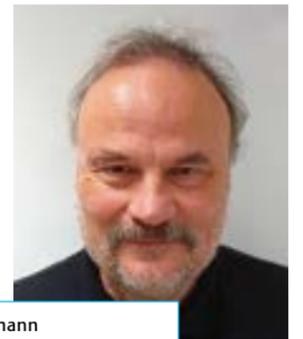




Real Time Conference Postponed

Like many other events, the IEEE NPSS Real Time Conference 2020, scheduled for April 13th–17th, 2020 at the ICISE conference center in Vietnam, had to be postponed due to the current global circumstances. A new date has been fixed for October 12th–16th, 2020. We hope to be able to keep most of the program (it had already been defined completely in February). The ICISE center is available to us also at the new date. Please refer to the conference website for more updates: <http://indico.cern.ch/e/rt2020>



Martin Grossmann
CANPS Chair

2020 IEEE Nuclear and Space Radiation Effects Conference Finalizing Plans

The 57th IEEE Nuclear and Space Radiation Effects Conference has postponed their July dates to December 1st–4th, 2020, at the Buffalo Hilton Resort, Santa Fe, New Mexico. The General Chair is Hugh Barnaby, Arizona State University. The conference will feature a Technical Program consisting of ten sessions of contributed papers (both oral and poster) that describe the latest observations and research results in radiation effects, an up-to-date Short Course offered on the day before the conference opens, a Radiation Effects Data Workshop, and an Industrial Exhibit.

SHORT COURSE

The Short Course Chair is Ken Galloway, Vanderbilt University. The theme of the 2020 course is "New Technologies Meet Radiation Effects."

Ken Galloway is a Distinguished Professor of Engineering, Emeritus, and Dean of the School of Engineering, Emeritus, at Vanderbilt University. His research has focused on radiation effects in semiconductor electronics including device modeling and simulation and device and circuit characterization. He has contributed to both fundamental and applied studies of bipolar and MOS technologies, power semiconductor devices,



Hugh Barnaby
General Chair

CONFERENCES Continued on PAGE 2

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Conferences Continued from PAGE 1



Ken Galloway
Short Course Chair

and devices based on emerging materials. He served as Technical Chair of the 1982 IEEE Nuclear and Space Radiation Effects Conference (NSREC), General Chair of NSREC 1985, and Chairman of the IEEE NPSS Radiation Effects Steering Group (1991-1994). He was a short-course presenter at NSREC 1996 and 2013. He is currently a member of the IEEE NPSS AdCom representing the Radiation Effects Technical Committee. Professor Galloway is an IEEE Fellow and received the IEEE NPSS Radiation Effects Committee's Radiation Effects Award, the IEEE NPSS Richard F. Shea Distinguished Member Award, and the Yuri Gagarin Award from the RADECS Association.

Presentations and speakers for the four sessions are:

Radiation Effects in a Post-Moore World

Dr. Dan Fleetwood, Vanderbilt University

Radiation Effects in Advanced and Emerging Nonvolatile Memories

Dr. Matthew Marinella, Sandia National Laboratories

Wide-Bandgap Power—SiC And GaN—Radiation Reliability

Dr. Jean-Marie Lauenstein, NASA Goddard Space Flight Center

Radiation Hardness Assurance in The "Wild West" Of Commercial Space

Dr. Robert Baumann, Radiosity Solutions LLC and Southern Methodist University



Teresa Farris
Publicity Vice Chair

Philippe Adell
Technical Program Chair

TECHNICAL PROGRAM

The Technical Program Chair is Philippe Adell, NASA—Jet Propulsion Laboratory. He and his technical committee will select contributed papers that describe the effects of space, terrestrial, or nuclear radiation on electronic and photonic devices, circuits, sensors, materials and systems, and semiconductor processing and design techniques for producing radiation-tolerant devices and integrated circuits.

The Poster Session Chair is Andrew Sternberg, Vanderbilt University. The Data Workshop Chair is Farokh Irom, NASA—Jet Propulsion Laboratory.

The technical sessions and their chairpersons are:

Basic Mechanisms of Radiation Effects

Chair: Philippe Paillet, CEA

Dosimetry

Chair: Peter Beck, Seibersdorf Laboratories

Hardness Assurance Technologies, Modeling, and Testing

Chair: Gregory Allen, NASA—Jet Propulsion Laboratory

Hardening by Design

Chair: Jeff Maharrey, Boeing

Radiation Effects in Devices and Integrated Circuits

Chair: Randall Milanowski, Milanowski & Associates

Photonic Devices and Integrated Circuits

Chair: Adriana Morana, University of Saint Etienne

Single-Event Effects: Mechanisms and Modeling

Chair: Philippe Roche, STMicroelectronics

Single-Event Effects: Devices and Integrated Circuits

Chair: Georgios Tsiligiannis, University of Montpellier

Space and Terrestrial Environments

Chair: Athina Varotsou, TRAD

2019 IEEE NUCLEAR AND SPACE RADIATION EFFECTS CONFERENCE AWARDS

It is a longstanding tradition of the IEEE Nuclear and Space Radiation Effects Conference to recognize the Outstanding Conference Paper and the Outstanding Data Workshop Presentation from the previous conference. In recent years recognition has also been given to the best paper presented by an IEEE Student Member, who must also be the first author. The awards process recognizes high quality and important work and also encourages authors to produce presentations and manuscripts of high technical quality, clarity of presentation, and significance to the community.

It is our pleasure to announce the award winners from the 2019 NSREC. Their awards will be presented at the 2020 Conference.

Outstanding Conference Paper

New Approach for Pulsed-Laser Testing That Mimics Heavy-Ion Charge Deposition Profiles
J. M. Hales, A. Khachatrian, S. Buchner, J. Warner, A. Ildelfonso, G. N. Tzintzarov, D. Nergui, D. M. Monahan, S. D. LaLumondiere, B. Lotshaw, J. D. Cressler, and D. McMorrow

Outstanding Conference Meritorious Paper

Radiation Induced Variable Retention Time in Dynamic Random Access Memories

V. Goiffon, T. Bilba, T. Deladerriere, G. Beaugendre, A. Le-Roch, A. Dion, C. Virmondois, J. M. Belloir, M. Gaillardin, A. Jay, and P. Paillet

Outstanding Student Paper

Total-Ionizing-Dose Effects and Low-Frequency Noise in 16-nm InGaAs FinFETs With HfO₂/Al₂O₃ Dielectrics

S. Bonaldo, S. E. Zhao, A. O'Hara, M. Gorchichko, E. X. Zhang, S. Gerardin, A. Paccagnella, N. Waldron, N. Collaert, V. Putcha, D. Linten, S. T. Pantelides, R. A. Reed, R. D. Schrimpf, and D. M. Fleetwood

Outstanding Data Workshop Presentation

Radiation Tests of a 500°C Durable 4H-SiC JFET Integrated Circuit Technology

J.-M. Lauenstein, K. Ryder, E. Wilcox, M. Carts, S. Wrbanek, J. Wrbanek, P. Neudeck, and R. Buttler

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

President's Report



Ron Schrimpf
IEEE NPSS President

Much has changed within NPSS since I last wrote to you, primarily caused by concerns related to the novel corona virus. I was able to attend the spring meeting of the IEEE Technical Activities Board in Orlando in February, and the NPSS AdCom annual retreat and meeting also took place as scheduled in Santa Fe in early March. Several AdCom members were not able to attend the meeting in person, however, because of travel restrictions. Since that time, a number of NPSS-sponsored meetings have been postponed or cancelled. Among these are the Real-Time Conference (delayed), the Conference on PET/MR and SPECT/MR (canceled), the Symposium on Radiation Measurements and Applications (SORMA West) (canceled), and the International Conference on Plasma Sciences (delayed). We are working closely with the IEEE to determine the best approach for managing changes and cancellations, including in some cases, options for remote participation.

The Event Emergency Response Team (EERT) at IEEE has been very helpful in working with conference organizers to evaluate options and make alternate plans. EERT is IEEE's centralized event emergency preparedness hub, offering strategies, best practices, and resources for all IEEE global events. EERT assists organizers in minimizing the impact of emergencies on event performance, safety, and well-being of attendees, and organizational reputation.

EERT offers event organizers:

- » guidance on planning for a wide range of emergencies
- » a centralized decision-making structure to facilitate an orderly and effective response
- » expert advisement and guidance through a crisis
- » coordination with internal IEEE groups (legal, corporate communications, risk management)
- » facilitation of communications about the emergency
- » ability to bring in additional resources as needed

Please reach out to EERT if you have questions or need assistance related to these issues.

It's the right time of year to start thinking about nominating deserving colleagues for the honor of becoming a Fellow of the IEEE. Nominees must be an IEEE Senior or Life Senior Member in good standing who has been an IEEE member for five years or more. This honor is based on technical excellence and the demonstration of the highest standards of professional ethics and scientific integrity. Individuals may be nominated in one of the following four categories: (1) Application Engineer/Practitioner, (2) Educator, (3) Research Engineer/Scientist, and (4) Technical Leader. The total number of members elevated to Fellow status in any one year may not exceed one-tenth of one percent of the total voting IEEE membership, which results in ~300/yr. Each nomination must include three to five references by IEEE Fellows. Detailed information is contained at:

<https://www.ieee.org/membership/fellows/index.html>

and a list of current NPSS fellows is available at:

<https://ieee-npss.org/fellows-committee/>

The next NPSS AdCom meeting is scheduled for July

10th–11th in New Brunswick, NJ. We will monitor the situation closely and decide whether the meeting can take place in person or whether it will become a virtual meeting. Like many of you, I am currently spending much of my time in virtual meetings... We selected New Brunswick as the meeting location because it is near IEEE headquarters and we hoped to meet with some of the IEEE staff members who help us with various important activities, like conference organization, journal publications, and society awards. We very much appreciate the efforts of the IEEE staff in helping us accomplish our mission.

As always, I welcome your feedback.

Ron Schrimpf, IEEE NPSS President, can be reached by E-mail at ron.schrimpf@vanderbilt.edu

NUCLEAR & PLASMA SCIENCES SOCIETY NEWS

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Secretary's Report



Albe Larsen
IEEE NPSS Secretary and Newsletter Editor

As mentioned in Ron's letter above, AdCom had its annual retreat and first meeting of 2020 at the La Fonda Hotel in Santa Fe, NM. And we did have several of our members attend by Webex because their institutions had already imposed the travel bans that most of the rest of us would experience in the following week or two. In addition to the retreat, the Finance Committee under the chairmanship of Hal Flescher met on the Thursday before the retreat, as did the Communications Committee under Peter Clout's chairmanship. We welcomed new AdCom members Arati Dasgupta (PSAC), Ken Galloway (RE, elected to a full term), and Josh Leckbee (PPST) in person. Susana Reyes (Fusion) was under travel restrictions; new TC chairs Roger Fulton (NMISC), Martin Nieto-Perez (Fusion Technology), and David Wetz (PPST); new Functional Committee chairs and liaisons Margaret Daube-Witherspoon (TMI Liaison), Alberto Del Guerra (Fellow Evaluation FC), Srilalan Krishnamoorthy (Young Professionals FC),

Ralf Engels, our Treasurer, reported that TNS and TRPMS were doing well financially but that TPS had had a big page overage in 2019. The conference budget tool had a major upgrade in January, making it easier to import/export data to Excel. Dual currency entries are now supported for conferences held outside the U.S. This is also supported in moving material to Excel. All conference treasurers must use this tool! If you have any questions concerning the conference budgeting process contact either Ralf Engels at r.engels@fz-juelich.de or Ron Keyser, the Assistant Treasurer at RonKeyser@ieee.org. Getting this process right is critical if you need a conference advance!

The only conference from 2019 to complete audit as of March 7th was PAC, with a return well below that mandated. Other conferences should be closed within the next several months. It is important to keep the budget information up-to-date and to close conferences expediently once they've ended. 2020 will create challenges as conference dates are changed or conferences are postponed or canceled so it is especially important to keep budget changes current and to adjust as the current challenges require.

Our President, Ron Schrimpf, also noted the need for accurate budgeting and urged members to think about cost savings. For AdCom members, travel not related to AdCom meetings needs presidential preapproval and unless an exception is made, liaisons may only attend one meeting a year, preferably that in the spring.

Ron also discussed the conference issues covered in his letter above.

Other items include the switch by IEEE of its financial management software to Oracle Cloud. The hope is that this will be a gradual transition avoiding problems experienced by other large organizations. How NPSS will be impacted is unclear at this time.

Both Ron and our Publications Chair, Paul Dressendorfer, discussed Open Access publication. NPSS has been in a "wait and see" pattern before adding an open access journal or changing any of our current journals, TNS, TPS and TRPMS to a Gold open access online journal. Greenopen access allows an author to publish in any journal and then self-archives a copy in a freely accessible online archive or repository, or on a web site. Some

European nations has endorsed Plan S which requires, when implemented, full open access for papers generated by that country's support, and the US Office of Science and Technology Policy is considering an Executive Order that would mandate all papers based on federally supported research be published in a fully open access journal, waiving the current 12-month embargo period on article availability. Most US scholarly publishers met with OSTP and the Executive Order has been put on hold for the moment. It will be revisited later in 2020. The current mandate only applies to journal publications. The executive order under consideration may have broader restrictions, possibly including conference papers. Assessment of risk to IEEE revenue is being analysed. There may be encouragement toward accepting an accelerated open access plan.

Ron also discussed the Fellow process as outlined in his letter above. Alberto del Guerra is our new Fellow Candidate Evaluation Committee chair. Preparation of strong Fellow applications takes time, so it isn't too early to think about nominations for the Fellow Class of 2022. Applications are due by the first of March 2021.

John Verboncoeur, our Division IV Director, noted the IEEE society membership has risen, as has the use of Xplore and of Standards. TechRxiv (tech archive) was launched in October 2019 as a free open-archive publication server connected to Xplore for final articles. In early March there were 142 articles posted and a very large number of views and downloads. And Xplore has reached the amazing milestone of five million documents! Downloads in 2019 exceeded 150 million.

John also discussed a possible reallocation of IEEE indirect costs, currently budgeted from publications revenue, and a carbon offset proposal from the IEEE Foundation.

Our technical committees are dealing with how to handle 2020 conferences. As noted in Ron's letter, Real Time and ICOPS have been postponed and the PET/MR-SPECT/MR and SORMA West conferences have been canceled. In news since AdCom, NSREC has also been postponed. Conferences are working with EERT and with the conference venues to reschedule and also to look at reformatting to mixed in-person/virtual attendance options.

Other news from TCs: CANPS has chosen La Biodola, Elba, Italy as the site for the 2022 Real-Time Conference, which will most likely be held in May. Fusion Technology will collocate the 2021 SOFE conference with the Pulsed Power Conference in Denver in July 2021. Plans for 2023 are being developed. Fusion is now in its first year of community-elected leadership as an elected TC, and more community participation is needed. NMISC announced its new committee members, the new JOS chair is Gian-Franco Dalla Betta, and conference locations through 2023. Work is in process to decide 2024. Work on 2021 in Yokohama is well underway.

RISC also announced its new committee members and noted that even year NSS-MIC conferences come under RISC chairmanship so 2020 in Boston is chaired by Lorenzo Fabris of ORNL and 2022 in Milan will also be chaired by Chiara Guazzoni, also of RISC. RISC technically cosponsors a number of conferences including ANIMMA which will next be held in Prague in June 2021.

PAST also announced their current committee with new members including elected and ex officio members and planned TC actions for 2020 including a constitution and bylaws review and revision. The next jointly sponsored PAC (NPSS and APS) will be the 2021 IPAC to be held in Iguassu Falls, Brazil from May 23rd to 28th. In 2022 there will be a North American PAC in Albuquerque, NM.

PSAC sponsors the ICOPS conference, to be held jointly in 2020 in Singapore with the second Asia

Pacific Conference on Plasma and Terahertz Science. As noted this has been postponed to December 6th to 10th, 2020. PSAC is also planning for the 50th anniversary of ICOPS in 2023. The meeting will be in Santa Fe, NM. PSAC and PPST will try EXORDO as their 2021 conferences abstract management tool.

PPST also introduced new committee members. The 2023 Pulsed Power conference is scheduled for San Antonio, TX from June 26th to July 1st. Another Pulsed Power Plasma Science (PPPS) conference will be held in Berlin, Germany in 2025.

REC also reported on conferences from 2019 closing process to dates and locations for outlying years including 2021 in Ottawa, Canada (19th to 14th July), 2022 in Provo, Utah (18th to 22nd July) and 2023 with Kansas City (KA or MO?) as the proposed site. REC also proposed the SEESAW initiative in 2017 and the roadmaps developed were released in June 2019 as Aerospace Report No. ATR-2019-00431. The 2020 workshop is planned for October 2020 and has also requested initiative support.

Our Conferences Chair reminds all who are or will be involved with conference planning and execution to make sure they are familiar with both IEEE and NPSS requirements, found on the web. Note photo use requirements, too.

There were few awards nominations, especially for some key awards. Note that as of January 2021 a number of awards currently designated as Society Awards will once again become Technical Committee Awards and will be funded from the relevant conference budgets.

As of March 2020 NPSS had a membership of just over 3,000 with over 80% male. Geographically the majority of members reside in Regions 1-7 (North America) but almost half our student members, many with memberships in arrears, are in Region 10. The membership committee also supports the new member drives at conferences. The number of NPSS Section and Student Branch chapters has also increased. There is a trial one-time-only initiative to pay new student memberships (IEEE and NPSS) in low-income countries that will support up to 10 students in an established or new Student Branch Chapter. And in 2019 Distinguished Lecturers presented 39 lectures with 22 supported in part or full by NPSS. See our web page if this program might be of interest. The number of lectures planned or scheduled in 2020 has already been impacted by the corona virus pandemic.

ADCOM ACTIONS

» AdCom approves that NPSS will cover the \$1,000 Administrative Fee for the Technical Co-sponsorship of RADECS 2020 (Y23, ON, OA)

» The PSAC ExCom moves that the NPSS AdCom approve an increase in the amount of the Igor Alexeff Outstanding Student in Plasma Science Award from \$1000 to \$2000. (22 Y, ON, OA)

» Motions from the Finance Committee

- AdCom approves changes to the NPSS Reimbursement Policy. This relates to travel for elected AdCom members, Technical and Functional Committee Chairs and Liaisons. (22 Y, ON, OA)

- Support for the Budget Tool: AdCom approves inclusion of budget tool maintenance in its 2021 Operations Budget at a level of \$30k for that year. (23 Y, ON, OA)

- AdCom approves a further five years of support at \$5k/year for the National Council on Radiation Protection (NCRP). (23Y, ON, 1A)

- AdCom approves adding \$35.5k of 2020 initiative funding to ISV/WHEELS Gujarat, India Program initial request. This would restore the July 2019 request for \$150k to launch the first six-village collaboration pilot (19 Y, ON, 5A)

- AdCom approves \$75k of 2020 initiative funding for Journal Visibility Enhancement. The goal is to increase visibility of and interest in our journals and to grow journal usage. (24Y, ON, OA)

» The Publications Committee moves that AdCom approve modifying the official scope of the IEEE *Transactions on Nuclear Science* to the following:

The scope of the IEEE Transactions on Nuclear Science includes theory, technology, and application areas related to nuclear science and engineering. It focuses on instrumentation for the detection and measurement of ionizing radiation; materials (including their preparation and characterization) for the detection of ionizing radiation; industrial radiation imaging; particle accelerators and their controls; effects of radiation on materials, components, and systems; reactor instrumentation and controls; measurement of radiation in space and terrestrial environments; and computing applications related to nuclear science. Tutorial and review papers that cover the above subjects will also be considered.
(24Y, ON, OA)

» AdCom approves the NPSS Nominations Committee consisting of the eight TC Chairs, the TNC Chair and the NPSS Nominations Committee Chair. (24Y, ON, OA)

» AdCom approves the following proposed 2021 and 2022 meeting dates:

2021:

- Mar 4-6, Vancouver, BC, CA
- June 27-28, Toronto (after TAB)
- Oct 22-23, Yokohama, Japan (after NSS-MIC)

2022:

- March 3-5, Santa Fe, NM
- July 22-23, Provo UT (after NSREC)
- November 11-12, Milan, IT (after NSS-MIC)

(22Y, ON, OA)

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

ONE-WAY STREET

Loyalty is something political leaders expect, not something they offer.

George Jonas

BUT DON'T ASK ME TO EXPLAIN

The things we know best are the those we have not learned.

Marquis de Vauvenargues

SOMETIMES COMES WITH AGE

Science may be learned by rote, but wisdom not.

Laurence Sterne

SO, THE WRONG GUYS RULE

People who value principles more than power move from advocacy groups to retirement; people who value power more than principles move from advocacy to government.

George Jonas

BUMPY ROAD

Planck [ESA's Cosmic Microwave Background Satellite] is the future of looking back to the past.

George Smoot

METAPHYSICS 101

Neutrinos have mass? I didn't even know they were Catholic.

Dan Brown

HEAD CHEESE

In baiting a mousetrap with cheese, always leave room for the mouse.

Saki

Technical Committees

PULSED POWER SCIENCE AND TECHNOLOGY



David Wetz
PPST Chair

These first quarters of 2020 have certainly been wild for all of us within IEEE who are working hard to plan and execute successful technical conferences around the world. We have seen so many events get postponed, cancelled, and even moved to a fully virtual environment. We sincerely thank all of you who have been so flexible and responsive to the outreach as planners tried to severely alter the plans that were so many years in the making. Conferences are a labor of love for those who organize them so having them remain successful is so important to them and the future of the conference itself. This global event is likely to define new roads for conferences and it will certainly be interesting to see where they lead! It is likely that many virtual conferences will have great success and with the benefit of face-to-face contact lost, it will raise new questions for how critical that is for conference success. I personally hope that we get back to where we were and keep the face-to-face value intact but only time will tell.

While 2020 is being greatly affected, it is our plan and hope that 2021 brings us back to where we were, and we are still actively planning for our next Pulsed Power Conference (PPC) that will be collocated with the Symposium on Fusion Engineering (SOFE) on May 31st–June 4th, 2021 in Denver, Colorado. The PPC will be chaired by myself, Dr. David Wetz from the University of Texas at Arlington (UTA), and SOFE will be chaired by Dr. Kevin Freudenberg from Oak Ridge National Laboratory. We have an excellent organizing committee in place, and we look forward to the great collaboration. It is our hope that we continue to increase attendance and technical contributions, especially given the disruption of 2020. Please plan to attend this event and help us to maintain the rich history and reputation of both valuable technical conferences.

We will have four open PPST election slots on the ballot this summer so if you are interested in running

for a four-year term, please be on the lookout for the nomination call. A list of the current committee members may be found on the NPSS website: <http://ieeep.org/> and if there is ever a question about what the PPST committee is doing, please get in touch with us. It is always good to hear about ideas and how to better serve the Pulsed Power Community.

Given that this update won't be published for some time after it is written, the PPST Committee hopes that this update finds you all well and that the world has recovered from this horrible pandemic. We need your support more than ever to get our conferences back on track so please help us to come back stronger than ever before.

David Wetz, Chair of the Pulsed Power Science and Technology Committee, can be reached by E-mail at wetz@uta.edu.

RADIATION INSTRUMENTATION STEERING COMMITTEE



Chiara Guazzoni
RISC Chair

At the time I write this update we all are living in a different way due to the pandemic diffusion of the SARS-CoV-2 virus. I hope you all and your families are safe and not impacted too much by the virus. I also hope that when you read my RISC update, the whole world will have initiated a new deal... and we can meet in person in Boston for the 2020 IEEE Nuclear Science Symposium and Medical Imaging Conference (October 31st–November 7th, 2020 <https://nssmic.ieee.org/2020/>). In the case of one of our sponsored conferences, the 2020 IEEE Symposium on Radiation Measurements and Applications, better known as SORMA West, the organizing committee has cancelled the Symposium for this year, due to an abundance of caution regarding the spread of the COVID-19 pandemic. However, they are studying the possibilities for reconvening next year.

Coming to the strict business of our community, at the time you read these lines the process of

nominating the people running for the office of Members-At-Large for RISC (you can find more info at the RISC related page on the NPSS website <https://ieeep.org/technical-committees/radiation-instrumentation/>) will be just about over and the election will take place in late summer. Please be active in voting and start to consider volunteering for this position for next year (self-nomination is possible). In the past years the percentage of members who have voted has been low; this is a missed occasion to actively take part in the life of our community.

There is a second relevant point. It is now time to nominate a deserving colleague (early career, mid-career or senior) for the three prestigious awards that RISC will award in 2020: the Radiation Instrumentation Early Career Award (RIECA), the Emilio Gatti Radiation Instrumentation Technical Achievement Award (RITAA) and the Glenn F. Knoll Radiation Instrumentation Outstanding Achievement Award (RIOAA). The deadline for 2020 will be 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 2020 IEEE Nuclear Science Symposium and Medical Imaging Conference in Boston are available and the call is published on the conference website <https://nssmic.ieee.org/2020/grants-awards/>.

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://ieeep.org/technical-committees/radiation-instrumentation/>.

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

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 <https://ieeep.org/technical-committees/radiation-instrumentation/>.

Serving both last year and this, the Award SubCommittee chair is Paul Lecoq from CERN and the Committees for the 2020 edition of the aforementioned awards are being formed and will be published on the RITC web page <http://ieeep.org/technical-committees/radiation-instrumentation/>.

Revised nomination packets are available in doc and pdf formats on the RITC webpage <http://ieeep.org/technical-committees/radiation-instrumentation/> and the completed packets should be submitted in pdf format via email to the Award SubCommittee Chair Paul Lecoq (Paul.Lecoq@cern.ch). 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 than that for which the previous award was given. You can find a section dedicated to possible previous IEEE awards received by the nominee in the nomination packet.

Do not hesitate to nominate one of your deserving colleagues or coworkers for the 2020 RISC Awards; we hope that this year also the committee's job of selecting a single awardee will be made particularly difficult by the outstanding level of the nomination packets.

Last but not least we are revising the Constitution and Bylaws of the Radiation Instrumentation Technical Committee so stay tuned, in the immediate near future they will be published in this newsletter.

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

Functional Committees

CHAPTERS



Steve Gold
Chapters Coordinator

The NPSS Chapters program exists to support local activities in our technical areas of interest by providing support for our 25 Section chapters and 15 Student Branch chapters around the world, as well as by assisting in the establishment of new chapters and student branch chapters wherever there is interest and enough NPSS members to support a new local chapter.

We have begun a new initiative this year, the NPSS Student Chapter Membership Fee Subsidy program, that can pay for new IEEE and NPSS student memberships, although not for membership renewals, to help establish new student chapters at colleges and universities in low per capita income countries, as well as to assist existing student chapters in those same countries that need membership support. The qualifying countries are those that are currently eligible for the IEEE electronic membership program see <https://www.ieee.org/membership/join/remember-countries.html>. This new program is funded at \$2000 for 2020.

In order to take advantage of the program to start a new NPSS student chapter, an IEEE Student Branch needs to already exist at the college or university, as well as a NPSS member who will serve as faculty advisor for the proposed student chapter. If those conditions are met, the Student Branch Counselor can submit a list with information on up to six students who are interested in becoming IEEE and NPSS members in order to become the founding

members of the new chapter. Similarly, to support the membership of an existing student chapter, its NPSS faculty advisor should follow the same procedure. Each of the students should begin by filling out the online IEEE membership form in order to receive an IEEE member number, and include NPSS membership, but pause the application before paying the membership fees. Then the students' names, email addresses, and membership numbers should be sent to the NPSS chapter coordinator, along with an explanation of the purpose of the request. If the purpose is to establish a new student chapter, then this should include the name of the NPSS member who will serve as faculty advisor for the proposed student chapter and a brief description of the NPSS-related coursework at the school, and if the purpose is to support an existing student chapter, then it should include a description of the current chapter activities and the status of the chapter membership. Note that for students who are members of the IEEE but have not yet joined the NPSS, one-time free NPSS membership is also available from another NPSS program—see <https://ieeep.org/students/>.

For additional information, please contact Steve Gold, the NPSS Chapter Coordinator, at steve@ieeep.org.

PUBLICATIONS

NPSS to make select high-interest papers Open Access



Paul Dressendorfer
IEEE NPSS Publications Chair

A number of researchers may not have easy access to the high-quality papers published in NPSS

journals – the *Transactions on Nuclear Science*, the *Transactions on Plasma Science*, and the *Transactions on Radiation and Plasma Medical Sciences*. To enhance the visibility of NPSS content to readers who do not enjoy a straightforward way to peruse its journals' articles, NPSS is beginning a trial period where selected papers will be made Open Access, allowing anyone to read them regardless of the type of subscription they or their institution have. The Editor-in-Chief of each journal will select papers which are believed to be of outstanding quality, of high interest, potentially of high impact, or which otherwise represent material deemed to be of particular value to the research community. Those papers will then be made fully Open Access, and NPSS will cover any costs associated with doing so.

We expect that each journal will select approximately a dozen papers to make Open Access over the course of the year. The intent is to increase the exposure of our journals to a broader scientific/

engineering community, and to allow more researchers to utilize the curated results available within them. We hope that this service proves valuable to the communities associated with the fields of interest of our journals.

Since this program is being done on a trial basis, we would appreciate any feedback from readers concerning it; please contact Paul Dressendorfer, NPSS Publications Chair, with any comments that you might have.

The first paper to be selected (by the Editor-in-Chief of TRPMS, Dimitris Visvikis) under this program is a review article entitled: *Total Body PET: Why, How, What For* by Suleman Surti, Austin Patel and Joel Karp from the Department of Radiology, University of Pennsylvania in Philadelphia. The article appeared in the May 2020 issue of the *Transactions in Radiation and Plasma Medical Sciences* and can be downloaded from the journal's dedicated website

(ieee-trpms.org) or directly at IEEE Xplore <https://ieeexplore.ieee.org/document/9056798>.

Long axial field of view PET imaging has been proposed as a potential game changer in the field with the possibility to enable total body imaging or imaging of a large part of a patient without any bed translation. The increased sensitivity of these devices can in principle allow extremely fast acquisitions of the whole patient including associated tracer dynamics. Such systems have been under development over the last few years with a couple of prototypes already constructed, an outcome of the EXPLORER Consortium of the University of California at Davis (UC Davis) and the University of Pennsylvania (Penn). The uEXPLORER at UC Davis has an AFOV of 194 cm and was developed by United Imaging Healthcare. The PennPET EXPLORER was developed at Penn and is based on the digital detector from Philips Healthcare. This multi-ring system is scalable and has been tested

with three rings but is now being expanded to six rings for 140 cm. Different research institutions and commercial vendors are considering construction of other such long axial field of view PET systems. *The published manuscript presents a review of the technology leading up to the introduction of these new instruments, and explains the benefits of a long axial field of view PET-CT device. In the second part of this article different parameters concerning the design of long axial field of view PET scanners (axial length, detector design components and geometry, system design) are discussed. Finally, a last section concentrates on the description of some of the clinical and research studies that can be performed with such systems.*

Paul Dressendorfer, Chair of the IEEE NPSS Publications Committee, can be reached by E-mail at p.dressendorfer@ieee.org.

Liaison Reports

Educational Activities Priorities for 2020

- | | | | | | |
|---|-------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------|
| 1 |  | 5 |  | 9 |  |
| 2 |  | 6 |  | 10 |  |
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| 4 |  | 8 |  | 12 | President's Scholarship |
- 



Edl Schamiloglu
EAB Liaison

Edl Schamiloglu, University of New Mexico and IEEE NPSS EAB liaison, can be reached by E-mail at eds@unm.edu

THAT'S LIFE

For a long time it has seemed to me that life was about to begin—Real Life. But there was always some obstacle in the way, something to be got through first, some unfinished business, time still to be served, a debt to be paid—then life would begin. At last it dawned on me that these obstacles were my life.

Alfred D'Souza

Article

NPSS Joins Physics Summer School in Brazil

The *Jorge Andre Swieca Summer School on Experimental Nuclear Physics* is an event organized by the Brazilian Physics Society that has taken place every other year since 1984, and has the purpose of giving post-graduate students and young Ph.Ds. the opportunity to get in touch with the most exciting aspects of experimental nuclear physics, going from the planning of an experiment to its execution and data analysis and interpretation. IPEN (Institute for Energy and Nuclear Research), as one of the largest institutions working on nuclear applications in Brazil, has already hosted this school a few times, the last one in 2006, always focusing on neutron physics and its applications.



Martin Grossmann
CANPS Chair and TNC

For this year's edition, held from the 3rd to 14th February 2020, NPSS joined the Brazilian organizers by sending four lecturers to the school (two funded by NPSS, one by IPEN, one by CTU Prague). They contributed with lectures on semiconductor pixel detectors and radiotherapy, and with experiments using the TimePix board (enhanced with a boron converter for the detection of neutrons) and PET imaging. Some 40 students from Brazil and Columbia joined the presentations and took turns running the experiments in small groups.

The event provided a great opportunity to establish new contacts in IEEE Region 9. The very positive feedback from both students and organizers demonstrates that it was also excellent publicity for our society.

Martin Grossmann can be reached by E-mail at martin.grossmann@psi.ch.



The Brazilian summer school at IPEN São Paulo



Stanislav Pospisil, Michael Holik and Vladimir Vicha from CTU Prague run the TimePix experiment

Article

Continued from PAGE 5



Visit to the IPEN research reactor



Presentation on the benefits of being a member of IEEE-NPSS



Martin Grossmann from PSI explains the PET imaging demonstration kit

COVID-19

By: Mounir Laroussi

COVID-19

Nothing like it has ever been seen.

A virus that is so mean,

meaner than the flu of 1918.

No matter if you are elderly or a teen,

a commoner, a king or a queen,

you have to wash your hands often for good hygiene,

and sanitize all surfaces to keep them clean.

This way we have to behave until we develop a vaccine

that works its magic and gets us all out of this miserable quarantine.

Mounir Laroussi
Author

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Publicity releases for forthcoming meetings, items of interest from local chapters, committee reports, announcements, awards, or other materials requiring society publicity or relevant to NPSS should be submitted to the Newsletter Editor no later than July 5, 2020 for inclusion in the September 2020 Newsletter.

News articles are actively solicited from contributing editors, particularly related to important R&D activities, significant industrial applications, early reports on technical breakthroughs, accomplishments at the big laboratories

and similar subjects. The various *Transactions*, of course, deal with formal treatment in depth of technical subjects. News articles should have an element of general interest or contribute to a general understanding of technical problems or fields of technical interest or could be assessments of important ongoing technical endeavors.

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

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