



KEYNOTE: IEEE & PELS – The Northeast Regional Power Electronics Community

IEEE Long Island 2024 Power Electronics Symposium

Thursday, November 7, 2024

Brian Zahnstecher, PowerRox (PELS R1-3 Chair)

John Noon, Otis Elevator Co. (PELS CT Chair)



ieee.org

Overview

- ▶ Intro to the Institute of Electrical and Electronics Engineers (IEEE)
 - Regional Sections
- ▶ Intro to the Power Electronics Society (PELS)
 - Technical Committees (TC)
 - Regional Chapters
- ▶ The Power Electronics Ecosystem of the Northeast
 - Academia
 - Industry
 - Consortia
 - Opportunities



WIIFM

- ▶ Do not have the time for this stuff, right?
- ▶ Rare opportunity to focus on advancing career in current situation?
- ▶ Enjoy talking about cool stuff with others just as excited to talk about it?
- ▶ Look for opportunities to “pay it forward” in your industry?
- ▶ Enjoy mentoring and/or feeling the socioeconomic impact of your work?
- ▶ Could your expertise and energy be going into more than merely developing the next product?
- ▶ Need good business justifications for attending conferences and investing in professional development?

Intro to the IEEE

▶ More Than Just Electronics

- Founded in 1884 by Alexander Graham Bell, Thomas Edison, and other pioneers in electro-technology.
- ~0.5 M WW Members in > 160 Countries
- All Technical Disciplines
- Ethics, Socioeconomic Focus
- IEEE-USA (>150 k Members)
 - Lobbyists (CHIPS & Science Act, NIST, AI/NAIRR, Quantum, Visas, etc.)
 - Congressional Visit Day (CVD)
- IEEE *Xplore* Data Repository
 - > 1/3 of Global Technical Publications
 - Supporting >2 k Conferences & >200 k Papers Annually
- Standards (>1,100 active), Publications/Journals (>200 active)

Intro to the IEEE

▶ Regional Sections

- Long Island
- New York
- Princeton-Central Jersey
- Boston
- Connecticut
- Providence
- Worcester County
- Green Mountain
- New Hampshire
- Maine
- *...lots more!*



Various Local Chapters,
Affinity Groups, Councils,
etc.

Intro to the Power Electronics Society (PELS)

▶ IEEE Society Established in 1987, Now ~13 k Members WW

- Not Quite Pure Electronics (SSCS, EDS, CAS), Not Just Power (PES, IAS)
- 279 Chapters (125/154, regular/student)
- 885 Members (541/344, Region 1/Region 2)
- Publications, Conferences/Workshops, Standards, Awards
- **Have Large Surplus, Looking to Spend on Membership**

▶ Vision

- *To be THE global resource that all people turn to for education, knowledge sharing, technical events, and networking in the power electronics field.*

▶ Mission

- *IEEE PELS's core purpose is to foster power electronics technological innovation and excellence for the benefit of humanity.*



Intro to the Power Electronics Society (PELS)

▶ Technical Committees (TC)

- 1: Control and Modeling of Power Electronics
- 2: Power Components, Integration, and Power ICs
- 3: Electrical Machines, Drives and Automation
- 4: Electrified Transportation Systems
- 5: Sustainable Energy Systems
- 6: Emerging Power Electronic Technologies
- 7: Critical Power and Energy Storage Systems
- 8: Electronic Power Grid Systems
- 9: Wireless Power Transfer Systems
- 10: Design Methodologies
- 11: Aerospace Power
- 12: Energy Access and Off-Grid Systems

Intro to the Power Electronics Society (PELS)

▶ Types of Events

- Networking, Technical, Tours, Socials, Socioeconomic/Charitable, Mentorship, Women in Engineering (WiE), Young Professionals (YP), STE(A)M

▶ Regional Chapters

- ***Long Island***, Ron Deluca
- ***CT***, John Noon
- ***UConn (Student)***, Leila Chebbo / Ali Bazzi
- ***Princeton/Central Jersey/Philadelphia***, Vishram Deshpande
- ***CUNY (Student)***, Lea Manglicmot / Ahmed Ali Mohamed
- ***Boston***, Arshiah Mirza
- ***MIT (Student)***, Mansi Joisher / John Kassakian

**OUR
HOST!**

Intro to the Power Electronics Society (PELS)

► Resources

- IEEE vTools Event Notices (& Searchable Database)
 - <https://events.vtools.ieee.org/>
- PELS Tools
 - Home = <https://www.ieee-pels.org/>
 - Find local chapter = <https://www.ieee-pels.org/membership/chapter-locator/>
- Outreach / Socioeconomic Impact
 - Empower a Billion Lives (EBL) = <https://empowerabillionlives.org/>
 - Global Energy Access Forum (GEAF)
- Distinguished/Regional Lecturers
- Standards
- Videos (PELSTube) / Webinars / PhD Schools



Intro to the Power Electronics Society (PELS)

► Resources

- Publications

- Power Electronics Magazine
- Transactions on Power Electronics
- Open Journal of Power Electronics
- Transactions on Transportation Electrification
- Journal of Emerging and Selected Topics in Power Electronics
- Co-Sponsored Journals

- Roadmaps

- International Technology Roadmap for High-Power Electronics for Modern Energy Grids (ITRG)
- International Technology Roadmap of Power Electronics for Distributed Energy Resources (ITRD)
- International Technology Roadmap for Wide Bandgap Power Semiconductors (ITRW)



The Power Electronics Ecosystem of the Northeast

▶ Academia

- UConn, CCSU, Stony Brook, Northeastern, MIT, WPI, CUNY, Binghamton

▶ Industry

- **FOCUS:** Higher Power, MIL/High Rel, Industrial, HV/Drives, Semis, Medical/Bio, Transportation
- Otis Elevator Company, Eversource, Electric Boat, Triumph Group, Collins Aerospace/RTX, Sikorsky/LM, Fairbanks Morse Defense, ISO New England

▶ Consortia

- Eversource Energy Center (UConn)
- CT Power Electronics CoE (CONPEX, UConn)
- National Renewable Energy Laboratory (NREL)



The Power Electronics Ecosystem of the Northeast

► Opportunities / Activities

- IEEE Regional Events

- LI Systems, Applications and Technology Conference (LISAT)
- CT Section AGM (other societies hold events for Section)
- R1/2 WiE Forum USA East
- Robotics/STEM Stuff
- Yale Engineering

- PELS Chapter Events (talks, tours, workshops, socials, etc.)

- Long Island Power Electronics Symposium (LI PES)
- PELS Day
- Major Conferences (APEC, ECCE, WiPDA, etc.)
- Commonly Partner with other IEEE Groups (IAS, PES, etc)

- Consortia Events (workshops, conferences, etc.)

- Northeast Power Electronics Symposium (NEPES 2024): **11/21-11/22 @ UConn**
- Sustainable Clean Energy Summit



PELS Day Highlight

- ▶ PELS Day is June 20th!
 - Opportunity to celebrate the founding of PELS in 1987
 - Spread awareness of our society and profession
- ▶ Global event will occur on June 20th
 - 2023: presentation by Prof. Dushan Boroyevich
 - 2024: presentation by Prof. Thomas Jahns and Dr. Joseph Kozak
- ▶ Prizes, events, and contests will kick off June 1st



Join PELS for **FREE** right now!!!

Join PELS Today & Be a Part of Powering a Sustainable Future

Simply sign into your IEEE account and add
[Power Electronics Essential Membership](#)
to your shipping cart.

Enter Promotional Code: **PELSTRYUSE**

***This code is valid for complimentary PELS Essential Membership.
New members must have an active IEEE Membership to join.**

“Go plant a seed and harvest it!”

Thanks so much for listening!!!

Any questions?

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*“When the music’s over
Turn out the lights”*

– The Doors, When the Music’s Over

