Explore the World of IEEE and

IEEE Nuclear and Plasma Sciences Society

Welcome to the IEEE Nuclear an Plasma Sciences Society (NPSS)

I am incredibly proud and honored to welcome you to the vibrant and dynamic IEEE NPSS community. Our society is dedicated to furthering our mission of advancing the nuclear and plasma sciences.

Technical Excellence and Innovation

NPSS is renowned for its excellence and innovation, fueled by the exceptional contributions of our global members and volunteers. Our society encompasses a diverse range of technical areas, including medical imaging, plasma and fusion physics, radiation instrumentation, radiation effects, and more. Together, we are uniquely positioned to tackle the pressing challenges in health, nuclear security, energy, and other critical domains.

Dedicated to Advancing Our Mission

We are committed to enhancing the reach and impact of our society's activities, including conferences, journals, educational programs, and initiatives. My particular focus lies in engaging our students, postdoctoral researchers, and young professionals, providing them with ample opportunities to contribute, learn, and grow within our society. By fostering collaboration and innovation, we advance our field.

Get Involved and Make a Difference

If you are interested in becoming more involved in NPSS activities — whether it's reviewing papers, organizing conferences, or promoting diversity, inclusion, and humanitarian efforts — I encourage you to reach out to me or any of the Technical or Functional Committee chairs for guidance. Your involvement is invaluable to the society and offers a profoundly rewarding way to expand your professional network and enrich your career.

Benefits of NPSS Membership

For those who are not yet NPSS members, I highly encourage you to join us. Membership offers numerous benefits, including support for students, young professionals, and women through special programs that build professional networks and leadership opportunities. As you advance in your career, you will also have the chance to be recognized for your achievements through our vibrant awards program and by elevation to Senior Member and Fellow status.

Stay Connected and Informed

Please visit our website ieee-npss.org regularly for the latest information on our activities and initiatives. Additionally, follow our Facebook page (https://www.facebook.com/ieeenpss) to stay updated with news and announcements. Engaging with other NPSS members begins as a professional collaboration but often evolves into lifelong friendships!

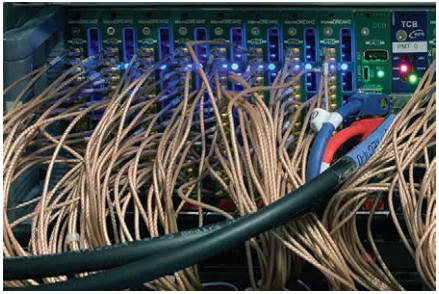
Thank you for your continued support and dedication to NPSS. Together, we will advance the nuclear and plasma sciences and make a significant positive impact on society.

Join Us

Discover the many opportunities offered by IEEE and NPSS by visiting ieee-npss.org/join to join our extended family.

Sara Pozzi, Ph.D.
IEEE NPSS President 2025-2026

Computer Applications in Nuclear and Plasma Science (CANPS)

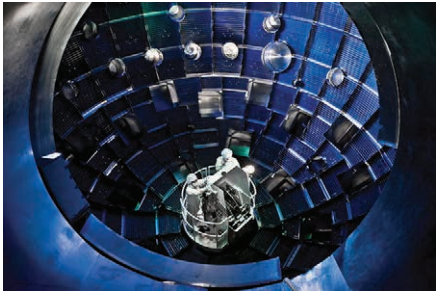


Computer systems, HW and SW aspects of data acquisition/analysis/storage/control in all NPSS disciplines.

CANPS focuses on the application of computer systems — both hardware and software — in all aspects of data acquisition, processing, storage, and control across the diverse disciplines of the IEEE Nuclear and Plasma Sciences Society (NPSS). CANPS encompasses both real-time and offline computing systems, supporting research and development in fields such as nuclear and particle physics, plasma science and fusion research, medical physics and imaging, astrophysics and space-based instrumentation, accelerator technology and control systems.

One of the committee's key activities is organizing the Real Time Conference, a biennial, interdisciplinary event that highlights the latest advances in real-time computing and data-handling technologies. The conference brings together experts from multiple domains to share insights and foster collaboration. Authors of conference papers are invited to submit expanded versions of their work to a dedicated special issue of the *IEEE Transactions on Nuclear Science*, providing a high-impact publication opportunity within the NPSS community.

Fusion Technology Committee (FTC)

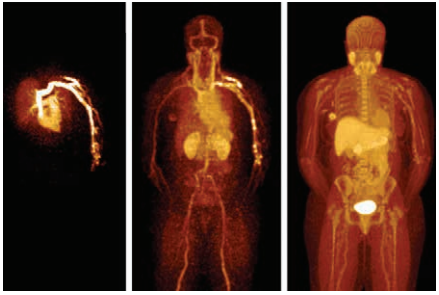


Science and technology to harness the power of the stars.

The Fusion Technology Committee covers the technologies of both inertial and magnetic-confinement fusion experiments which are leading to a better understanding of the requirements for a fusion reactor and for an environmentally benign, virtually limitless source of energy for electric power and industrial uses.

This committee organizes the biennial Symposium on Fusion Engineering and also supports the IEEE USA Energy Policy committee in the preparation of energy-related white papers.

Nuclear Medical and Imaging Sciences Committee (NMISC)

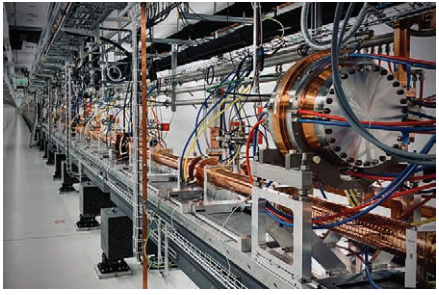


We advance the science of nuclear medicine through technological innovation.

NMISC promotes technology development and application of radiation science in bio-medical applications. The sharing of technology developments between the nuclear and high-energy physics communities and the medical imaging community has led to very significant developments in medical imaging, and NMISC works closely with RISC colleagues in furthering the community's goals.

NMISC has oversight of the Medical Imaging Conference (MIC) component of the annual IEEE NSS/MIC and is responsible for the development of short courses and other educational activities offered at the meeting. Publications are encouraged in the focused *IEEE Transactions on Radiation and Plasma Medical Sciences* (TRPMS).

Particle Accelerator Science and Technology Committee (PAST)



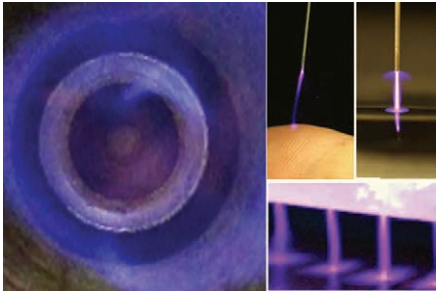
Design, construct, and operate particle accelerators supporting research, industrial and societal needs.

The PAST committee promotes accelerator science and technology for both fundamental research and accelerator applications.

PAST along with the American Physical Society Division of Physics of Beams (APS-DPB) co-sponsors the International Particle Accelerator Conference (IPAC) when held every third year in the Americas, and the North American Particle Accelerator Conference (NA-PAC) held between the IPAC conferences in the Americas.

PAST actively supports students and early career scientists, teacher days and Women in Science and Engineering (WISE) events at conferences, and awards the PAST Award and the PAST Doctoral Student Award.

Plasma Science and Applications Committee (PSAC)

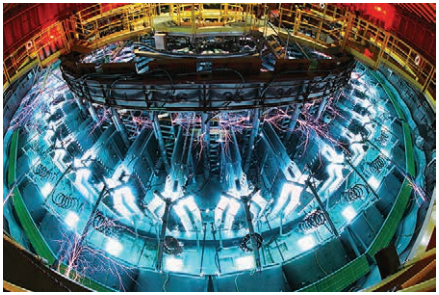


Explores the science and technology associated with the collective interactions of electromagnetic fields and ionized gases.

The Plasma Science and Applications Committee of NPSS covers fundamental and applied research of plasma science and engineering that support manufacturing, transportation, energy, water and waste treatment, medicine, agriculture, and defense technologies.

The annual International Conference on Plasma Science (ICOPS) is organized by the committee.

Pulsed Power Science and Technology Committee (PPST)



We produce high peak power to achieve unique sources and study fundamental physics.

The PPST strives for the advancement of pulsed power science, technology and its applications and is committed to support the pulsed-power community. The committee promotes cooperation and exchange of technical information among all community members.

PPST organizes the IEEE International Pulsed Power Conference, and publishes the digest of technical papers for the conference and encourages submission of completed papers to the *IEEE Transactions on Plasma Science*.

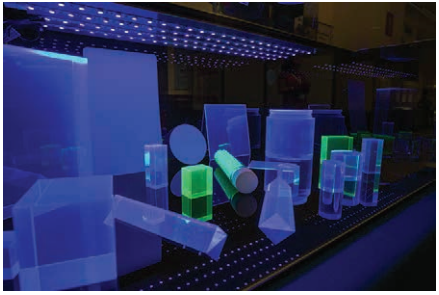
Radiation Effects Committee (REC)

We strive to advance and apply radiation effects research and disseminate the results.

REC works to help advance the theory and application of radiation effects and its allied sciences, and to disseminate information pertaining to those fields. This includes effects on electronic and photonic materials, devices, circuits, sensors, and systems, as well as semiconductor processing technology and design techniques for producing radiation-tolerant (hardened) devices and integrated circuits.

The committee organizes the Nuclear and Space Radiation Effects Conference (NSREC) annually and technically co-sponsors the European RADECS conference. Technical papers are published in *IEEE Transactions on Nuclear Science*. A one-day tutorial is part of each NSREC. The committee also coordinates development of radiation effects measurement definitions and standards within IEEE and other standards organizations.

Radiation Instrumentation Committee (RI)



Radiation Instrumentation for applications in science and technology.

Radiation Instrumentation, managed by the Radiation Instrumentation Steering Committee (RISC), deals with ionizing radiation instrumentation and its applications. The emphasis is on the tools utilized, primarily the radiation sources, the radiation sensors, associated electronics, techniques for simulation and techniques for processing and analysis of the measured data, including system integration related aspects.

In conjunction with the Nuclear Medical and Imaging Sciences Committee (NMISC), we oversee the annual IEEE Nuclear Science Symposium, Medical Imaging Conference, and Room Temperature Semiconductor Detectors Symposium (NSS/MIC/RTSD) and are responsible for providing the long-range planning for the conference.

Authors are encouraged to submit their papers to the *IEEE Transactions on Nuclear Science*.

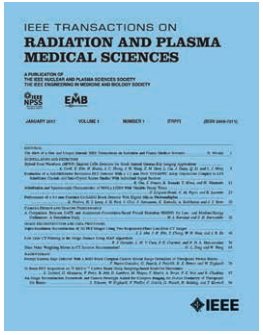
Our Journals — High-quality, Refereed Archival Publications

IEEE Transactions on Nuclear Science (TNS)

TNS covers the theory, technology, and application of nuclear science and engineering, It is viewed as the primary source of technical information in many of the areas it covers, which include instrumentation for the detection and measurement of ionizing radiation; materials for the detection of ionizing radiation; radiation imaging not related to medicine; 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.

IEEE Transactions on Plasma Science (TPS)

IEEE Transactions on Plasma Science is published monthly. The scope covers all aspects of the theory and application of plasma science. It includes the following areas: magnetohydrodynamics; thermionics and plasma diodes; basic plasma phenomena; gaseous electronics; microwave/plasma interaction; electron, ion, and plasma sources; space plasmas; intense electron and ion beams; laser-plasma interactions; plasma diagnostics; plasma chemistry and processing; solid-state plasmas; plasma heating; plasma for controlled fusion research; high energy density plasmas; industrial/commercial applications of plasma physics; plasma waves and instabilities; and high power microwave and submillimeter wave generation.



IEEE Transactions on Radiation and Plasmas in Medical Science (TRPMS)

TRPMS is a unique publication related to the application of radiation and plasma sciences within the medical field. It includes radiation detectors for medical and biological applications; imaging system design/optimization/performance; therapy-related system design/optimization/performance; radiation-application-based image reconstruction, data analysis and image processing; medical radiation therapy applications; clinical/preclinical evaluation of imaging and therapy systems, plasma applications in medicine and biology; and simulations for imaging and therapy applications.

IEEE Transactions on Medical Imaging (TMI)

TMI is one of the top-ranked journals in its field. It publishes contributions on imaging of body structure, morphology and function, including cell and molecular imaging and all forms of microscopy. Medical imaging achieved by modalities including ultrasound, X-rays, magnetic resonance, radionuclides, microwaves, and optical methods are covered.

Instrumentation Schools

Bringing technology to all corners of this planet.

IEEE NPSS Instrumentation Schools, managed by the NPSS Educational Committee, bring modern lab courses to places where students only have limited access to such material. Through intense 1-2 week courses students are trained using modern equipment and have close contact with leading experts in the field.

"Thanks a lot Dear Professors. We were delighted. Thank you for all the tools you have given us. We want to use them to advance science and make you proud. Safe journey to you all."

"Thank you to all the Professors for this valuable work. It is a great honor for me to have spent the week of practical exercises with you dear Professor. I dare to believe that one day we will have the chance to meet again and that it will be at this moment for a higher level project. Thank you, teachers, and have a good trip to all of you."

The IEEE Foundation NPSS Fund

Funding educational outreach; visit ieee-npss.org to make your tax-deductible donation.*

The NPSS Foundation Fund was established in 2021 to support NPSS projects for educational, outreach, diversity or humanitarian purposes, consistent with IEEE's mission to foster technological innovation and excellence for the benefit of humanity by

- Expanding its support for NPSS schools on instrumentation and medical imaging in developing regions.
- Improving living conditions and access to education for people in remote parts of the world through humanitarian projects.
- Promoting the participation of women and minorities in NPSS-related engineering and scientific professions.
- Supporting grants and awards for students and early career researchers in NPSS-related fields.

** depending on the laws of the country of residence*

IEEE and NPSS Local Activities and the Distinguished Lecturer Program

Bringing technology and professional development to you.

The IEEE Members and Geographic Activities Board organizes local activities through regions and sections around the world. These sections are run by local volunteers with logistical and financial support from IEEE and are part of IEEE. Within universities, student Branches can be organized with faculty help. Sections and student branches can also start and maintain NPSS Society Chapters and these can apply to NPSS for financial help and arrange visits by lecturers through the NPSS Distinguished Lecturer program organized and funded by NPSS. The program has funding to support the travel costs of the lecturer when needed.

Currently IEEE, with over 500,000 members world-wide, has 342 sections in ten regions, 2,562 chapters, 3,485 student branches with 2,877 student branch chapters. More than 35 NPSS distinguished lecturers are appointed and available for invitation..

Collaboration and Engagement

Supporting participation, collaboration, and engagement.

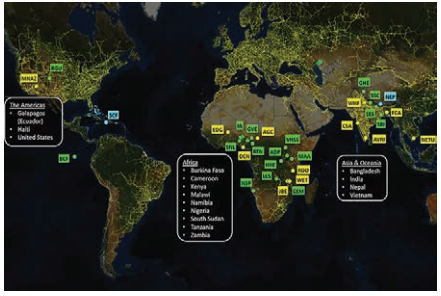
NPSS provides multiple resources and activities at our sponsored events. NPSS offers childcare grants to help our members with family obligations attend our conferences and sponsors various events at conferences and international schools. IEEE Women in Engineering (WIE) is a global network of IEEE members and volunteers of all genders dedicated to encouraging women engineers and scientists and inspiring girls.

Young Professionals

Helping the newer members of our community in their professional advancement.

NPSS actively supports the IEEE Young Professionals (YP) program, which is designed to meet the needs of early-career members during their first 15 years in the profession. This includes undergraduate and graduate students, post-doctoral researchers, and professionals in the early or possibly at their mid-career stage. NPSS-sponsored conferences regularly host a variety of dedicated YP-events, including those which provide opportunities for young professionals to engage directly with senior colleagues. Joining IEEE at the beginning of an academic or industrial career offers significant advantagse, fostering professional relationships that often last a lifetime.

Humanitarian Outreach



Help to create self-sustainable regions — with IEEE volunteers, funding from IEEE entities and the IEEE Foundation, and private donors.

IEEE Smart Village's (ISV) mission is to provide start-up funding to selected entrepreneurs with sustainable and scalable programs containing the three ISV pillars: electrification, education and entrepreneurship. A unique feature of the ISV is that it requires a detailed business plan for each program, including a plan to scale, and seeks to help meet many of the UN development goals to end poverty. NPSS is one of the two founding members of ISV and a strong financial supporter.

IEEE SIGHT is a network of groups consisting of IEEE members who, supported by IEEE/Tech4Good grants, identify and address local problems by applying their technical skills and partnering with their local communities

Awards and Grants

Recognizing excellence among our members.

NPSS has a very significant awards and grants program for all stages of members' careers, from student paper to achievement and best paper awards to life-time-achievement awards.

Grants include family day-care grants for parents attending a conference and study grants, travel grants, conference membership-to-leadership grants, and grants to attend courses at conferences.

Advantages of Membership

Why Join IEEE and NPSS?

Are you a professional who wants to develop knowledge and awareness outside of your immediate job assignment? Do you wish to gain organizational and leadership skills in the profession as a whole? Do you value our conferences and publications and wish to contribute? Do you want to expand your professional network? Do you want to get recognition through awards?

You can do no better than joining and getting involved with your professional society. To learn more, visit ieee.org/membership/benefits and follow us on Facebook.

How to Get Involved?

NPSS is entirely volunteer managed and operated. Most became involved as an associate editor, a conference abstract reviewer, or helping run a conference. If interested, please visit ieee-npss.org/join and/or contact an editor or conference chair directly.

Other Membership Advantages

- Keep technically current through trusted publications in Xplore and conferences
- Get assistance in resume-writing and finding job opportunities
- Access to grants and student support
- Benefit from professional networking and career coaching
- Full access to our NPSS Journals and the award-winning *IEEE Spectrum Magazine*
- Leadership mentoring and experience through volunteering
- Conference registration discounts
- Free access to IEEE Press and IEEE-USA eBooks
- Become eligible for IEEE awards with international recognition
- Benefit from local technical and social activities through sections
- Support and become involved in global IEEE technical and humanitarian activities

IEEE NPSS
NUCLEAR & PLASMA SCIENCES SOCIETY

Upcoming IEEE NPSS Conferences

Name	Location	Date	URL
2025 PPPS (PPC/ICOPS)	Berlin, Germany	15-20 June 2025	https://www.ppps2025.kit.edu/
2025 SOFE	Boston, MA, USA	23-27 June 2025	https://plasmafusion.eventsair.com/sofe2025
2025 NSREC	Nashville, TN, USA	10-18 July 2025	https://www.nsrec.com/
2025 SORMA West	Berkeley, CA, USA	21-24 July 2025	https://sormawest.org/
2025 NAPAC	Sacramento, CA, USA	10-15 August 2025	https://events.slac.stanford.edu/napac25/
2025 RADECS	Antwerp, Belgium	29 Sept - 3 Oct 2025	https://www.radecs2025.org/
2025 NSS/MIC/RTSD	Yokohama, Japan	1-8 November 2025	https://nssmic.ieee.org/2025/
2026 RTC	La Biodola, Elba, Italy	25-29 May 2026	https://ieee-npss.org/conferences/
2026 ICOPS	Lake Tahoe, NV, USA	22-26 June 2026	https://ieee-npss.org/conferences/
2026 NSREC	San Juan, Puerto Rico	20-24 July 2026	https://www.nsrec.com/
2026 NSS/MIC/RTSD	Granada, Spain	7-14 November 2026	https://ieee-npss.org/nss-mic-conference-links/
2027 PPC/SOFE	San Diego, CA, USA	20-25 June 2027	https://ieee-npss.org/conferences/
2027 NSREC	Atlanta, GA, USA	TBD	https://www.nsrec.com/

All IEEE NPPS conferences offer significantly reduced registration fees for IEEE members.

To join IEEE NPSS, please visit ieee-npss.org/join