

Welcome

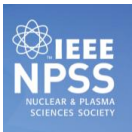
Vesna Sossi
NPSS President

Quy Nhon, ICISE center, April 22nd, 2024



24th IEEE Real Time
Conference - ICISE, Quy Nhon,
Vietnam

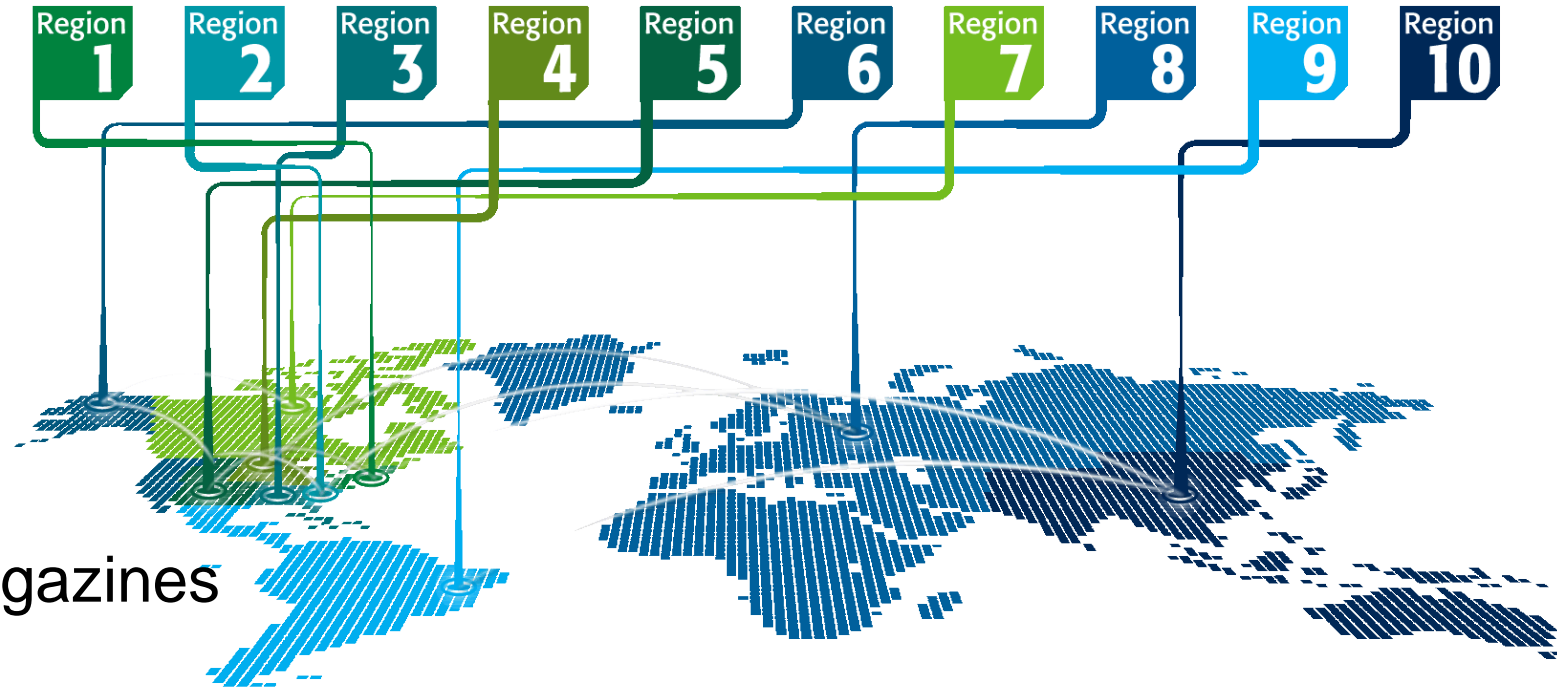
*Thank you to the local hosts for warm hospitality
(Prof. Van Tran and colleagues)*



IEEE – NPSS

IEEE at a Glance

- ▶ More than **409,000** members in over **160** countries
- ▶ **39** Technical Societies and **7** Technical Councils
- ▶ Publishes approximately **200** transactions, journals, and magazines
- ▶ Over **5 million** documents in IEEE *Xplore*® with **>15 million** downloads/month
- ▶ Sponsors more than **1,900** conferences in **96** countries each year



2023/4 TA Strategic Framework

Tools and Platforms

- Resource Center
- DataPort
- AskIEEE and Foresight
- ICX and its replacement
- TechNav
- PRAC Tool
- SCRC Tools dev
- Next Gen Tools & Processes
- Governance Tools

Managing Foundational and Ongoing Business Effectively

- Assure Content Quality
- Address Misconduct
- Address Data Privacy
- Deliver Data Analytics
- Grow and Relook at Membership



New Tech

- **FDC initiatives**
 - AI Coalition
 - Low Earth Orbit Satellite
 - Metaverse
 - Public Safety Tech
 - SusTech
 - Telepresence
 - Smart LED Lighting
 - Digital Privacy
 - 5G/6G Innovative Testbed
 - Wireless Power Technology
- Society New Tech Efforts
- Graduated Initiatives

New Audiences

- Enhance virtual audiences
- Entrepreneurs
- Industry (testbed, Chips Act, Corporate programs)
- Young Professionals
- Students
- Women in Engineering
- DEI

New Content

- Increased Stds
- TechEthics
- Humanitarian and Social Responsibility
- Climate Change
 - SmartAg

New Delivery

- Video Content
- OA & R&P
- Chinese Publications
- Podcasts
- Future of Events
- Educational Programs
- Roadmaps

→ IEEE Standards Activities (SA)

NPSS in IEEE IEEE Societies



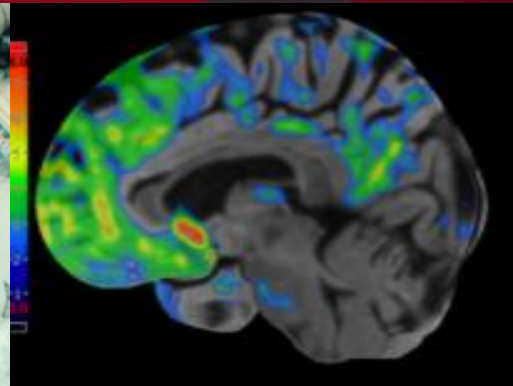
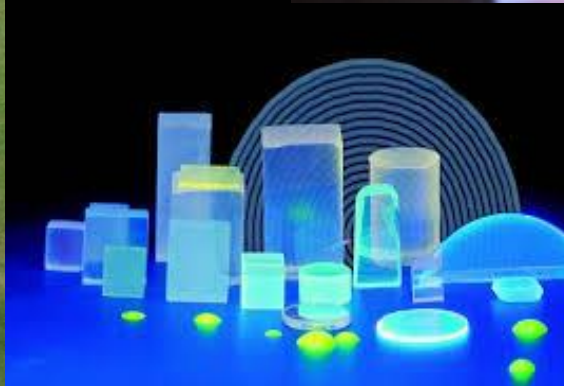
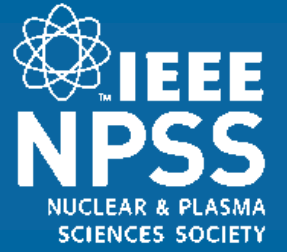
- Aerospace and Electronic Systems Society
- Antennas and Propagation Society
- Broadcast Technology Society
- Circuits and Systems Society
- Communications Society
- Computational Intelligence Society
- Computer Society
- Consumer Technology Society
- Control Systems Society
- Dielectrics and Electrical Insulation Society
- Education Society
- Electromagnetic Compatibility Society
- Electron Devices Society

- Electronics Packaging Society
- Engineering in Medicine and Biology Society
- Geoscience and Remote Sensing Society
- Industrial Electronics Society
- Industry Applications Society
- Information Theory Society
- Instrumentation and Measurement Society
- Intelligent Transportation Systems Society
- Magnetics Society
- Microwave Theory and Techniques Society
- Nuclear and Plasma Sciences Society
- Oceanic Engineering Society
- Photonics Society
- Power Electronics Society
- Power & Energy Society

- Product Safety Engineering Society
- Professional Communication Society
- Reliability Society
- Robotics and Automation Society
- Signal Processing Society
- Society on Social Implications of Technology
- Solid-State Circuits Society
- Systems, Man, and Cybernetics Society
- Technology and Engineering Management Society
- Ultrasonics, Ferroelectrics, and Frequency Control Society
- Vehicular Technology Society

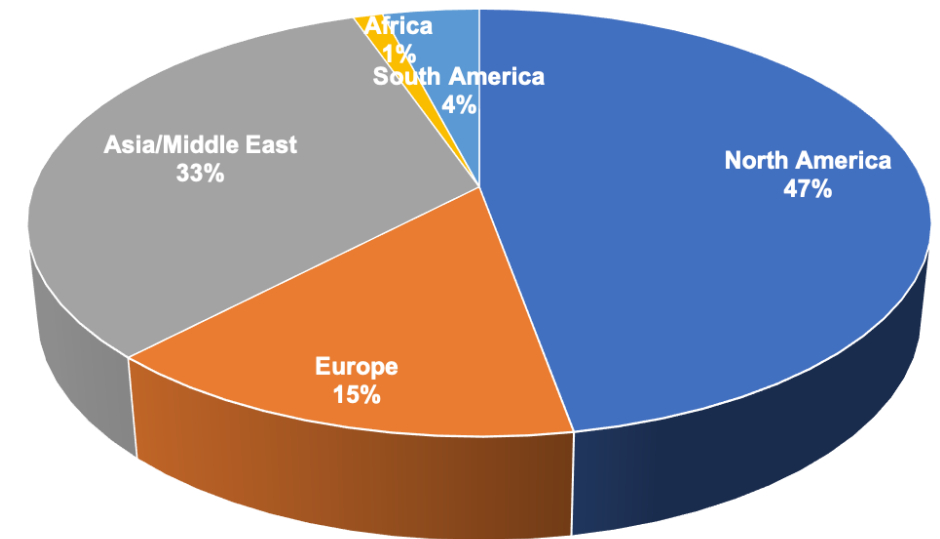


IEEE and IEEE Nuclear and Plasma Sciences Society



IEEE Nuclear and Plasma Sciences Society (NPSS)

- ▶ Computer Applications in Nuclear and Plasma Science
- ▶ Fusion Technology
- ▶ Nuclear Medical and Imaging Sciences
- ▶ Particle Accelerator and Technology
- ▶ Plasma Science and Applications
- ▶ Pulsed Power Science and Technology
- ▶ Radiation Effects
- ▶ Radiation Instrumentation



~3,250 members in 80 countries

Joined Nanotechnology Council and IEEE Brain Community

What can the society do for you?

Should I become an IEEE NPSS member?

What does NPSS do for you at this conference (and beyond) ?

- ▶ Organizes and financially sponsors this conference
- ▶ Sponsors additional events at the conference (example WIE)
- ▶ Provides grants
- ▶ Give awards at all career levels

IEEE NPSS Richard F. Shea Distinguished Member Award  2023 Stefan Ritt



2024 CANPS award to be presented on Thursday

1. Networking Opportunities

- ▶ Make friends and collaborations
- ▶ Expand your professional network



2. Volunteering Opportunities (two-way street)

- ▶ Conference abstract reviewing
- ▶ Journal article reviewing
- ▶ Committee roles (CANPS, NPSS AdCom)
- ▶ Conference organisation roles



<http://uv.ieee.org>

3. Develop your Leadership & Teaching Skills

- ▶ Organise and teach a short course or a regional workshop
- ▶ Nominate for a committee role on CANPS or NPSS AdCom



Humanitarian Outreach

Example: *IEEE Smart Village*



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

Schools

EDUCATIONAL and TRANSNATIONAL COMMITTEES

SCHOOL ON ADVANCED TOPICS IN PET/CT AND PET/MR IN THAILAND

The EduCom school on "Advanced Topics in PET/CT and PET/MR" was held in Thailand Jan 27th – Feb 1st, 2023. It took place in two different locations: first we went to Nan in the North of Thailand, where our school was attached to the annual meeting of the Thai Medical Physicist Society, TMPS. Then we moved to Bangkok for three days where we had access to medical imaging facilities at the King Chulalongkorn Memorial Hospital

It was the first school organized by NMISC. We thank the NMISC planning committee and our local counterpart in Thailand Anchali Kisanachinda, who with her team did an excellent job in preparing the event and making sure that everything went smoothly on site.

The participants had to apply on our website and fill in a questionnaire. In total we selected 25 participants (15 female, 10 male; 22 from Thailand, one from



Clockwise from top right:

Running the EasyPET exercise at King Chulalongkorn Memorial Hospital

Students working on the exercises for AI in medical imaging

Three generations of speakers at the WIE event

Wuri from Indonesia had to take along her little daughter and the babysitter in order to attend the EduCom school – only the youngest student doesn't seem to be happy

Attendees at the WIE event to raise awareness for IEEE and NPSS

Meeting for dinner after the WIE event

Students and lecturers at the Thai Medical Physicists Society meeting in Nan

Coffee table discussion on medical imaging



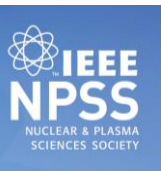
Instrumentation Schools

Bringing technology to all corners of this planet.

The IEEE NPSS Instrumentation Schools, managed by the NPSS Educational Committee, bring modern lab courses to places mainly in Asia and Africa 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."



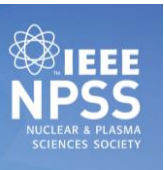
Women in Engineering and Diversity and Inclusion



WIE leadership summits

WIE events are held at most of our conferences supported by IEEE WIE
We are strengthening DEI activities Supported by IEEE DEI

NPSS joined the IEEE WIE pledge '*IEEE WIE pledges to work towards gender-diversified panels at all IEEE meetings, conferences, and events, including our own*'



Young Professionals



YP events are held at most of our conferences supported by IEEE YP



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



Opportunities within IEEE - IEEE Future Directions – Forward looking

2023 IEEE Future Directions Coverage

IEEE QUANTUM → Became Quantum TC managed by Computer Society in 2024

IEEE Public Safety Technology™

IEEE Digital Privacy

IEEE 5G/6G Innovation Testbed™

IEEE LEO Sats

IEEE SMART LIGHTING

IEEE Telepresence

IEEE Metaverse**

IEEEWPT Wireless Power Technologies**

IEEE SusTech Initiative**
Sustainability Through Technology

IEEE ROADMAPS™

Global Semiconductors Ad Hoc**

TechNav AI

**New in 2023

iee.org/futuredirections

2024 IEEE Future Directions Coverage

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Sustainability Through Technology

IEEE Metaverse

IEEE ROADMAPS™

Global Semiconductors Ad Hoc

AI Coalition**

New Initiative 1

New Initiative 2

TechNav AI

**New in 2024

AI COALITION

- *Classify and index AI work across IEEE into one area, and identify any gaps*
- *Review how IEEE can use AI to enhance our services*

AI Coalition - Initial List of Key Areas (preliminary)

“An alliance for combined action”

- Machine Learning
- Deep Learning
- Robotic / Process Automation (RPA)
- Artificial General Intelligence (AGI)
- Generative AI
- NLP (Natural Language Processing), LLM (Large Language Models)
- AI Hardware (and energy implications)
- Robotic Hardware
- Algorithms
- Data
- Digital / Cognitive Twins
- Image / Signal Understanding and Recognition
- AI Ethics
- AI Accuracy and Trust (policy/governance)
- Standards in AI
- AI in:
 - Space / non-terrestrial
 - Education
 - Healthcare
 - Retail
 - Manufacturing
 - Transportation
 - Finance
 - Power/Energy
 - Communications
 - Workforce development
 - Publishing
 - Information/news/media
 - Human/AI collaboration


NPSS Climate Change Initiative

(C Da Via)

The Nuclear and Plasma Sciences Society is starting a Climate Change Initiative to identify possible solutions to this urgent issue. We are planning to organize events to educate ourselves on the topic and to explore where we could actively apply our technical knowledge. A webpage is available on <https://iee-npss.org/climate-change-initiative/>

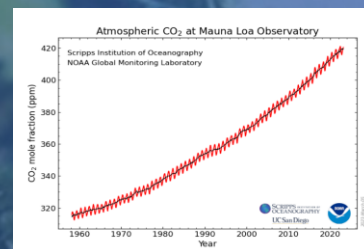


NPSSCCI Activities:

- Monthly meetings
- Website Generation
- Preparation of information material
- **Organization of 1 day workshop in 2024** 
- Organization of school section in 2024
- Organization of 2025 events

2024 Workshop Topics:

- The Physics of Climate Change
- Harvesting Energy
- Nuclear Power Fission: Present and future
- Nuclear Fusion: Current Status and Compact Designs
- Cold Plasma Applications
- Non-thermal Plasmas in Electrification of Materials and Manufacturing
- Accelerator Based Solutions: Waste Management
- Accelerator Based Solutions: Sub-critical Power Reactors
- Sensors: Environmental Monitoring to Energy Harvesting
- Electronics, Algorithms & Software: for Optimal Control
- Big Data and Simulation



If you are interested in knowing more or joining, please visit the membership desk

Apply for Initiative Funding

- ▶ Do you have an idea for a project that aligns with the IEEE/NPSS strategic goals? (<https://ieee-npss.org>)

There is funding available

Talk to CANPS Chairs for more information on how to apply

Examples

- Development of virtual labs
- From membership to leadership
- Many educational and humanitarian efforts

Why am I part of *(and volunteer for)* IEEE NPSS?

- I believe in the values promoted by IEEE/NPSS
- I have the opportunity and privilege to work with people that I respect and admire

What am I getting out of it?

- Opportunity for continuous learning – depth and breath – stepping stone to broader IEEE activities
- Learning of transferable leadership and organizational skills
- Meet people that influenced my career *(and life)*
- Some wonderful friends

Where do I get more information:

- *on involvement opportunities*
- *on financial benefits*
- *on IEEE and NPSS activities etc...*



Membership desk!

Special offers for first time members  **IEEE**