2019 IEEE Nuclear Science Symposium and Medical Imaging Conference
26th International Symposium on Room-Temperature Semiconductor X-Ray & Gamma-Ray Detectors

This year’s IEEE 2019 Nuclear Science Symposium (NSS) and Medical Imaging Conference (MIC), and the 26th International Symposium on Room Temperature Semiconductor Detectors (RTSD), will be held in Manchester and will be the first time the meeting has visited the UK. The technical program has been built by selecting contributions from 1,400 abstracts submitted from 48 countries with the help of over fifty topic conveners and several hundred technical reviewers. The core scientific session will run from Monday, October 28th through to Saturday, November 2nd with a program of short courses from Saturday, October 26th through to Tuesday, October 29th. The meeting will take place in Manchester Central Convention Centre, https://www.manchestercentral.co.uk/ which was developed from the abandoned historic Manchester Central Railway Station with its spectacular single-span arched roof. Short courses will be held in the nearby Deansgate Hilton hotel.

Manchester is the UK’s de facto second city and was at the heart of the industrial evolution. You will come across reminders of its rich heritage on any short walk around the center. More recently, Manchester has become a hub for contemporary art and culture with a profusion of galleries and venues. It has a legendary music scene, and two football (soccer) teams competing at the highest level in Europe. There are all kinds of restaurants, cafes, pubs and wide variety of accommodation across all price ranges, all within an easy distance of the meeting. The city is well connected internationally by air, two hours by train from London, and makes an ideal stepping off point for onward visits to many of the UK’s most interesting and scenic regions. A program of tours taking in places of interest in the region has been arranged. Hotels can be booked via the conference website with specially negotiated rates for delegates and visitors.

An overview of the conference is below but please check the conference website https://nssmic.ieee.org/2019/ regularly for more details and up-to-date information on the program and logistics! The 2019 NSS-MIC organizing committee looks forward to welcoming you to Manchester in October!
MIC sessions run from Wednesday through to Saturday, but note that this year there will be three joint NSS/MIC/RTSD sessions of interest to MIC attendees on Tuesday, and also a closing MIC exhibitor technical session, where the exhibitors will discuss the workings of their instruments, will be on Wednesday. The Industrial Exhibition will be open from Tuesday through to Thursday and will include a relaying networking opportunity during the “Happy Hour” exhibitors’ reception on Tuesday evening.

MIC PROGRAM

The MIC program starts on Monday afternoon following the NSS plenary session—note that this year no MIC sessions are planned for Friday. Room-temperature semiconductor radiation detectors continue to find increasing applications in such diverse fields as medicine, homeland security, astrophysics and environmental remediation, and the RTSD symposium provides a forum for discussion of the state-of-the-art of the detector technology, including materials improvement, material and device characteristics, fabrication, electronics and applications.

RTSD PROGRAM

The RTSD program starts on Monday afternoon following the NSS plenary session—note that this year no RTSD sessions are planned for Friday. Fast timing detectors for HEP and medical applications – Sunday, 27th October & Monday, 28th October

Medical image reconstruction: from foundations to AI—Monday, 28th October

Hybrid nuclear medicine devices: instrumentation and application—Tuesday, 29th October

Artificial intelligence for medical image analysis and processing—Tuesday, 29th October

WORKSHOPS

There will be three joint NSS/MIC/RTSD sessions, all on Tuesday, on selected topics of mutual interest:

New detectors and systems

New detectors—timing and data acquisition

New applications and dosimetry

INDUSTRIAL EXHIBITS PROGRAM

Vendors with products and services related to the NSS, MIC, and RTSD are participating in the Industrial Program which comprises an exhibition and technical seminars. The exhibition area is situated in the central hall adjacent to the poster sessions. The exhibition technical sessions, where the exhibitors will discuss the workings of their instruments, will be on Wednesday. The Industrial Exhibition will be open from Tuesday through Thursday and will include a relaying networking opportunity during the “Happy Hour” exhibitors’ reception on Tuesday evening.

SHORT COURSES

The 2019 NSS/MIC Short Courses program offers six courses on established and emerging areas of interest to NSS, MIC and RTSD attendees, including topics of mutual interest to all communities. All courses are run by experts in their respective fields and include theoretical background alongside applications and practical examples. The program on offer this year includes popular courses from previous years, in addition to brand new courses on Fast timing detectors for HEP and medical applications and Artificial intelligence for medical image analysis and processing. The program will run from Saturday 26th to Tuesday 29th of October, with NSS short courses primarily on Saturday and Sunday, and MIC short courses on Monday and Tuesday.

Fast timing detectors for HEP and medical applications—Saturday, 26th October

Medical image reconstruction: from foundations to AI—Monday, 28th October

Hybrid nuclear medicine devices: instrumentation and application—Tuesday, 29th October

Artificial intelligence for medical image analysis and processing—Tuesday, 29th October

SCHOLARSHIPS AND GRANTS

A very large number of student grants have been awarded this year. Special thanks to all members of our selection committees for their help with the process.

SOCIAL EVENTS

This year’s NSS dinner will be held in the very beautiful Manchester Cathedral. This Gothic building is located at the end of Deansgate approximately 15-20 minutes walking distance from the Convention Centre. This will be a good opportunity to explore Manchester city center with its shops and old buildings.

VIVE LA DIFFERENCE!

In theory, there is no difference between theory and practice. But in practice, there is.

Jan L. A. Van de Snepscheut

THESE DAYS WE’RE LUCKED OUT

In physics there may one day be a Theory of Everything, in finance and the social sciences, you’re lucky if there’s a usable theory of anything.

Emmanuel Daumann

http://npss.ieee.org/npss
The IEEE Nuclear and Space Radiation Effects Data Workshop, and an Industrial exhibition in a casual atmosphere. Light refreshments will be served.

Conference Reception — Wednesday, 30th October

Join us for the Conference Reception on Wednesday evening in the spectacular Central Hall of the Conference Centre. This complimentary event will feature dinner and drinks for all attendees and their companions. Enjoy the relaxing and fun atmosphere under the grand arch of the Central Station while meeting with other colleagues and making new friends.

MIC Dinner — Friday, 1st November

The MIC dinner promises to be an exciting social function taking place in Manchester’s most celebrated building, the Free Trade Hall (converted to Radisson Blu Edwardian, Manchester Hotel) situated right next to the Conference Centre. This historic landmark combines award-winning modern style, elegance and Venetian palazzo architecture. The dinner will be in the magnificent Hall Suite, rich in history this is a beautifully decorated space with inspiring works of art, original art nouveau and natural light

SPECIAL EVENTS

Women in Engineering Luncheon — Thursday, October 31st

For the outdoor enthusiast, Northern New Mexico and the surrounding area offer a wide range of adventures. Activities include hiking, horseback riding, and fly-fishing. Remember, we are going to be at an elevation of 7,000 feet and likely in sunny weather.

TECHNICAL PROGRAM

Chaired by Philipp Aido, Jet Propulsion Laboratory, papers will be presented at this meeting will describe the effects of space, terrestrial, or nuclear radiation on electronic or photonic devices, circuits, sensors, materials and systems, as well as semiconductor processing technology and techniques for producing radiation-tolerant devices and integrated circuits. The conference will be attended by engineers, scientists, and managers who are concerned with radiation effects.

3 2020 IEEE NSREC is Planning for Santa Fe, New Mexico

The conference committee is soliciting papers to be presented at this meeting. All presentations will be eligible for publication in the Conference Record that will subsequently be made available in the Xplore IEEE Digital Library. This year there will also be the possibility to modify the submitted summary of your presentation on-line — summaries will be made available (to attendees only) for a limited period before, during and after the meeting (see the conference website https://nssmic.ieee.org/2019 for more details).

PUBLICATIONS

CONFERENCES

REGISTRATION

Registration is handled via the conference website https://nssmic.ieee.org/2019 where you can register for the conference, short courses, workshops, NSS and MIC dinner and RTSD luncheon, and the Companion Program. Manchester is an extremely popular destination so early registration and hotel booking is strongly recommended (Information on visa requirements for visiting the UK can be found here https://www.gov.uk/check-uk-visa)

In addition to all those above, the General Chair and Deputy General Chair would like to thank Ralph Engels, Paul Nolan, Ron Keyser, Dick Kousen, Brian Hutton, Malcolm Joyce, Val O’Shea and John Simpson for their massive behind-the-scenes contributions in organising NSS-MIC 2019.

Paul Marsden, 2019 NSS MIC General Chair can be reached by E-mail at paul.marsden@lcl.co.uk

Lucky Guy

Money is not the most important thing in the world. Love is. Fortunately I love money.

Jackie Mason

It’s Physics — Likes Repel

Biology: have one thing in common with bores: they recognize at sight and avoid another, fearing competition.

Howard Peterson

Give It All Back If You Fail!

All I ask is the chance to prove that money can’t make me happy.

Spock

I Have A Great Idea

Nothing is as good as it appears beforehand.

George Ebd

Nor Sufficient

It is not necessary to be an idiot to act like a fool.

Emmanuel Avenog-Roy (Defence Lawyer)

Don’t Think The Apes Feel Flattered

An hour at the zoo is enough to convince most people that apes and monkeys are close kin to humans. Some say that an hour watching apes will make me happy.

A.C. Grayling
Conferences

Methods for Hardened Design and Manufacturing
Modeling of Devices, Circuits and Systems
Cryogenic or High Temperature Effects
Novel Device Structures, such as MEMS and Nanotechnologies
Techniques for Hardening Circuits and Systems
Space, Atmospheric, and Terrestrial Radiation Effects
Characterization and Modeling of Radiation Environments
Space Weather Events and Effects
Spacecraft Charging
Predicting and Verifying Soft Error Rates (SER)
Hardness Assurance Technology and Testing
New Modeling and Testing Techniques, Guidelines and Hardness Assurance Methodology

Radiation Effects Data Workshop
The Radiation Effects Data Workshop is a forum for papers on radiation effects data on electronic devices and systems. Workshop papers are intended to provide radiation response data to scientists and engineers who use electronic devices in a radiation environment, and for designers of radiation-hardened or radiation-tolerant systems. Papers describing new simulation facilities are also welcome.

Paper Submittal
Information on the submission of summaries to the 2020 NPSC for either the Technical Sessions or the Data Workshop can be found at www.npsc.org. The deadline for submitting summaries is February 7, 2020.

Short Course
Attendees will have the opportunity to participate in a one-day Short Course on Monday, July 20. The short course is being organized by Kenneth Galloway, Vanderbilt University. The course will be of interest both to radiation effects specialists and newcomers to the field.

Industrial Exhibit
An Industrial Exhibit will be included as an integral part of the conference and will be chaired by Scott Jordan, JSTI. Exhibitors will include companies or agencies involved in manufacturing electronic devices or systems for applications in space or nuclear environments, modeling and analysis of radiation effects at the device and system level, and radiation testing.

Conference Committee
General Chair
Hugh Rambay, Arizona State University, hrambay@asu.edu
Technical Program Chair
Philippe Adel, Jet Propulsion Laboratory, Philippe.C.Adel@jpl.nasa.gov

Secretary’s Report

Conference

As noted in Ron Schremp’s report above, AdCom met in Orlando, FL at the Orlando Hilton Universal Studios following the PPS or Pulsed Power Plasma Science Conference that is held on a six-year schedule as a joint ICOPS and Pulsed Power conference. We were joined during our meeting by Lisa Boyd of the IEEE MCE who is the conference account manager for NPSS and who has been involved with both Pulsed Power and ICOPS, as well as PPSW, for a number of years. Lisa is available and knowledgeable if your TC needs help in organizing its conference and would like to involve MCE’s services (boyd@wiee.org). Please see www.ieee.org/.

Our Treasurer, Ralf Englert, reported that income is shown as down this May in part due to the reporting. Conference income is accurate as reported but is not very meaningful at this time of year. Income from Publications shows as increased but is not projected to be favorable over the next several years. Conferences and Publications are the Society’s two principal streams of revenue, with a very small contribution from dues. The Society supports three awards, some student travel, some conference child-care grants and many other things of benefit to members. It is critical that conference earnings are available to cover these as well as our initiatives. Last year we closed with a deficit of $138.4k largely due to 2018 and prior years of conference expenses. Our net worth decreased by over $650k due to market losses and meeting budget shortfalls. The 2020 budget has been drafted and will be sent to IEEE Finance before July 2nd.

The MGA vice president has initiated discussions of a possible journal, while President Jose Moura is focusing on financial mission statements. Work is continuing on vision and mission statements. John Verboncoeur, our Division IV Director, reported on a number of TAB, IEEE Board of Directors and TAB committee meetings held in May and June. Steve Welby, the new IEEE Executive Director, is using many tools to reduce operational costs while President Jose Moura is focusing on financial transparency, diversity, inclusivity and ethics, and well as new membership and business models. The MGA vice president has initiated discussions of splitting Region 8 and Region 10 while coalescing parts of R1-7 and R9. They are also looking toward membership growth and more local activities. Much

President’s Report

The Nuclear and Plasma Sciences Society AdCom recently met in Orlando, following the 2019 IEEE Pulsed Power and Plasma Science Conference. In recent years, the summer AdCom meeting typically has been held in conjunction with the IEEE Nuclear and Space Radiation Effects Conference, but was not because of scheduling issues. We were to have the AdCom meeting after the IEEE Technical Activities Board (TAB) meeting has taken place, so we can discuss any issues that are raised there. It was a good opportunity to meet with one of the other large NPSS conferences as it was held after this year’s June TAB meeting.

One of the highlights of the TAB meeting was the selection of Peter Choud for the Technical Activities Board Hall of Honor. Peter has been very active in NPSS and currently chairs the NPSS Communication Committee. Please congratulate Peter!

The NPSS underwent a review by the Society and Councils Review Committee of the IEEE in February and the review was accepted at the TAB meeting. As reported in the previous newsletter, NPSS is doing very well. The main recommendation of the SCRC is that we should consider developing an NPSS strategic plan, and we began the process at the recent AdCom meeting. Steve Meikle, the NPSS Vice President, is leading the strategic planning activity. Your thoughts and input related to the plan are welcome—please contact your technical committee AdCom representative if you have any ideas.

Open Access publishing continues to be one of the major issues confronting the IEEE. In this model, the expenses associated with publishing are paid by the authors (or their sponsoring organizations), rather than by subscriptions. One of the main drivers behind this move is a group called Coalition S, a consortium of primarily European funding organizations. “Plan S,” the approach proposed by this consortium, poses some interesting challenges for a relatively small and technically diverse society such as NPSS. They plan to require that the research supported by consortium members be published in a Gold OA journal. In order to qualify as a “Gold Open Access” journal under this plan, it is necessary for the new journal to have editors and reviewers that are substantially different from existing traditional journals. It is difficult to maintain and staff new OA journals in our fields of interest, while assuring the continued quality of our publications. Consequently, NPSS has decided to adopt a “wait-and-see” approach for the moment, as have many other IEEE societies. The IEEE also is exploring mixed “publish and read” subscriptions for organizations that would provide access to existing IEEE content and ability for associated authors to publish new papers. Fortunately, Coalition S has delayed implementation of their requirements by a year, from January 1, 2020 until January 1, 2021. We will continue to monitor developments on this front.

NPSS currently sponsors (wholly or in part) four journals: the IEEE Transactions on Nuclear Science (edited by Zane Bell), the IEEE Transactions on Plasma Science (edited by Steve Glorion), the IEEE Transactions on Radiation and Plasma Medical Sciences (edited by Dimitris Vlaskis), and the IEEE Transaction on Medical Imaging (edited by Michael Irina). TAB and TPS are 100% sponsored by NPSS, while the other two are shared with other societies. Paul Drescher serves as the NPSS Publications Chair and oversees all of our publications in that capacity. This is a very capable team and we are confident that they will guide us through the transition to open access.

The IEEE also is working to comply with the new European Union General Data Protection Regulations (GDPR), with the assistance of an internal or external. Work is continuing on vision and mission statements.

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Steve Meikle presented the first information from the Strategic Planning Effort, including the initiation of an NPSS SWOT analysis (Strength, Weaknesses, Opportunities, Threats) and whether these are internal or external. Work is continuing on vision and mission statements.

John Verboncoeur, our Division IV Director, reported on a number of TAB, IEEE Board of Directors and TAB committee meetings held in May and June. Steve Welby, the new IEEE Executive Director, is using many tools to reduce operational costs while President Jose Moura is focusing on financial transparency, diversity, inclusivity and ethics, and well as new membership and business models. The MGA vice president has initiated discussions of splitting Region 8 and Region 10 while coalescing parts of R1-7 and R9. They are also looking toward membership growth and more local activities. Much

NPSS News
ACCOM ACTIONS

• AdCom, on behalf of NPSS, voted to endorse the "10-ke challenge". The motion was brought forward jointly by FRSC and RMISC and passed unanimously.

• AdCom approved the proposed amendments to the NPSS Constitution and Bylaws. Unanimous. See article and revisions under Technical Committees below.

It was moved by PPST that their Arthur Guenter Award be increased. A motion to postpone the vote until November carried, 21 Y, 0 N, 1 A.

It was moved by the FTC that their award be modified so that in the years between SOFE conferences the award be judged on the basis of specific technical achievement, and that in the year the conference the award be judged based on career and leadership. It was specified that the award is an NPSS-level award funded by the society, but travel for the recipient to attend the conference is funded by the conference. The amended wording was approved 22 Y, 0 N, 0 A and will be sent to the C&BL.

• Motions from FinCom

- FinCom endorses approval of the following initiatives and initiative priorities for 2020:
  - Instrumentation Schools
  - Student Support initiative
- APL – SEEABY

As I write this, the program committee is finalising the scientific program of the 2019 IEEE NPSS Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC) which will take place in the Manchester Convention Centre in Manchester, UK from the 26th October to the 2nd November. The location for the 29th SOFE which will be held June 2nd – 6th 2019 at the Sawgrass Marriott in Ponte Vedra Beach, Florida. The conference was a major success thanks to a diverse group of attendees from 20 nations and a strong technical program organized by the Technical Chair, Brad Nelson (ORNL, ret.). The opening plenary began with a talk by Dr. James Van Dam, newly appointed Director of the DOE Office of Science for Fusion Energy Sciences. Two lively town hall meetings were convened, one to provide input to the APS-DPP-Community Planning Process and the Fusion Energy Sciences Advisory Committee (FESAC) to develop a 10-year strategic plan for the US fusion program and another on the topic of “Accelerating the Development of Fusion Power”, led by Dr. Dale Meade (PPPL, ret.). Two successful minicourses were held, one on Plasma-Material Interactions and another on Neutronics in Fusion. Dr. Valeria Ricardo, Head of the Engineering Department at PPPL, spoke at the Women in Engineering (WIE) luncheon and led an enlightening panel discussion. Dr. Richard Nguyen of Sandia National Lab described his career experiences at a well-attended Young Professional’s reception. The 2018 (Dr. Larry R. Bajorek, ORNL) and 2019 (Dr. Ing. Lutz Wegener, IPP) Fusion Technology awards were presented at the banquet, both recipients were in attendance. Also presented was the best Student Poster Award to Thomas Lockey of University of Tennessee, Knoxville.

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The Committee shall attempt to provide standards among its members.

The Committee shall aid in promoting and the maintenance of high scientific and technical advancement of the theory and applications of plasma science and related technologies and applicable IEEE and NPSS rules and regulations. The primary conference to be held by the Committee shall be the IEEE International Conference on Plasma Science (ICOPS). The Committee may hold meetings, except as otherwise provided in this Constitution. The Committee may send notices of these meetings to the mailing addresses of the members, and they shall be entitled to vote on Committee matters.

The voting members of the ExCom from among the eligible members-at-large to complete the remainder of the term. The Vice-Chairperson would then be a candidate to succeed to Chairperson, subject to the approval of the ExCom, as proposed above.

At the conclusion of the term of the Chairperson, he or she shall serve for two years as the Most Recent Past Chairperson. The terms on the ExCom of the Vice-Chairperson, the Chairperson, and the Most Recent Past Chairperson shall automatically extend until they vacate their offices, and during this period they shall be considered full members of ExCom with a vote. No individual may be elected as Chairperson or Vice-Chairperson immediately after completing a term as Chairperson.

In the event that the neither the Chairperson nor the Vice-Chairperson is able to take office as prescribed in the Bylaws or if both are incapacitated, or if both offices become vacant for a period greater than 60 days, the ExCom shall promptly elect an Acting Chairperson from among the eligible elected members-at-large to assume the duties of Chairperson until either the Chairperson or Vice-Chairperson takes office or resumes his or her duties.

The specific herein and in the Bylaws. The number of elected members-at-large shall be 18 members.

The terms of office of the elected members-at-large shall be for three years. Election of members-at-large shall be held annually to fill vacancies for the coming year. Current members of ExCom, with the exception of those serving partial terms as members-at-large, may not be candidates in elections held during their term of service.

The Chairperson is required to perform such duties as the Chairperson deems necessary, approval of the amendment to the Constitution has been sent to each member of the ExCom at least three weeks prior to such meeting. After such approval, the proposed amendment shall be published in the NPSS News, with notice that it goes into effect unless 20 members of the Plasma Science and Applications Committee object in writing to the President of the NPSS within 60 days of the date of mailing of the notice.

If no objections are received, a copy of the proposed amendment shall be distributed with a ballot to all members of the Committee at least 30 days before the date set for the return of the ballots.

The terms of the Vice-Chairperson as the designated alternate to the Secretary of the ExCom are entitled to vote on Committee matters.

The in the Bylaws and shall include provision for nomination by Committee members-at-large for the term beginning the following January.

If the PSAC Chairperson is unable to represent the Committee at a meeting of the NPSS Administrative Committee (AdCom), the Chairperson may designate the Chairperson to represent the Chairperson as his or her alternate. This alternate shall have the privilege of the floor and may vote on all matters coming before AdCom. The Secretary of the NPSS shall submit the name of the designee as his or her alternate to the Secretary of the AdCom prior to the start of each calendar year.

Article VII – Meetings

Section 1. The Committee may hold meetings, conferences, symposia, or conventions, either alone or in cooperation with other organizations, subject to applicable IEEE and NPSS rules and regulations. The primary conference to be held by the Committee shall be the IEEE International Conference on Plasma Science (ICOPS).

Section 2. Meetings, conferences, or conventions sponsored by the Committee shall be open to all members or affiliates of the NPSS. The Committee may not sponsor or cosponsor a meeting that is in any way subject to security clearance.

Article VIII – Meetings

Section 1. The ExCom shall meet as required to conduct business and in accordance with the Bylaws.

Section 2. Ten voting members of the ExCom shall constitute a quorum. A member may either be present or electronically by any means that allow the member to participate actively in discussions and votes. No member shall have more than one vote for any reason. A member-at-large may appoint a proxy to represent him or her at an Executive Committee meeting. However, such a proxy may not cast a vote.

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

Section 4. The business of the ExCom may be handled by correspondence, telephone, or electronic communications (fax, email, etc.) where, in the opinion of the Chairperson, matters requiring prompt action can be adequately handled in that manner. A majority vote of the full ExCom is required to take action in such cases. Telephone actions are to be promptly confirmed in writing by the Chairperson.

Section 5. The PSAC Chairperson is unable to represent the Committee at a meeting of the NPSS Administrative Committee (AdCom), the Chairperson may designate the Chairperson to represent the Chairperson as his or her alternate.
TECHNICAL COMMITTEES CONT.

NPSS NEWS

1. Executive Committee: Article IV, Section 1 of the Constitution provides that the ExCom shall consist of a number of elected members-at-large plus certain other members. These other members of the ExCom shall, unless they are already elected members-at-large, the Chairperson of the Committee, the Vice-Chairperson of the Committee, the Most Recent Past Chairperson of the Committee, the Secretary of the Committee, and the Editor-in-Chief of the Transactions on Plasma Science. Certain other individuals who are carrying out specific functions are also expected to attend the ExCom meetings, even if they are not voting members of the ExCom. These include: the Editor-in-Chief of the Transactions on Plasma Science, the Chairperson of the ExCom Committee, the Vice-Chairperson of the Committee, the Most Recent Past Chairperson of the Committee, and the Editor-in-Chief of the Transactions on Plasma Science. The Chairperson of the Committee shall be the Chair of the ExCom.

2. The ExCom shall meet at least two times per year, upon the determination of the Chairperson at least three weeks in advance of meeting. One of these two meetings shall be held in conjunction with the IEEE International Conference on Plasma Science (ICOPS). Additional meetings may be called at the discretion of the Chairperson or upon request of at least ten voting members of the ExCom with at least three weeks’ notice. ExCom meetings are open to visitors, who may be granted the privilege of the floor at the discretion of the meeting’s presiding officer or by action of the ExCom. Visitors can also be removed from ExCom meetings at the discretion of the Chairperson. Should an ExCom meeting be held in Executive Session, any visitors present may be asked to leave.

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

4. In the absence of extenuating circumstances as approved by the ExCom, an elected member-at-large who misses three successive meetings shall automatically be dropped from the ExCom.

5. Nomination and Election of ExCom Members-at-Large: As specified in Article IV, the ExCom shall consist of 12 voting members-at-large, in addition to the three-year term. Ten posts, plus any vacancies occurring in the previous year, are to be filled each year by election of the general membership of the Committee. The terms of office are as listed in Bylaw 5.

6. The Nominations Subcommittee of ExCom has principal responsibility to assemble a balanced slate of qualified ExCom candidates reflecting the diversity of Plasma. Nominations may be made by any member of the Committee by written submission to the Nominations Subcommittee, up until a date fixed each year by the Chairperson of the Committee. Self-nominations are permitted. Eligible members of Plasma can also be added to the ballot by a written petition signed by 25 members of the Committee. Such petitions must be submitted to the Chairperson of the Committee no later than June 1 of the year of the election. The Chairperson of the Committee shall ensure that the list is at least one and one-half (1.5) times the number of positions to be filled. Each election ballot shall include at least two transnational candidates, where transnational refers to candidates whose primary residence is outside of the US and Canada. These transnational candidates shall be identified to the IEEE Headquarters, but not separately designated on the election ballot.

7. All members must be IEEE members. Membership in IEEE and NPSS or must have submitted an application for Higher G m level membership in IEEE and NPSS within the past three years to the IEEE Headquarters. Student members and affiliate members of NPSS are not eligible to be nominees for membership-at-large.

8. The Secretary shall annually arrange for the distribution to the members of the Committee, on or about July 31, of a ballot to elect the candidates for member-at-large positions on the ExCom. The ballot shall be accompanied by a copy of each biographical statement from each nominee.

9. Sixty-five days after distribution of the ballots, the IEEE Headquarters shall count and tabulate the votes received and report the results to the Chairperson and Vice-Chairperson of the Committee. In general, those nominees receiving the highest number of votes shall be elected. However, the ballots shall be counted in a manner determined at the beginning of the election cycle that ensures that at least one of the transnational candidates is among the six candidates elected to regular 3-year terms. If the election is also being used to fill the remainder of an uncompleted 3-year term, the individual receiving the next highest vote total after determination of the six regular 3-year terms will be elected to that position at the Annual Meeting. If the election is also being used to fill the remainder of an uncompleted 3-year term, the individual receiving the next highest vote total after determination of the six regular 3-year terms will be elected to that position at the Annual Meeting. The Chairperson shall designate tellers to verify and count the ballots during the Annual Meeting.

10. In any event, should no candidate receive a majority of the votes cast to succeed in the Chairperson, then ExCom shall itself determine a new Chairperson by lot, and then elect the new Chairperson and vote at the Annual Meeting. If the newly elected Vice-Chairperson is subsequently elected to become the next Chairperson, then the individual designated as the Chairperson ExCom shall also determine a new slate of candidates for Vice-Chairperson and vote on that position at the Annual Meeting.

11. In any event, should no candidate receive a majority of the votes cast for Vice-Chairperson, the newly elected Chairperson shall determine a new Vice-Chairperson by lot, and then elect the new Chairperson and vote at the Annual Meeting. If the newly elected Vice-Chairperson is subsequently elected to become the next Chairperson, then the individual designated as the Chairperson ExCom shall also determine a new slate of candidates for Vice-Chairperson and vote on that position at the Annual Meeting.

12. The IEEE International Conference on Plasma Science: The chairperson of an ICOPS must be a member of the Plasma Science and Applications Committee. The ICOPS Chairperson shall be selected by the Chairperson of the ICOPS, and the Chairperson of the ICOPS Committee. The ICOPS Chairperson shall determine whether the ICOPS shall be scheduled to begin in any year following the expiration of their term, and the IEEE Plasma Science and Applications Committee guidelines for the conference. The Conference Chairperson is responsible for the budget of the conference and determines the
**Technical Committees**

Continued from PAGE 7

registration fees to be charged, subject to approval by the ExCom and the NPSS. He or she shall appoint the members of the Organizing Committee and the Program Committees, with the Treasurer and Technical Program Chair subject to approval by the ExCom. At least one former chairperson of an ICOPS shall be included on the Organizing Committee. The ICOPS Chairperson shall also present a list of Technical Committees (TACs) to the ExCom for approval no later than the Annual Meeting 12 months prior to the conference. A list of Session Organizers (SOs) to the ExCom for approval no later than the ExCom meeting 12 months prior to the conference. These lists shall not include individuals who have served consecutively in the same capacity for the 3 prior ICOPS. Additionally, the ICOPS Chairperson shall appoint a conference awards committee, which shall be responsible for selecting the winners of the two ICOPS Outstanding Student Paper Awards as well as the two honorable mention certificate awards. Any conference officer must be submitted for approval to the ExCom and should follow the ICOPS Membership Guidelines. The ICOPS Chairperson shall have full authority over the management and technical content of the conference, subject to the oversight of the ExCom.

10. **Open Business Meeting of the Committee:** An annual open Business Meeting of the Committee shall be held in conjunction with ICOPS.

11. **The Plasma Science and Applications Award:** To recognize outstanding individual contributions to the field of Plasma Science, the Committee presents a Plasma Science and Applications Award at the ICOPS. Primary consideration will be given to the impact of the research or new applications. Other factors can include research contributions over a career, influence on plasma science through teaching, professional service to PSAC and to the plasma science community, and other information.

**Awards Selection Subcommittee** wishes to consider. The Award consists of a monetary award and a plaque with the name and date of the award. Changes in the Award amount must be approved by AdCom and the appropriate IEEE committee. The recipient shall be invited to deliver an address at the ICOPS in the year of the Award and to submit the text of the talk for an invited paper in the Transactions on Plasma Science. Publicity announcing the recipient shall appear in appropriate NPSS publications.

12. **The Igor Alekseev Outstanding Student in Plasma Science Award:** To recognize outstanding contributions by a student to the field of plasma science and technology, the Committee presents an Igor Alekseev Outstanding Student in Plasma Science Award at the ICOPS. Nominees shall be judged according to their contributions to plasma science and technology. The judgment will be based on quality of research contributions, quality of educational accomplishments, and quality and significance of publications and patents. The award consists of a monetary award and a plaque, with the award money included in the ICOPS budget. Publicity announcing the recipient shall appear in appropriate NPSS publications.

13. **LSS Nomination forms:** The Plasma Science and Applications Award is sponsored by three current IEEE members. Any person except a current voting member of the ExCom or a previous recipient of the same award is eligible for these awards. Nominations are submitted to the Chairperson of the Awards Subcommittee, who shall distribute nomination materials to the voting members of the ExCom at least one month prior to the Annual Meeting. The winner of each of the awards shall be announced by the Awards Selection Subcommittee, which is comprised of the ExCom voting members and chaired by the Committee Chairperson. A closed meeting of the Subcommittee shall be held following the adjournment of the Annual Meeting. For each award, up to three secret ballots may be taken, with the selection of the Plasma Science and Applications Award winner requiring the vote of at least 1/3 of the Subcommittee present, but no fewer than six votes. The winner is selected by the end of three ballots, for either award, a vote will be taken to determine if the voting process should continue, or if the award should be skipped for that year. If the majority votes to proceed, a fourth ballot will be taken using an instant runoff voting procedure requiring a simple majority, in which each voter shall rank the candidates numerically on the ballot, beginning with the number one for the first choice, and runoff counts of the nominees shall be conducted in rounds. If, in any round, no candidate receives a majority of the votes cast, the candidate (or candidates, if there is a tie) with the fewest number of votes shall be eliminated and the remaining candidates shall advance to the next round. In each round, a voter shall be considered to have cast one vote for the candidate the voter ranked highest on the ballot who has not been eliminated in a previous round. During the instant runoff procedure, the Chairperson shall only vote if needed to break a tie. If no agreement of the Subcommittee can be reached, or if no candidates are nominated for an award, the award shall be skipped for that year. In the event that the award selection cannot take place as specified above, the award process may take place in a conference call presided over by the Committee Chairperson, provided that at least a week’s notice is given of the time of the call and that a majority of the Subcommittee take part. In this case, the winner shall be determined using the instant runoff procedure, as described above, with the Chair voting only if needed to break a tie.

The Secretary shall maintain a permanent record of the minutes of past meetings on a password-protected section of the NPSS web site and shall make the password available to ICOPS members. The Secretary also shall ensure that current copies of the Constitution and Bylaws are available on the NPSS web site.

June 23, 2019

**RADIATION INSTRUMENTATION TECHNICAL COMMITTEE**

Chiaro Guazzoni, RISC Chair

The Radiation Instrumentation Steering Committee has incorporated well the new Members-At-Large and is in the middle of its yearly activities.

As you read this newsletter, you should start to prepare your luggage to attend the 2019 IEEE Nuclear Science Symposium and Medical Imaging Conference in Yokohama (Japan) as it is an advanced stage and it has already been decided that the conference will move to Milan (Italy) in 2022. All other fully financially sponsored conferences (like IEEE 2020 SORNA West, John Valentine General Chair) or technically sponsored conferences are proceeding well towards successful editions.

Chiaro Guazzoni, RISC Chair, 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 3669; e-mail: Chiaro.Guazzoni@polimi.it

**AWARDS**

**Particle Accelerator Science and Technology Awards**

2019 IEEE NPSS PAST Awards

John R. Cary, Professor of Physics at the University of Colorado and CEO of Tech-X Corporation, has made important and diverse contributions throughout accelerator science and technology. He received his PhD in 1976 from the University of California, Berkeley, in 1979. He worked at the Los Alamos National Laboratory 1979-80, then the University of Texas 1980-1984. He joined the faculty at the University of Colorado in 1984, where he has been employed until the present. In 1994 he co-founded (with Svetlana Shasharina Cary) Tech-X Corporation, which develops computational software for modeling accelerators and other physical systems. Professor Cary’s contributions include basic discoveries in nonlinear dynamics and advances in computational physics, as well as their application to specific accelerator and beam systems. Much of his work (separating, one of two kinds. 10 mathematical discoveries of the 1980’s, and electromagnetic algorithms) has been fundamental and cited in many other fields. He works on advanced accelerator physics includes the computational illustration of self-trapping and the acceleration of electrons from laser-plasma interaction (one of the Nature’s scientific highlights of 2004), determination of the reasons for the observed emittance difference arising and transverse to the direction of the laser polarization, and the method for combining laser pulses with different transverse variations to obtain a more mildly focusing wake field. Work specific to conventional accelerators includes the discovery of nonlinear, integrable accelerator lattices, a method for calculating the effects of beams in such lattices, and the discovery of a photocryostal based accelerator cavity with reduced wake fields. Professor Cary has been active in the IEEE, including helping organize the Particle Accelerator Conference, and in the Divisions of Physics of Beams (DPB) and Plasma Physics (DPP) of the American Physical Society, including being Chair of the APS-DPP.

**Citation:** For exceptional contributions to accelerator and beam physics.

Paolo Craievich is currently working as an RF engineer and accelerator physicist at the Paul Scherrer Institute (PSI) in Switzerland where he serves as a head of the RF System 2 group. Leading a group, he oversees the electron linacs and coordinates extension of the high-gradient linac RF technology developed and used with several international laboratories. His research interests include microwave applications to accelerators, such as RF cavities and traveling wave accelerating and defocusing structures, high-field photoreactor and thermonuclear guns, wakefields effects, instabilities and coupling impedance.

He is also involved in the commissioning and bringing to operation the SwissFEL RF linac. With his career Paolo was also a staff member at Elettra Synchrotron where he served as S-band structures lead engineer in the Fermilab/Elettra FEL project and as a member of the upcoming 2019 IEEE Nuclear Science Symposium and Medical Imaging Conference in Manchester (UK).

As RISC we nominated a new Distinguished Lecturer, Martin Grossmann, PSI (Switzerland). The NPSS Distinguished Lecturers Program sponsors the presentation of lectures at NPSS Chapter meetings as well as at IEEE Section and Student Chapter meetings. In addition, NPSS Distinguished Lecturers are available for presentations to other IEEE entities as well as to non-IEEE organizations, such as universities and colleagues. Martin’s lecture is titled “Recent Developments in Proton Therapy – Technology for the Benefit of Patients. You can read more on this and other DIL Lectures on the dedicated webpage.

The Committee for the 2020 IEEE Nuclear Science Symposium and Medical Imaging Conference in Boston (USA) has been formed and is already working to prepare an amazing edition of our conference. The organization for the 2021 IEEE Nuclear Science Symposium and Medical Imaging Conference in Yokohama (Japan) is at an advanced stage and it has already been decided that the conference will move to Milan (Italy) in 2022.

All other fully financially sponsored conferences (like IEEE 2020 SORNA West, John Valentine General Chair) or technically sponsored conferences are proceeding well towards successful editions.

Chiaro Guazzoni, RISC Chair, 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 3669; e-mail: Chiaro.Guazzoni@polimi.it

**John R. Cary**

2019 IEEE/NPSS PAST Award Recipient
NPSS NEWS

FERRI commissioning team. He has also collaborated in research activities with the Department of Electrical Engineering at University of Trieste and has served as tutor and supervisor of P.h.D. and master degree students.

He studied electronic engineering at the University of Trieste, and received his PhD degree in Applied Physics from University of Technology in Eindhoven. During his entire career Paolo has provided important contributions to accelerator science and technology of electron linacs, in particular RF transverse-deflection structures, beam manipulation with self-induced fields and high-brightness photoinjector and their application to advanced accelerators and light sources. Furthermore, he has made pioneering contributions to the applications of the passive dechaining and Paschen in self-induced fields.

**Citation:** For exceptional contributions to accelerator science and technology.

**2019 PAST Doctoral Student Award**

David B. Cesar received his B.S. (2013), M.S. (2015), and then Ph.D. (2019) in physics from UCLA. He completed his graduate work under the direction of Professor Petro Musumeci as a member of the Accelerator on a Chip (AICH) international collaboration and the STORBE science and technology center. He is now a research associate at SLAC National Accelerator Laboratory. His research focuses on developing accelerator technology for ultrastark science.

During his doctoral studies, Dr. Cesar led experiments which studied the response of an electron beam to a Dielectric Laser Accelerator (DLA). DLAs are photonic structures which facilitate energy transfer from a laser to an electron beam, much like a metal cavity does for the microwaves in a conventional accelerator. Dr. Cesar’s work pushed the boundaries of DLA performance beyond 10^14W/m accelerating gradient and extended interaction lengths by more than 50 times, leading to the discovery of a novel technique to control depolarization and thus DLA beam dynamics, on the optical scale.

Dr. Cesar also performed experiments in which he used strong permanent magnet lenses to turn an electron accelerator into a prototype of an ultrastark electron microscope with an exposure time of less than 10 picoseconds. Coupled with start-stop simulations, these results suggest that real space imaging can be achieved with the incoherent electrons from an RF photoinjector, and thus pave the way to study single-shot material dynamics on a time-scale that is one hundred times faster than has been achieved before.

After graduating, Dr. Cesar joined SLAC National Accelerator Laboratory where he works on attoscience using the LCLS electron beam. He is currently designing an experimental station to use the intense xuv femtosecond light from a sub-fs current spike as a unique probe of strong-field physics.

**Citation:** For contributions to dielectric laser accelerators and time-resolved electron microscopy.

Ilan Ben-Zvi, PAST Awards Chair, can be reached by E-mail at benzvi@bnl.gov.

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**PLASMA SCIENCE AND APPLICATIONS AWARDS**

**2019 Plasma Science and Applications Award**

Prof. John Verboncoeur has been selected as the 2019 Plasma Science and Applications (PSAC) Award recipient for his pioneering leadership of particle-in-cell computational plasma science research and his outstanding work in the academic disciplines of computational engineering science and the plasma science professional community. With 30 years of experience in developing and applying kinetic particle simulation tools, Prof. Verboncoeur is a pioneer who developed the first self-consistent model for plasmas bounded by electrodes connected to real circuits and the first object-oriented plasma model. His research groups also developed the first time-dependent explanation of fusion energy, using the LCLS electron beam. He is currently designing an experimental station to use the intense xuv femtosecond light from a sub-fs current spike as a unique probe of strong-field physics.

As an academic, Prof. Verboncoeur has taught and advised numerous undergraduate and graduate students. He is a popular lecturer on plasma simulation at international workshops, government and industrial laboratories, and other academic institutions: the Plasma Theory and Simulation Group (PTSG) at Michigan State University, formerly at UC Berkeley he is a leader in the development and distribution of plasma modeling tools -- including its flagship code, OSICIP -- with over 10,000 users in academia, industry, and government laboratories and 450 publications in the last decade.

In addition to his research and academic activities, Prof. Verboncoeur has served on numerous national committees, program review committees, APS and IEEE conference and administrative committees, and is a past-President of the IEEE Nuclear and Plasma Sciences Society. He currently serves as Associate Dean for Research in the College of Engineering at Michigan State University and is the IEEE Division IV Director for a member of the IEEE Technical Activities Board Management Council.

**2019 Igor Alexeff Outstanding Student in Plasma Science Award**

Revaliu Jambunathan (University of Illinois at Urbana-Champaign) has been selected as the 2019 Igor Alexeff Outstanding Student in Plasma Science student for her development of a multi-GPU particle in cell plus direct simulation Monte Carlo (PIC-DSMC) code called CHAOS (CUDA based Hybrid Approach for Ocean Simulations) and its subsequent application in large-scale simulations of thunder plume interactions with spacecraft and predictions of the ion energy distribution used to estimate surface sputtering rates. The fully kinetic, three-dimensional code enables the simulation of the charge-exchange collisions and self-consistent electric field of the plasma plume with collocated and separated electron-ion sources. These simulations enabled the detailed analysis of the evolution of the electron and ion velocity distributions along with the self-consistent electric field and charge-exchange ion trajectories, which is crucial in estimating the sputter rate of the solar panel surface materials, which in turn affects the performance and lifetime of the satellites. Dr. Jambunathan received a PhD in Aerospace Engineering from the University of Illinois at Urbana-Champaign in 2016 and is currently a postdoctoral researcher at the Center for Computational Sciences and Engineering (CCSE) in the Computational Research Division of the Lawrence Berkeley National Laboratory where she is working on the development of an electromagnetic particle-in-cell code to model plasma wakefield accelerators on leadership class exascale computing platforms.

**2019 PPSSEE Student Paper Award Winners (left to right): Alexander Rososhek (Technion); Julian Picard (MIT); Ray Gioss (Technion); Yang Cao (Technion); Jung-Soo Bae (University of Science and Technology); Fatima Zahra Boudraa (University of Pau and Pays de l’Adour); and Denis Molchanov (Institute of High Current Electronics, Siberian Branch RAS)**

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**PULSED POWER AND PLASMA SCIENCES CONFERENCE STUDENT PAPER AWARDS**

Four best student papers and three honorable mentions were selected from a field of over sixty submissions. The best student paper award winners were Yang Cao, Technion, Israel (The interaction of a high-power sub-nanosecond microwave pulse with preliminarily formed plasma in a waveguide); Ray Gioss, Technion, Israel (Laboratory Astrophysics - Cold Abcepption); Julian Picard, Massachusetts Institute of Technology, USA (User driven sensoric conductor switch for generating nanosecond pulses from a megawatt gyrotron); and Alexander Rososhek, Technion, Israel (Shock waves generated by underwater electrical explosion of a single wire). Honorable mention certificates were presented to Jung-Soo Bae, University of Science and Technology, Republic of Korea (Design of solid-state Marx modulator with fast rising time and short pulse width); Fatima Zahra Boudraa, University of Pau and Pays de l’Adour, France (Development of a 1 MW pulsed air core electromagnetic tesla coil for wireless power transmission with reduced stray emission); and Denis Molchanov, Institute of High Current Electronics, Siberian Branch, Russian Academy of Sciences (Efficiency of rock destruction by a pulse generator based on a linear pulse transformer).

**PLASMA SCIENCE AND APPLICATIONS (PSAC) AWARD NOMINATIONS**

Nominations are currently being accepted for the 2020 Plasma Science and Applications Award sponsored by the Plasma Science and Applications Committee (PSAC) of the IEEE Nuclear and Plasma Sciences Society (NPSS). The purpose of the award is to recognize individuals who have made outstanding contributions to the field of plasma science through the impact of their research, development of new applications, contributions over a technical or pedagogical career, or through professional service to the IEEE and plasma science community. The $3000 cash award and plaque will be presented at the 2020 International Conference on Plasma Science (ICOPS) in Singapore. Nomination forms are available electronically at https://ieee-npss.org/technical-committees/plasma-science-and-applications/ and must be submitted by October 01, 2019. Additional information can be obtained from David Abe, PSAC Awards Chair by email at dabe@ece.illinois.edu.

**IGOR ALEXEFF OUTSTANDING STUDENT IN PLASMA SCIENCE AWARD**

Nominations are currently being accepted for the 2020 Igor Alexeff Outstanding Student in Plasma Science Award sponsored by the Plasma Science and Applications Committee (PSAC) of the IEEE Nuclear and Plasma Sciences Society (NPSS). The purpose of the award is to recognize outstanding student contributions to the field of plasma science and technology. The award is open to any full-time undergraduate or graduate university student in plasma science; the nominee will be judged based on quality of research contributions, quality of educational accomplishments, and quality and significance of publications and patents. The $1000 cash award and Certificate will be presented at the 2020 International Conference on Plasma Science (ICOPS) in Singapore. Nomination forms are available electronically at https://ieee-npss.org/technical-committees/plasma-science-and-applications/ and must be submitted by October 01, 2019.

David Abe, Awards Subcommittee Chair for PSAC ExCom and for the 2019 PPPS Conference, can be reached by E-mail at dabe@ece.illinois.edu.
Functional Committees

RADIATION EFFECTS CALL FOR 2020 NOMINATIONS AND 2019 AWARDS

Nominations for 2020 Awards
Nominations are due January 29th, 2020 for awards that will be presented at the IEEE NSREC 2020 Conference July 20th – 24th in Santa Fe, New Mexico.

Radiation Effects Award Nominations
Nominations are currently being accepted for the 2020 IEEE Nuclear and Plasma Sciences Society (NPSS) Radiation Effects Award. The purpose of the award is to recognize individuals who have had a sustained history of outstanding and innovative technical and/or leadership contributions to the radiation effects community. The $15000 cash award and plaque will be presented at NSREC Santa Fe. Forms are available electronically at http://www.ieee-npss.org/technical-committees/radiation-effects/ and must be submitted by January 29th, 2020. Additional information can be obtained from Julien Melki, Senior Member-at-Large, CNES, for the Radiation Effects Steering Group. Julien can be reached at julien.melki@cnes.fr.

Radiation Effects Early Achievement Award Nominations
Nominations are currently being accepted for the 2020 Radiation Effects Early Achievement Award. The purpose of this award is to recognize an individual early in his or her career whose technical and/or leadership contributions have had a significant impact on the field of radiation effects. The $1500 cash award and plaque will be presented at NSREC Santa Fe. Forms are available electronically at http://www.ieee-npss.org/technical-committees/radiation-effects/ and must be submitted by January 29th, 2020. Additional information can be obtained from Julien Melki, Senior Member-at-Large, CNES, for the Radiation Effects Steering Group. Julien can be reached at julien.melki@cnes.fr.

Paul Phelps Continuing Education Grant Nominations
Nominations are currently being accepted for the 2020 Paul Phelps Continuing Education Grant. The purpose of the grant is to promote continuing education attendance (at the 2020 NSREC Short Course) and encourage membership in NPSS. Outstanding members of NPSS who are either Student Members, Post-Doctoral Fellows or Research Associates, or unemployed members needing assistance in changing career direction can be nominated for the award. The actual amount of the grant will be determined prior to the 2020 NSREC in Santa Fe. Funds are to be used towards covering travel costs to attend the NSREC Short Course. The grant also provides complimentary short course registration.

Nominations forms are available electronically at http://www.ieee-npss.org/technical-committees/radiation-effects/ and must be submitted by January 29, 2020. Additional information can be obtained from Kyle Miller, Member-at-Large, Ball Aerospace, for the Radiation Effects Steering Group. Kyle can be reached at kmiller@ball.com.

2019 PHELPS AWARD WINNERS
The 2019 Paul Phelps Continuing Education Grant was awarded to three student members from the radiation effects community. At the opening of the NSREC Short Course session (July 6, 2019) Janet Barth, Chair of the Radiation Effects Steering Group, announced the grant awards. The grants included tuition for the 2019 NSREC Short Course and a check for $750.

The purpose of the Phelps Grant is to promote continuing education and encourage membership in the Nuclear and Plasma Sciences Society (NPSS). The criteria for judging are exceptional promise as a student, postdoc or research associate in any of the fields of NPSS, or exceptional work in those fields by currently unemployed NPSS members with an expectation that attendance at the Short Course will improve the possibility of obtaining a job in an NPSS field.

The four recipients of the 2019 Paul Phelps Continuing Education Grant were Stefano Bonadío, Diego Di Francesca, Alexandre Le Roch, and Patrick Goley.

Stefano Bonadío was born in Padua, Italy in 1990. In 2013, he received the B.S. degree in Information Engineering from University of Padua (Padova, Italy). During his B.S. thesis he worked for one year at the CNR - Institute of Photonics and Nanotechnologies in Padua. He received the M.S. degree in Electronic Engineering from the University of Padua in 2016. During his Master's thesis work, he spent one year at the European Organization for Nuclear Research – CERN, Geneva, Switzerland, where he was involved in the start-up of the CRASH facility, a new mixed-field facility for radiation testing of electronics. His research was aimed at studying the mixed-field composition and to develop an efficient radiation monitoring system. Stefano is currently pursuing the Ph.D. degree in Information Engineering at the University of Padua. His research is devoted to reliability and radiation effects on electronic devices, in particular, total ionizing dose effects in advanced CMOS technologies. Since September 2016, he has taken a Ph.D. internship at Vanderbilt University, Nashville, Tennessee, where he is investigating radiation effects on on-chip interconnects and low-frequency noise. He has co-authored eight articles that are published or accepted for publication in peer-reviewed journals.

Diego Di Francesca joined the European Organization for Nuclear Research as a senior fellow in 2017. He received his M.Sc. degree in Physics from the University of Palermo and his cotutelle Ph.D. degree in Optics and Photonics and in Physics from the University of St. Etienne and Palermo, respectively. He is leading the development and deployment of a distributed optical fiber radiation and temperature sensor for CERN’s accelerator complex. His research interests include: point defects in silica-based materials; radiation effects on optical fibers; optical fiber sensing in radiation environment; basic mechanisms of radiation effects.

Patrick Goley completed his undergraduate and master's degrees in electrical engineering at Virginia Tech in 2013 and 2015 respectively. At Virginia Tech he worked in the university’s molecular beam epitaxy research group where he led the team’s transmission electron microscopy work for the analysis of crystal growth quality of IV-V, silicon, and germanium heterostructures. In the fall of 2015, he joined the research team of Dr. John Cressler at Georgia Tech as a Ph.D. student. With the support of Dr. Cressler, Patrick stated a new research thrust for the team into integrated photonic, leading the team's first tape out into a commercial silicon Photonic technology in November 2016. Since then, Patrick has continued to support the team's broader integrated photonics efforts while also leading his own research on radiation effects in the technology. He has presented his radiation effects work at the IEEE Nuclear and Space Radiation Effects Conference in 2017 and 2018, both of which have now been extended to full journal papers in IEEE Transactions on Nuclear Science. The work he presented in 2017 was nominated for best conference paper award. His most recent work has been accepted for presentation at the 2019 NSREC in July.

Alexandre Le Roch received the M.Sc. degree in Material Sciences from the Institut National des Sciences Appliquées de Rennes (INSA Rennes), Rennes, France, in 2015. He is currently pursuing a Ph.D. degree (defense in December 2019) in microelectronics at Institut Supérieur de l’Aéronautique et de l’Espace (ISAE-SUPAERO). Toulouse, France, supported by the Centre National d’Études Spatiales (CNES) and the Commissariat à l’Énergie Atomique et aux Energies Alternatives (CEA). His work focuses on the study of space and nuclear radiation effects on QNOS image sensors for space instruments improvement and plasma diagnostics for nuclear fusion. More specifically, he is conducting investigations on the radiation-induced defects in silicon responsible for the dark current increase and its discrete fluctuations (i.e., Dark Current Random Telegraph Signal). Alexandre has authored or co-authored eight publications. He presented his work at the RADECs 2017 and NSREC 2018 conferences and co-authored the outstanding student paper award from the NSREC 2017 conference. He will also present his recent findings at NSREC, RADECs, and the International Image Sensor Workshop (IISW) in 2019. Alexandre was a member of the first committees in charge of opening an IEEE Student Branch, also including an IEEE NSREC chapter, at ISAE-SUPAERO in 2017. He is currently the Chair of this IEEE Student Branch.

Patrick Goley completed his undergraduate and master's degrees in electrical engineering at Virginia Tech in 2013 and 2015 respectively. At Virginia Tech he worked in the university’s molecular beam epitaxy research group where he led the team’s transmission electron microscopy work for the analysis of crystal growth quality of IV-V, silicon, and germanium heterostructures. In the fall of 2015, he joined the research team of Dr. John Cressler at Georgia Tech as a Ph.D. student. With the support of Dr. Cressler, Patrick stated a new research thrust for the team into integrated photonic, leading the team's first tape out into a commercial silicon Photonic technology in November 2016. Since then, Patrick has continued to support the team's broader integrated photonics efforts while also leading his own research on radiation effects in the technology. He has presented his radiation effects work at the IEEE Nuclear and Space Radiation Effects Conference in 2017 and 2018, both of which have now been extended to full journal papers in IEEE Transactions on Nuclear Science. The work he presented in 2017 was nominated for best conference paper award. His most recent work has been accepted for presentation at the 2019 NSREC in July.

Diego Di Francesca joined the European Organization for Nuclear Research as a senior fellow in 2017. He received his M.Sc. degree in Physics from the University of Palermo and his cotutelle Ph.D. degree in Optics and Photonics and in Physics from the University of St. Etienne and Palermo, respectively. He is leading the development and deployment of a distributed optical fiber radiation and temperature sensor for CERN’s accelerator complex. His research interests include: point defects in silica-based materials; radiation effects on optical fibers; optical fiber sensing in radiation environment; basic mechanisms of radiation effects.

Teresa Farris, Radiation Effects Vice Chair of Publicity, can be reached by E-mail at Teresa.Farris@archon-llc.com.

DISTINGUISHED LECTURERS
Travels to India

The trip by Dr. Kouzes involved traveling to the State of Kerala (one of 29 Indian States) to present talks at four engineering colleges located within Kerala that are all part of the Technical University of Kerala. The State of Kerala represents one of the most developed and industrialized states in India. The trip was made possible by the sponsorship of the Electrical Engineering Department at the University of Kerala. During the trip, Dr. Kouzes was met with enthusiastic and engaged students and faculty. The topics covered included the introduction to the IEEE and the NPSS, the role of the Society and its chapters, and the importance of student members.

Richard Kouzes (Pacific Northwest National Laboratory) travelled to India as an NPSS Distinguished Lecturer to present talks at four engineering colleges, invited by the newly established NPSS Student Branch Chapter at the College of Engineering Karunagappally.

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Kerala, located on the southwest coast of India is tropical in climate, has 35 million inhabitants and covers an area somewhat larger than the U.S. State of Maryland. The four engineering colleges visited were: the College of Engineering Karunagappally, Saintgits College of Engineering (in Kottayam), the College of Engineering Munnar, and the Adi Shankara Institute of Engineering and Technology (in Kochi). Dr. Kouzes presented a talk at each of these colleges on "Radiation Detection at International Borders."

The trip was a whirlwind of visits throughout the State of Kerala during one week in April 2019. The students and faculty of the various colleges were outstanding hosts, showing the local sites and transporting Dr. Kouzes between the colleges. To a large degree, the students, mostly computer and electrical engineering majors, were not familiar with radiation detection, so these lectures afforded an opportunity to make them aware of this field that is one of the focus areas of NPSS.

At the College of Engineering Karunagappally, Dr. Kouzes presented a NPSS Chapter Founder’s plaque to Akhil Ahammed, chair of the College of Engineering Karunagappally NPSS and PELS Joint Societies Student Branch Chapter. This is the first such chapter in Kerala and one of five throughout India.

Through discussions with the faculty and students of the four engineering colleges, it was learned that most students go to college locally and then work in the local economy, although some will move to technology centers in other parts of India. The percentage of women students and faculty in these engineering colleges is over 50%. Given the enthusiasm for the IEEE among students and faculty that attended these lectures, the NPSS should have an expanding network of Student Chapters throughout India.

The NPSS Distinguished Lectures Program (DLP) sponsors the presentation of talks at NPSS Chapter meetings as well as at IEEE Section and Student Branch Chapter meetings. In addition, NPSS Distinguished Lectures are available for presentations to other IEEE entities as well as to non-IEEE organizations, such as universities and colleges. NPSS Distinguished Lecturers are volunteers who are nominated by the NPSS Technical Committees based on distinguished status and achievement within their technical communities. The NPSS has more than 30 Distinguished Lectures offering a large variety of presentations. To arrange a lecture, contact the lecturer directly using the links provided on the NPSS website.

For additional information, contact the NPSS Distinguished Lectures Chair, Dan Fleetwood, by E-mail at dan.fleetwood@vanderbilt.edu.

FELLOWS

Fellows Advice and Consultation Team

At the suggestion of the immediate past NPSS President Stefan Ritt and the strong endorsement of NPSS President Ron Schrimpf, our society is piloting an effort to aid with IEEE member grade elevation. This ad hoc committee, presently called the Fellow Advice and Consultation Team (Fellow ACT), is charged with encouraging member elevation to Senior and Fellow grades. The ad hoc committee was conceived as a member resource that is clearly distinct from the society’s Fellow Evaluation Committee, which is bound by confidentiality. The Fellow ACT can aid in finding a nominator, provide guidance and comment on nomination packages prior to submission. IEEE Senior member status is a prerequisite for elevation to Fellow nomination and we can also assist with the Senior member application.

The number of new Fellows annually is limited to 0.1% of the total IEEE voting membership of the prior year. For the Fellow Class of 2019, the total IEEE voting membership was 333,195 and 32.3% of the nominations were elevated to Fellow. Thus, well-crafted and articulate nomination packages – in addition to highly accomplished nominees – are required for the Fellow grade to be conferred. The overarching advice is to specifically describe the nominee’s accomplishment and clearly identify its significance for a nonspecialist. Fellow nominations are traditionally due on March 1st of each year. Thus, nomination packages – including reference requests - should be initiated by late autumn.

In coming issues of the NPSS Newsletter, the Fellow process will be explained. Information regarding the IEEE Fellow process can be found at www.ieee.org/membership/fellows/. Specific inquiries can be addressed to me. The NPSS Fellow Advice and Consultation Team is evolving and would welcome feedback as well as suggestions.

Jane Lehr, Chair, Fellows Advice and Consultation team
The IEEE Educational Activity Board (EAB) meeting took place June 22nd in Atlanta, GA, with Edl Schamiloglu, IEEE NPSS Liaison to EAB, presiding.

An overview of the EAB governance structure is shown below. The EAB serves i) students and educators, ii) practitioners, iii) and the public. EAB strives to be the recognized and respected portal for educational resources, global in reach, but local in relevance, supporting life-long learning and catalyzing change through education.

The EAB develops educational programs designed to connect throughout an individual’s life. They are moving from an open-loop education closed-loop, passing experience to students. This is illustrated in the figure below.

Some key questions driving EAB’s possible next steps are:

1. Are our educational activities (EA) helpful today? (YES)
2. Where is the greatest impact of our EA? (Outreach, Young Professionals, Seasoned Professionals?)
3. What has changed?
4. Why is education (E) existential now, more than ever?
5. How should our E models be transformed today?
6. How should the E models be implemented?

Understanding that the pace of technological change has been rapidly increasing, the EAB is working to move away from the traditional “one curriculum fits all” model to an agile curriculum to train the next generation workforce.

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

The IEEE Smart Village Program Has Been Concentrating Efforts in the Following Areas:

1. India Developments:
   - Chair Ray Larsen and ISV South Asia Manager Farid Khan visited two major ISV India projects in Uttar Pradesh and then attended a conference of new partners in Gujarat near Mumbai. Our India Representative, Farid Khan, has formed a new IEEE EAB South Asia Working Group to collaborate with several new partners to develop and fund new projects using the ISV three-pillar business model. The new partners are WHEELS Global Foundation, connected with India Institute of Technology, and the State Government of Gujarat. A new joint survey team headed by Farid has just visited the site of seven remote villages to form a jointly funded pilot project which NPSS has pledged to help fund in 2020. Once completed, the design and business model will be replicated in 100 or more villages. This should mark the start of a major growth spurt with the majority of funds for scaling raised in India. The conference of 300 attendees on the IIT campus in Gandhinagar featured a Smart Village track organized and chaired by Farid and a group of about 20 IEEE students who helped with logistics and ran the IEEE Information Booth.
   - These small starter projects have also been approved for India and the first of these, in a very mountainous area in the south, has been approved for funding through the efforts of Preethi Jain, sponsored by IEEE Foundation, to work from the offices of GEEL in Bangalore. These are Corporate Social Responsibility (CSR) funds mandated from corporations by the India Government.

2. Steering Committee meeting at PES General Meeting in Atlanta, August 3rd – 4th.
   - This is a very important meeting which will begin searches to fill rotating committee offices and establish a smooth line of succession. Terms are three years with the possibility of a second term. In addition, all the committees need expansion with vice chairs and secretaries so we will offer Steering Committee positions to representatives from major stakeholders helping to fund ISV.

   - This has become an annual gathering of most ISV Entrepreneurs in a workshop format for five days. Major topics will be business development, preparing to scale, a demonstration of the latest SunBlazer IV design that can scale from 4 kW to 100 kW or more, discussion of more thorough measurement of impact and evaluation by Social Return on Investment, SROI, which will be applied to all of our projects in the coming months.

4. Fundraising
   - This has become a major limitation to the breadth of our operations so we are exploring two dimensions to respond. One is that we need to build up a committee to relate to and involve many other Societies besides NPSS and PES as major donors, and to secure more financial support; and the other is to seek more external large and small donors; large ones through a large basket of new applicants for major foundation funding; and small ones by individual monthly gifts by appealing to individuals both inside and outside of IEEE, so-called crowd funding. We really need to raise a solid $2M per year including annual leadership gifts from Societies, Foundations and individuals.

5. A Word of Thanks
   - NPSS has been a stalwart supporter since its first big award in November 2010 and ISV would not be in business without your help. However, we need to expand the relationship by getting more NPSS members involved at the committee level and at the affordable monthly personal donation level. So we need your help to accomplish this. Please contact us if you want a new hands-on adventure unlike any you will experience with any other IEEE opportunity.

Sincerely and with thanks from all of ISV,

Ray Larsen
ISV Chairman, NPSS Liaison to Humanitarian Activities

1. August 3rd – 4th.
2. Steering Committee meeting at PES General Meeting in Atlanta.
4. Fundraising.
5. A Word of Thanks.

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Ray Larsen
ISV Chairman, NPSS Liaison to Humanitarian Activities

OR HAVE WEALTHY PARENTS
If you don’t want to work you have to work to earn enough money so that you don’t have to work.

Ogden Nash

BUT IT’S A WAY TO KEEP BUSY
The measure of success is not whether you have a tough problem to deal with, but whether it’s the same problem you had last year.

John Foster Dulles

SO “JUST IN TIME” FAILS?
If you do it when you need it, it’s too late. You missed the boat.

Werner von Braun
MAKES THEM RICHER – AND US POOPER
The only function of economic forecasting is to make astrology look respectable.

John Kenneth Galbraith

BE PREPARED
Faith is a fine invention
For gentlemen who see,
But microscopes are prudent
In an emergency.

Emily Dickinson

HENCE COMPANY LIMITED
Company: An ingenious device for obtaining individual profit without individual responsibility.

Ambrose Bierce

WISHFUL REALITY
Hope is like a road in the country; there was a road, but when many people walk on it, the road comes into existence.

Lin Yutang

HEY BOSS! NO PEeking
Quality means doing it right when no one is watching.

Henry Ford

DON’T TELL ME!
Personally, I am always ready to learn, although I do not always like being taught.

Winston Churchill

OR NOT ENOUGH?
The chief danger in life is that you may take too many precautions.

Alfred Adler

Justice of the World
By Mounir Laroussi

What do you see?
What do you think?
when you see the word justice.

I see “just ice”:
The ice-cold hard tribulations
of the weak and the powerless,
the cold shoulder
society shows the poor and the destitute.

I think of the ice cold hearts of dubious leaders,
who send young men
to kill and die in faraway lands,
and of the chilling “resolutions”
the powerful inflicts
on those who can’t afford to be defended.

I see the frozen dark landscape
that becomes the dwelling of those displaced
by humanity’s perpetual and senseless conflicts.

Mounir Laroussi is Professor of Engineering and Computer Science at Old Dominion University
and is the Director of ODU’s Plasma Engineering and Medicine Institute. He is an IEEE Fellow and
the 2012 recipient of the IEEE NPSS Merit Award. He can be reached by E-mail at mlarouss@odu.edu.
A Million Small Decisions

From IEEE-USA InSight, 21 May 2019

I recall one conversation with a coworker that left an impression on me. Alex (not his real name) was complaining loudly and brazenly for anyone to hear.

“If the company is flying me all the way to Australia, the least they can do is make it a first-class ticket.”

Alex was scheduled to teach a class to a group of Australian engineers, but apparently the logistics for this outing weren’t what he had expected.

“They should allow accommodations that are amenable to the way I live my personal life,” he asserted.

Surprised by this, I asked, “Do you regularly fly first class?”

With a mischievous grin, he responded, “No, but class?”

Sometimes when my vanity begins to get the best of me and I’m starting to self-aggrandize, I ask myself a simple question: “Do I want to be like Alex or like my students?” Am I going to allow myself to just feed my ego? To work the system and make demands?

To extract fulfillment and meaning, even during difficult circumstances, and be grateful for the opportunity to better myself.

Admittedly, some days I succeed and some days I fail. Sometimes I act like my students and other days I default into being Alex. Perhaps almost as important as making the right decision on how to behave is realizing the fact that this is a choice. Each of us is the product of a million small decisions made every single day. I’m thankful that I’ve had the opportunity to experience life in very different circumstances, as the distinctions in attitudes and values become glaringly obvious when taken to the extreme.

My experience of teaching high school math as a Peace Corps Volunteer left its mark such that it impacted the way I delivered classes to engineers as a corporate trainer. And as I sit here writing these words and pondering their impact on my life, I can’t help but think this type of grateful reflection is something my students would do. And so, I know this small decision is the right way to move forward.

Jackie Adams, an IEEE Senior member, is a nationally-recognized leader in employee learning and development. Jackie is the CEO and Founder of Riksco, a consulting business that transforms corporations through engaging employee training.

VOTE! Both IEEE and NPSS are holding elections that are important for the IEEE and for our Society. Be a good citizen and cast your ballots. You should receive yours by E-mail unless you specifically requested a paper ballot.

From the USA? Vote in the IEEE-USA elections. See candidate statements in InSight at https://insight.ieeeusa.org/articles/?t=elections

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