumm has authored/coauthored six books, 21 book chapters, and 373 papers in peer-refereed scientific journals, more than 1,470 conference proceedings articles, and holds 14 patents. His current research projects are the development and application of high power gyrotrons, dielectric vacuum windows, transmission lines and antennas for nuclear fusion plasma heating, and industrial material processing.

From 2007-2008 Dr. Thumm was Vice Chair of the FZK Scientific Technical Council and KIT Founding Senate. From 2008-2010 he was the Deputy Head of the Topic Fusion Technology of KIT. He was General Chair of the IRMMW-THz 2004 and IEEE ICOPS 2008 Conferences in Karlsruhe. He has been a member of international organization and advisory committees of many international conferences and a member of the editorial boards of several ISI refereed journals. From 2003-2010 he was Ombudsman for upholding good scientific practice at FZK/KIT. Since 2012 he has been the Editor for Vacuum Electron Devices of IEEE Trans. on Electron Devices, an IEEE NPSS Distinguished Lecturer, and a KIT Distinguished Senior Fellow. Since 2016 he has served as a member of the Scientific Advisory Council of Leibniz Institute for Plasma Science and Technology Greifswald, Germany. He was a former member of the IEEE EDS Vacuum Devices Technical Committee and the NPSS PSAC Executive Committee.

Dr. Thumm was awarded the Kenneth-John-Button-Prize 2000. In 2002 he received the title of Honorary Doctor from the St. Petersburg Technical University. He received the IEEE-EDS 2008 IVEC Award for Excellence in Vacuum Electronics. In 2010 he was awarded the IEEE-NPSS Plasma Science and Applications Award. He was a winner of the 2010

open grant competition of the Government of the Russian Federation (Leading Scientist at Novosibirsk State University). Together with A. Litvak and K. Sakamoto, he was the recipient of the EPS Plasma Physics Innovation Prize 2011. In 2012 he was awarded with the Heinrich Hertz Prize of the EnBW Foundation and the KIT HECTOR School Teaching Award. In 2017 he received the Exceptional Service Award of the IRMMW-THz Society.

***Citation:*** *For outstanding contributions and leadership in the field of electron cyclotron heating and current drive technology for thermonuclear fusion plasma research.*

## Richard F. Shea Award

John P. Verboncoeur
*Shea Award Recipient*

Dr. John Verboncoeur received a B.S. (1986) in Engineering Science from the University of Florida, M.S. (1987) and Ph.D. (1992) in Nuclear Engineering from the University of California-Berkeley (UCB), holding the US Department of Energy Magnetic Fusion Energy Technology Fellowship. After serving as a joint postdoctoral researcher at Lawrence Livermore National Laboratory and UCB in Electrical Engineering and Computer Science (EECS), he was appointed Associate Research Engineer in UCB-EECS and to the UCB Nuclear Engineering faculty in 2001, attaining full Professor in 2008. He served as the Chair of the Computational Engineering Science Program at UCB from 2001-2010. In 2011, he was appointed Professor of Electrical and Computer Engineering at Michigan State University and added an appointment as Professor of Computational Mathematics, Science, and Engineering in 2015. His teaching includes electromagnetics, plasma physics, neutronics, engineering analysis, and computation. His research interests are in theoretical and computational plasma physics with a broad range of applications spanning low temperature plasmas for lighting, thrusters and materials processing to hot plasmas for fusion, from ultra-cold plasmas to particle accelerators, from beams to pulsed power, from intense kinetic nonequilibrium plasmas to high power microwaves. He is the author/coauthor of the MSU (formerly Berkeley) suite of particle-in-cell Monte Carlo (PIC-MC) codes, including XPDP1 and XOOPIC, used by over 1,000 researchers worldwide with over 350 journal publications in the last decade. He has authored/coauthored about 400 journal articles and conference papers with about 4,000 citations and has taught 13 international workshops and mini-courses on plasma simulation. He is currently an Associate Editor for Physics of Plasmas and has served as a guest editor and/or frequent reviewer for IEEE *Transactions on Plasma Science*, IEEE *Transactions on Electron Devices*, and a number of other plasma and computational journals. He is Past President of the IEEE Nuclear and Plasma Sciences Society, a member of the IEEE TAB Management Committee, and IEEE Division IV Director-elect. Appointed Associate Dean for Research in the College of Engineering in 2014, he oversees college research activities and strategy. He has been involved in a number of technology startup companies, including development of one of the big three consumer credit reports, work on the hardware and software of the US Postal Service Mail Forwarding System, command and control software in the defense sector, computerized exercise equipment, and a pioneering cloud based health care management system. He is a fellow of the IEEE.

**WE SHALL...**

You can't escape necessities, but you can overcome them.

*Seneca the younger*

***Citation:*** *For outstanding contributions and leadership to IEEE NPSS as President, to IEEE Technical Activities for beginning and developing the Food Engineering/ Smart Ag Initiative, and to IEEE for leading an educational effort to retain our current constitution*

## Early Achievement Award

David B. Go
*Early Achievement Award Recipient*

Dr. David Go is the Rooney Family Associate Professor of Engineering in the Department of Aerospace and Mechanical Engineering with a concurrent appointment in the Department of Chemical and Biomolecular Engineering at the University of Notre Dame. With a variety of diverse research interests, he has published widely in the areas of plasma science and gas discharges, heat transfer and fluid dynamics, and chemical analysis. To date, he has authored over 60 journal articles, over 100 conference papers and presentations, and multiple book chapters, and holds three patents. A forthcoming book on the fundamental physics and chemistry in low-temperature gas discharges will be published as part of the IOP Concise Physics series in 2018. Dr. Go was recognized with the Air Force Office of Scientific Research Young Investigator Research Award in 2010, the National Science Foundation CAREER award in 2013, and as an inaugural winner of the Electrochemistry Society Toyota Young Investigator Fellowship in 2015. Prior to joining Notre Dame in 2008, Dr. Go received his B.S. in mechanical engineering from the University of Notre Dame, his M.S. in aerospace engineering from the University of Cincinnati, and his Ph.D. degree in mechanical engineering from Purdue University. He is a Fellow of the American Society of Mechanical Engineers and a member of the Institute of Electrical and Electronics Engineers, American Physical Society, Electrochemical Society, American Association for the Advancement of Science, and Electrostatics Society of America.

***Citation:*** *For contributions to the understanding of discharges and plasmas at microscale dimensions, the interaction between microdischarges and electron emission, and the nature of electron transfer at plasma-liquid interfaces.*

## Charles K. Birdsall Award

Bruce I. Cohen
*Birdsall Award Recipient*

Dr. Bruce Cohen received a B.S. in physics with distinction and honors at Harvey Mudd College in 1970 and an M.A .in 1971 and Ph.D. in 1975 both in physics at UC Berkeley (thesis advisor: A. N. Kaufman). He was awarded a National Science Foundation Graduate Fellowship and a Woodrow Wilson Fellowship in 1970. He was a postdoctoral researcher at the Princeton Plasma Physics Laboratory in 1975-1976. From August 1976 to retirement in January 2017, he worked as a physicist at the Lawrence Livermore National Laboratory. He was a group leader for Theory and Computations in the Fusion Energy Sciences Program at LLNL from 2007 to 2016 after being the deputy group leader from 1998 to 2016.

He was elected an American Physical Society Fellow in the Division of Plasma Physics in 1987. He served as an associate editor for both the Journal of Computational Physics and Physical Review Letters. Dr. Cohen has served on numerous committees for the American Physical Society Division of Plasma Physics and the Department of Energy, Office of Science, Fusion Energy Sciences. His research has addressed plasma and computational physics topics in magnetic confinement fusion, laser fusion, space and astrophysical plasmas, radio-frequency heating of plasma, parametric instabilities, nonlinear beat-wave processes, linear and nonlinear theory of microinstabilities, and turbulent transport, and the application and development of particle and fluid plasma simulation and multiple-time-scale computational methods. He has authored or coauthored over 160 refereed journal publications and chapters in two books.

***Citation:*** *For contributions to the numerical simulation of plasmas, particularly multiple time-scale methods, and to their application to diverse plasma physics problems from laser-plasma interactions to tokamaks.*

## Glenn F. Knoll Post Doctoral Educational Grant

Stefan Gundacker
*Knoll Post Doctoral Educational Grant Recipient*

Dr. Stefan Gundacker was born in Zwettl, located in a region called "Waldviertel," Austria. After completing a higher technical school with focus on telecommunication engineering in St. Pölten, he studied technical physics at the Vienna University of Technology receiving the degree of Master of Science (MSc) in 2010 with honors. He then started his doctoral studies at CERN thus beginning his professional career in nuclear detector research with a strong focus on timing related aspects. His PhD work comprehensively described all the factors influencing the time resolution in scintillator-based detectors, from the ionizing radiation conversion in the scintillator, to the light production mechanism, the light transport in the crystal, the light conversion in the photodetector, and the readout electronics. In February 2014 he received the doctoral degree from the Vienna University of Technology with honors and continued his stay at CERN as a postdoctoral researcher. Since 2017 he is also associated with the University of Milano Bicocca as a postdoctoral researcher.

Dr. Gundacker's current research interests are focused on the further understanding and development of ultrafast solid-state photodetectors and the detection of prompt photon sources such as Cherenkov radiation and the emission of quantum confined nano-crystals. He is working on applying this research of ultra-precise timing in the medical field, such as, positron emission tomography, actively contributing to the challenge of achieving a resolving time of about 10 ps equivalent to 1.5 mm along the line of response. He is further interested in the application of fast timing in high energy physics for future high luminosity accelerators in order to mitigate event pile-up.

**IT TAKES TWO TO TANGLE**

Definition of a small town: not enough work for one lawyer, but plenty for two.

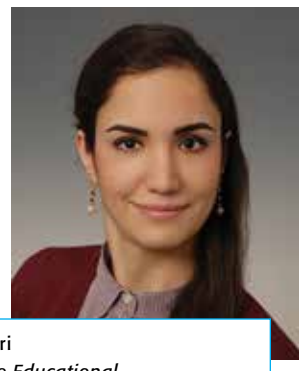
*Quoted in the Globe & Mail*

**TIME FLIES**

Don't worry about the world coming to an end today. It's already tomorrow in Australia.

*Charles Schulz*

## Glenn F. Knoll Graduate Educational Grant



Negar Omidvari
*Knoll Graduate Educational Grant Recipient*

Negar Omidvari received the B.S. degree in Electrical Engineering from University of Tehran, Tehran, Iran in 2011. She earned the M.S degree in Biomedical Engineering from RWTH Aachen University, Aachen, Germany in 2013. She is currently working as a researcher at the Department of Nuclear Medicine in Klinikum rechts der Isar, toward obtaining the Ph.D. degree in Physics at Technical University of Munich, Munich, Germany. From 2012 to 2013 she was with Philips Research Aachen, where she was involved in the characterization of sensitivity-encoded silicon photomultipliers. Since 2014, her Ph.D. research has been on development and characterization of a high-resolution small-animal positron emission tomography (PET) insert for a 7 T magnetic resonance imaging (MRI) scanner. The PET insert has a novel detector arrangement, with two offset layers of scintillation crystals individually read out by high-gain silicon photomultipliers (SiPMs), and offers high resolution, high count-rate capability, and reduced shielding requirements. She has worked on characterization of different scintillation crystal materials and SiPMs as detector modules for PET. She has also worked on Monte Carlo simulations of the scanner, characterization of data acquisition systems, data processing, image reconstruction, and the performance evaluation of the final system. Her latest work has been on MR-compatibility assessment of the PET insert with three radio-frequency coil configurations. She is a student member of IEEE and IEEE Nuclear and Plasma Sciences Society. She was a recipient of the Valentin T. Jordanov Radiation Instrumentation Travel Grant in 2017 and IEEE NSS/MIC Conference Trainee Grants in 2015 and 2017.

## Graduate Scholarship Awards

Adrian Ildefonso
*Graduate Scholarship Award Recipient*

Adrian Ildefonso has been awarded the 2018 IEEE Nuclear and Plasma Sciences Society (NPSS) Graduate Scholarship Award for his research contributions to the radiation effects community. Adrian received the B.S. degree in computer engineering from the University of Puerto Rico at Mayagüez in 2014 and the M.S. degree in electrical and computer engineering from Georgia Tech in 2017. He is currently a Ph.D. student in the Georgia Tech School of Electrical and Computer Engineering where he is advised by Professor. John Cressler, the Schlumberger Chair Professor in Electronics. He was awarded the US GEM Fellowship in 2014 and the US National Science Foundation (NSF) Graduate Research Fellowship in 2015. Adrian's research focuses on studying the effects of ionizing radiation on electronic devices, particularly circuits and systems designed using silicon-germanium (SiGe) technologies. The primary goal of his work is to build more robust systems for space-based applications by identifying and implementing novel design strategies that improve the radiation tolerance of analog and

**FUNCTIONAL COMMITTEES**
Continued on **PAGE 6**

# Functional Committees

Continued from **PAGE 5**

RF circuits. This research has been supported by the Defense Threat Reduction Agency and the NSF and has resulted in 13 authored or coauthored peer-reviewed journal publications and four conference publications.

**Francis Loignon-Houle**
*Graduate Scholarship Award Recipient*

Francis Loignon-Houle has been awarded the 2018 IEEE Nuclear and Plasma Sciences Society (NPSS) Graduate Scholarship Award for his research contributions to the medical imaging community. He obtained his B.Sc. in Physics and his M.Sc. in Radiation Sciences and Biomedical Imaging at Université de Sherbrooke, QC, Canada. His M.Sc. work mainly focused on the optimization of light collection and extraction in scintillators for small-animal Positron Emission Tomography (PET) detectors, which led to the publication of three peer-reviewed journal papers and four oral presentations at international conferences, all as first author. He also coauthored two papers and several abstracts on detector developments for PET. He is currently pursuing a Ph.D. degree in Radiation Sciences and Biomedical Imaging at Université de Sherbrooke under the supervision of Pr. Roger Lecomte. His current research activities address the ultra-fast detection of radiation for time-of-flight PET with special emphasis on studying the effects of depth-of-interaction, Compton interactions, and prompt photons on time resolution. His work is supported in part by an Alexander Graham Bell Graduate Scholarship from the Natural Sciences and Engineering Research Council of Canada. Francis was awarded the Valentin T. Jordanov grant to attend the 2017 IEEE Nuclear Science Symposium (NSS) and Medical Imaging Conference (MIC).

**Pan Wang**
*Graduate Scholarship Award Recipient*

Pan Wang has been awarded the 2018 IEEE Nuclear and Plasma Sciences Society (NPSS) Graduate Scholarship Award for her research contributions to the radiation effects community. She received the B.S. degree in Electrical Engineering from Huazhong University of Science and Technology, Wuhan, China in 2014 and the M.S. degree in Electrical Engineering from Vanderbilt University in 2017. She is currently pursuing the Ph.D. degree in Electrical Engineering at Vanderbilt University where she is advised by Professor. Dan Fleetwood. Her research interests include radiation effects and reliability of GaN-based HEMTs and two-dimensional materials and devices and low-frequency noise. She is the author or coauthor of six journal articles that have been published or accepted for publication and was a recipient of the Outstanding Conference Paper Award for the 2017 IEEE Nuclear and Space Radiation Effects Conference.

*Janet Barth, Awards Committee Chair, can be reached by E-mail at jbarth@ieee.org.*

## 2018 RADIATION INSTRUMENTATION AWARDS: CALL FOR NOMINATIONS

In the March issue of the Newsletter you had the chance to read a report on the 2017 activities of the RISC Honors and Awards Subcommittee and on the RITC award ceremony held on October 23rd, 2017 during the opening session of the 2017 IEEE Nuclear Science Symposium in Atlanta (Georgia).

It is now time to nominate a colleague (early career, mid-career or senior) for the three prestigious awards that RISC will award in 2018: the Radiation Instrumentation Early Career Award (RIECA), the Emilio Gatti Radiation Instrumentation Technical Achievement Award (RITAA)—first edition—and the Glenn F. Knoll Radiation Instrumentation Outstanding Achievement Award (RIOAA). The deadline for 2018 is July 15th, as usual. Before submitting a nomination, please consider that these are awards (prize in recognition of something that has been achieved) and not grants (financial support in view of something). Grants to attend the 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference in Sydney are available and the call is published on the conference website http://www.nssmic.org/2018/?s=awards-grants.

The Radiation Instrumentation Early Career Award is given to a young investigator in recognition of significant and innovative technical contributions to the fields of radiation instrumentation and measurement techniques for ionizing radiation. The prize consists of US$1,500 and an engraved plaque. The past recipients of the RIECA can be found on the Radiation Instrumentation Technical Committee (RITC) web page http://ieee-npss.org/technical-committees/radiation-instrumentation/.

The new Emilio Gatti Radiation Instrumentation Technical Achievement Award recognizes a mid-career individual who has made significant and innovative technical contributions in the field of radiation detectors, radiation instrumentation, and/or nuclear electronics, and/or measurement techniques for ionizing radiation. The prize consists of US$2,000 and an engraved plaque. The RITAA will be awarded for the first time in 2018.

The prestigious Glenn F. Knoll Radiation Instrumentation Outstanding Achievement Award is given to an individual in recognition of outstanding and enduring contributions to the field of radiation instrumentation. The prize consists of $3,000 and an engraved plaque. The past recipients of the RIOAA can be found on the RITC web page http://ieee-npss.org/technical-committees/radiation-instrumentation/.

The Committees for the 2018 edition of the aforementioned awards are being formed and will be published on the RITC web page http://ieee-npss.org/technical-committees/radiation-instrumentation/.

Revised nomination packets are available in doc and pdf formats on the RITC webpage http://ieee-npss.org/technical-committees/radiation-instrumentation/ and the completed packets should be submitted in pdf format via email to the Award Committee Chair Chiara Guazzoni Chiara.Guazzoni@mi.infn.it. The nominator should provide the information requested on the nomination form. Please do not submit materials beyond those requested.

Please note that the IEEE Policy on Award Limitations states "Normally, an individual shall receive only one honor in recognition of a given achievement, unless the significance of the achievement is such as to merit subsequently a higher award. A higher award may be given in the following year or thereafter." In the hierarchy of NPSS awards, IEEE level awards are considered higher than NPSS Society level awards, which are considered higher than NPSS Conference level awards. Technical Committee awards with a prize amount greater than US$2,000 are considered Society level awards. If an individual being nominated for any of our NPSS awards has already received any type of IEEE award for the same or similar work, the nominator must explain why the achievement for which the individual is being nominated is significantly different from that for which the previous award was given. A section dedicated to possible previous IEEE awards received by the nominee has been added in the nomination packet.

Do not hesitate to nominate one of your deserving colleagues or coworkers for the 2018 RISC Awards; I hope that this year the committee's job of selecting a single awardee will again be made particularly difficult by the outstanding level of the nomination packets.

**Chiara Guazzoni**
*RISC Honors and Awards Subcommittee Chair*

*Chiara Guazzoni is with Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano and with INFN—Sezione di Milano, P.za Leonardo da Vinci, 32—20133 Milano—Italy, Phone: ++39 02 2399 6147—Fax: ++39 02 2399 3699, E-mail: Chiara.Guazzoni@mi.infn.it*

## CHAPTERS

### Alexandria Student Branch Chapter

As our journey in guiding students never ceases in the IEEE NPSS AlexSC, we joined the odyssey of one of the cornerstones of the nuclear engineering field. Nuclear interactions and processes have been occurring while humanity stands visionless, recording only results and outcomes. At this point, the odyssey of modeling and simulation gave us the ability to witness every single moment of the particles' behaviors; opening another door for humankind.

We were pleased to organize a webinar given by Dr. Ahmad Ibrahim. The webinar was titled Modeling and Simulation of Nuclear Energy Systems. Modeling and simulation have a long history with researchers and scientists exploring nuclear energy technologies. In fact, the existing fleet of currently operating reactors was licensed with computational tools that were produced or initiated in the 1970s. Researchers and scientists are continuously developing new tools to predict the performance, reliability and economics of advanced nuclear power plants. The new computational tools will allow researchers to explore in ways never before practical, at the level of detail dictated by the governing phenomena, all the way from important changes in the materials of a nuclear fuel pellet to the full-scale operation of a complete nuclear power plant.

The webinar took place on Monday, 5th March 2018. The presenter, Dr. Ahmad Ibrahim, graduated from the nuclear engineering department, Alexandria University, Egypt. He is experienced in developing and applying advanced computational methods and tools for reactor physics and radiation transport analysis of a wide range of applications including particles accelerators and fission and fusion energy systems.

# Liaison Reports

## EDUCATIONAL ACTIVITIES BOARD

### IEEE Educational Programs and Resources

IEEE programs open eyes to the possibilities of the technology of today and tomorrow by equipping students and professionals to achieve their goals with:

- Pre-University Programs
- University Programs
- Teacher In-Service Program (TISP)
- Service Learning
- Continuing Education

### Training for Industry Professionals

Hundreds of hours of IEEE Continuing Education online courses help industry professionals stay up-to-date on the latest technologies. Examples include:

- Online, mobile-friendly courses help engineering professionals keep their skills up-to-date while earning CEUs/PDHs
- Developed with leading experts in their fields
- eLearning Library subscription options so that companies can provide training for all employees
- Partner with the IEEE Certificates program to offer certificates for your organization's learning events

Get a free trial of select courses at http://innovate.ieee.org/subscription-options/elearning-free-courses

### New IEEE EAB Products

The following new products were introduced in 2017:

- Cybersecurity Tools for Today's Environment
- Hacking Your Company: Ethical Solutions to Defeat Cyber Attacks
- IEEE Guide to Internet of Things (with Future Directions)
- IEEE Technology Report on Wake-Up Radio (with Standards)

These new products are being rolled out in 2018:

- AI & Ethics in Design (with Standards)
- 5G (with Future Directions)
- Self-Driving Vehicles (with VTS)
- Smart Grid (with PES)
- Edge Computing (with Computer Society)
- Arc Flash (with Standards)
- IP Law for Engineers 2E (with Wiley)

### Revamped IEEE EAB Website

The IEEE EAB Website has been revamped and now requires IEEE member login to access. Go to: https://ea.ieee.org

*Edl Schamiloglu, the NPSS Liaison to EAB can be reached by E-mail at edls@unm.edu.*

# Articles

## Four Solar Cycles

**Valentin T. Jordanov**
**Senior Member IEEE**

This comment is inspired by an article by Michael Mendillo published almost one solar cycle ago—"Giving Advice: Enough Is Enough After Three Solar Cycles"[1]. As we are entering a new NPSS election cycle, I thought this topic may be of interest to newsletter readers. If not elected, young professionals have little presence and perhaps very little influence on the decisions of administrative, technical and other committees of NPSS, which often are dominated by "the gray beards and the silver foxes"[1].

The age disproportion in the committees is a complex issue, but it certainly involves the desire of the younger members to serve and the willingness of the older generation to give way. I should admit that I have never served or had a desire to serve on any committee. Perhaps, many early career professionals have the same feeling. It is comfortable (and very interesting) to concentrate on the professional work, while someone else organizes conferences that you attend and manages the publication and the presentation of your work—the comfort zone syndrome. While some may have the comfort zone syndrome, I believe, there is a substantial group of young and mid-career professionals who are willing to serve and can devote time to our society. What prevents them from being elected? The ballots?

The election ballot presents the voter with a short list of names to vote on. I always asked myself how these names made it onto the ballot; who nominated these people? The email messages that I receive from IEEE often remind me to vote, but never, with a few exceptions from my local IEEE chapter, do they provide information about nominating candidates for committee members. No one can be elected without a nomination. In the ballot there is a "Write-In" field. I do not know how many people have been elected via "Write-In," but the entire concept seems odd. "Write-In" is essentially a nomination at the time of the vote. That nomination is only visible to the individual voter. All other voters will never see it. Perhaps, for the sake of fairness, an election with write-ins should be repeated with a new ballot including the printed names of all the write-ins.

For the three solar cycles that I have been a member of IEEE-NPSS, I have noted that the preprinted names on the ballots often repeat from election to election, shuffled from one committee to another. That is, we keep electing the same people election after election, one position to another, as they get older and older. "Widely known as good people to serve on committees, they get invited over and over again, decade after decade. They know how to get things done. Unfortunately, they also know how to get their way" [1].

Once elected, you get the opportunity to serve, you become an important person, but most importantly you become a connected person. Being important and connected is a predisposal for perpetual nomination and leads to a high probability of election. After a while, everyone in the professional society knows you, your name becomes well recognized even by people who have never met you personally. You get nominated by committees, societies and other groups. That is, you get nominated by the people you are connected with, people who are like you, elected time after time and who have a profound influence on the nominating process. You get elected because your name is on the ballot and because your name is recognizable.

For those my age and older who have served on NPSS committees solar cycle after solar cycle—are you willing to step down and remove your name from the ballot? "Please take a pledge to move on to other aspects of life. In addition to doing good research, replace community control with writing a book, creating a new course, serving as a tutor in your local school system, or just smelling the roses. But please stop trying to be in control"[1].

These are my random thoughts, a minuscular sample of a Poisson process called life. If you are young reader, please, nominate and vote, but not randomly. If you are a reader who remembers people landing on the Moon, please, consider the young generation. Once you were a youngster too.

[1] Michael Mendillo, "Giving Advice: Enough Is Enough After Three Solar Cycles", Eos, Vol. 90, No. 35, 1 September 2009.

Available as pdf: https://cedarweb.vsp.ucar.edu/wiki/images/6/61/2010_25th_EOS_Mendillo.pdf

*Valentin Jordanov can be reached by E-mail at Jordanov@ieee.org.*

## DESY, Hamburg, Opens First MicroTCA Technology Lab


**Official opening—Helmut Dosch, Chairman of the DESY Board of Directors, addresses the guests and staff before cutting the ceremonial MicroTCA-themed cake.**

**Authors: Vollrath Dirksen with Kay Rehlich and Thomas Walter**

On the 5th of April 2018 DESY, the Helmholtz Association and industrial cooperation partners celebrated the Official Opening Event of the MicroTCA Technology Lab.

The MicroTCA Technology Lab is one of seven Innovation Labs funded by the Helmholtz Association. DESY together with partners has created this User Innovation Lab.

In a show room, major boards and systems for potential users of this technology are demonstrated. For existing users of the technology the MicroTCA Technology Lab offers lab space with high-end measurement equipment where the DESY experts can test, verify and debug products under development together with the customer. Along with hardware development, the MicroTCA Technology Lab has a strong focus on FPGA firmware development. This allows them to offer firmware design services as well as complete system integration projects.

Professor Dr. h.c. Helmut Dosch, Chairman of the DESY Board of Directors, outlined in his welcome speech the importance of the MicroTCA.4 technology for the success of several accelerators at DESY Hamburg, for example for the just recently launched XFEL accelerator. The 3.4 km long European XFEL generates extremely intense X-ray flashes to be used by researchers from all over the world. XFEL was launched in September 2017 on time and within budget. The opening of the DESY MicroTCA Technology Lab is one milestone of the overall DESY 2030 strategy, where innovation and technology transfer have an important role. On a DESY map Dosch showed the impressive expansion and innovation plans of the DESY 2030 strategy.

Dr. Martin Kamprath, Program Manager, Transfer and Innovation Helmholtz Association, explained in his welcome speech, how Helmholtz supported with the Helmholtz Validation Fund 'MTCA.4 for Industry," the evaluation, innovation and standardisation of the MicroTCA.4 platform. As an outcome this technology has outstanding advantages not available with any other technology, which can be demonstrated in many installations. To make this "one technology for multiple solutions" more wide spread, the next logical step is to speed-up the usage and adaption of this technology. The funding of the DESY MicroTCA Technology Lab by Helmholtz and in-kind funding from industrial partners now offers consulting and development services with dedicated resources at DESY. These resources have full-access to the DESY technologies developed for the XFEL.

Dr. Arik Willner, CTO of DESY, outlined in his presentation 'Technology Transfer at DESY: MicroTCA as a Case in Point" the benefits of making outstanding technology invented within DESY available to the world more easily and faster. A key role for this is the support and service capability of the MicroTCA Technology Lab. The response on this service is already well recognized and more cooperation has started at these early days than expected.

In his speech 'Operational Challenges Answered by MicroTCA.4" Dr. rer. nat. Reinhard Brinkmann, Director of the Accelerator Division, explained the complexity and the challenges of the XFEL installation, why MicroTCA.4 technology was the right decision, and that the signal quality expectation was exceeded by the MicroTCA.4 technology.

In their presentation "Flashback: MicroTCA Development at DESY and SLAC" Dipl. Ing. Kay Rehlich, Head of XFEL and FLASH control systems until he retired in 2017, and Ray Larsen, Special Projects Manager, SLAC National Accelerator Laboratory, former Deputy Director of Technology, SLAC and Controls and Power Conversion Department head, Co-Founder and Chair of IEEE MicroTCA.4 technology in FLASH and XFEL.

In the first industrial partner presentation, "DESY as a Driver of MicroTCA Standard Development," Dipl. Ing. Vollrath Dirksen, Strategic Business Development Manager at N.A.T. (Network and Automation Technology) highlighted the advantages of creating the MicroTCA.4 and MicroTCA.4.1 open standard by DESY, SLAC, other institutes and industrial partners in making innovation available outside the physical institutes. Several application examples e.g., test & measurement, motor test stands, traffic control systems, aerospace test beds, beam forming, audio and video conferencing systems, and wireless telecommunication applications showed MicroTCA technology is used successfully in many sectors. The MicroTCA Technology Lab, with small and large installations running at DESY, is the ideal enabler for other companies and institutes to benefit from this technology.

In the second industrial presentation, 'MicroTCA Technology Lab: Opportunities for Industrial Partners" Dipl. Ing.Jörg Uthenwoldt, Sales Branch Manager (Niederlassungsleiter) at Rohde & Schwarz GmbH &


**Lab tour—Michael Fenner, Electronics Section leader, discusses the latest advances in MicroTCA in the showroom.**

Smart Village Program, reviewed the evaluation phase of different form factors for high speed, high precision, highly synchronized data acquisition and fast control systems, the evolution of the MicroTCA standard to MicroTCA.4 to address additional demands and the positive experience of using the

Co.KG see the MicroTCA advantages of modularity, scalability, remote management, reliability and high availability. Rohde & Schwarz as an industrial partner of the MicroTCA Technology Lab can bring their RF knowledge and test equipment to the lab.

**ARTICLES** Continued on **PAGE 8**

# MicroTCA Tech Lab Continued from **PAGE 7**

To conclude the official opening ceremony, a big cake showing the front and rear board of a MicroTCA system was cut.

## ABOUT MICROTCA

MicroTCA (Micro Telecommunications Computing Architecture) is an electrical and mechanical open standard for managed, compact, modular electronic boards with high-reliability.

MicroTCA.4 is an enhancement of this open standard and was developed by DESY, SLAC and several other research institutes and industrial partners. The aim was to allow the realization of high-performance analog function blocks combined with powerful digital electronics.

The advantages of MicroTCA are its high modularity and reliability based on state-of-the art digital technologies supporting PCIe, 10 Gigabit Ethernet and other high-speed interconnects.

MicroTCA.4 has evolved rapidly to become a viable standard for demanding applications in large-scale research facilities e.g. particle accelerators, high-energy physics, plasma fusion sources and many more.

Industries with a keen interest in fully managed, compact, modular and reliable computing performance (e.g., medical technology and industrial process control) are currently using or evaluating MicroTCA.4 for their products.

*Vollrath Dirksen can be reached by E-mail at vollrath@nateurope.com; Thomas Walter can be reached by E-mail at thomas.walter@desy.de; Kay Rehlich can be reached by E-mail at kay@rehlich.de.*

**FREEDOM OF ASSOCIATION BARRIER**

It isn't tying himself to one woman that a man dreads when he thinks of marrying; it's separating himself from all the others.

*Helen Rowland*

# Obituary

# Roger White (1939 – 2018)

Roger White was born on January 11, 1939 in Llwynypia, in the mining valleys of South Wales, UK. At 16, he entered a five-year Student Apprenticeship program at the Atomic Energy Research Establishment (AERE) at Harwell, England. There he was trained as an electrical engineer while simultaneously attending Oxford Polytechnic where he was awarded Higher National Certificates in both Electrical and Mechanical Engineering.

AERE employed him in the Plasma Physics Division after he completed his apprenticeship. For AERE he worked on high voltage switching, first at Harwell and at Culham when it was opened in 1962.

In 1964 Roger emigrated from the UK to Canada, and spent a year working on satellite systems for RCA in Montreal. He then returned to high voltage engineering at Ion Physics in Boston, where he was first introduced to nuclear weapons simulators in the form of flash X-ray and electromagnetic pulse (EMP) systems.

Roger joined Maxwell Laboratories in San Diego, California, in 1967 and began a 35-year relationship with that company. Roger had the honor to work with many of the original thinkers in the field of Pulsed Power. The long list includes Alan Kolb, Richard Fitch, Richard Miller, John Shannon, John Harrison, Bob Hunter and Jorg Jansen. He made contributions to the Blackjack series of simulators for the Defense Nuclear Agency, and EMP generators for the US Department of Defense and foreign governments. This led to field installation and commissioning of systems such as Casino at NSWC White Oak, Empress II at Little Creek, Virginia, and systems in France, and in Germany.

At the same time Roger managed up to forty people in the Maxwell Engineering Department. This matrixed organization prompted Roger to market and manage programs within the group, as well as to support the engineering needs of the entire company. His last major assignment before Maxwell sold its pulsed power systems business was to manage its group in Albuquerque and win a large contract at the Air Force Research Laboratory.

Since the purchase by Titan Corporation in 2001 and Titan's purchase by L-3 Communications in 2005, Roger directed the operation of the L-3 Pulse Sciences group in San Diego (originally Maxwell's pulsed power group) until his retirement in 2012. There the work changed somewhat to high average power systems such as particle accelerator hardware for the Spallation Neutron Source at ORNL.

Roger chaired the 1991 IEEE Pulse Power Conference and was co-chairman of the 1994 BEAMS conference, both in San Diego. He served on the IEEE Pulse Power committee for twenty years and was the recipient of the IEEE Peter Haas Pulsed Power Award in 2011 "for outstanding contributions to pulsed power technology in developing programs of research, education, and information exchange."

Roger passed away on January 9, 2018, just two days before his 79th birthday. A memorial scholarship fund has been created at Texas Tech University http://donate.give2tech.com/?fid=T25F406 since Roger helped recruit many TTU graduates to join Maxwell.

*Richard Ness, E-mail: richard.ness@nessengr.com, prepared this obituary. Please contact him or Susan Heidger, Chair of the Pulsed Power Science and Technology Committee, E-mail: susan.heidger@us.af.mil, for additional information*



**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, 2018 for publication in the September 2018 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.