

# THE IEEE NORTH JERSEY SECTION NEWSLETTER

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# Message from the IEEE North Jersey Section Chair Dr. Ajay Poddar

I welcome all the Section ExCom members, and

wish everyone a happy, healthy and successful new year. While the year 2021 is now behind us, we had many learning lessons due to the global Covid-19 pandemic. As we

move ahead, and share the lessons learned, new ideas, and widened outlooks, I am seeing more hybrid (virtual and inperson meetings/events) engagements. One area that we will emphasis as we move along is SDGs (Sustainable Development Goals) environed by UN (https://sdgs.un.org/goals). There is no reservation that virtual events, working from home, and the reduction in overseas travels led to a positive environmental impact but at the cost of human emotional connection and vitality. The question arises, how can we accomplish balance in our approach as we re-boot our events? Planning an event during a pandemic naturally comes with a degree of risk. We are committed to focusing on ways we can show Section leadership and make progress in sustainability for our events for the benefit of the members.

The last two years 2020-2021 has been critical for all. I am thankful to all the North Jersey section ExCom members, Committee Chairs, and Chapter Officers for their volunteering services, support and cooperation in times of need to engage and motivate our members, young professionals, and students.

As we gaze forward to the assurance of a new year, we would like to look back and be thankful for sustaining despite the worldwide health crisis caused by the worst pandemic, and be able to meet adversity with a positive hope for a better tomorrow in 2022. In that spirit, our section has successfully held 160 plus events, as per vTools entries. In addition to this, four new Chapters were formed, listed below.

- 1. Formation of IEEE North Jersey SIGHT (Special Group on Humanitarian Technology), March 2021 https://sight.ieee.org/
- 2. Formation of IEEE North Jersey SSIT (Society on Social Implications of Technology), June https://technologyandsociety.org/
- 3. Formation of IEEE North Jersey CIS (Computational Intelligence Society), Sept 01, 2021 https://cis.ieee.org/
- 4. Formation of IEEE North Jersey Section NC (Nanotechnology Council Chapter), Sept 14, 2021 https://ieeenano.org/

We wish the new chapters much success in 2022 by organizing many successful events for the benefit of members.

Other highlights of the year 2021 can be summarized as:

- North Jersey Section Representation at IEEE R1 BOG Meeting, Aug 20, Aug 29
- IEEE NJAC (North Jersey Advanced Communication) Symposium, Virtual, Sep. 18, 2021
- IEEE North Jersey Section Membership Engagement and Picnic, In-Person meeting, Sept 26, 2021
- IEEE AP/MTT Symposium and Mini-Show, In-person, October 07, 2021
- IEEE North Jersey Section Girl Scout STEM Workshop
- Student Membership Drives: NJIT, FDU and Stevens: 100 plus new student Members, Aug-Nov 2021
- Year-End Dinner Event, Nov 30, 2021-held in person

The Humanitarian Activities community provides a forum for the sharing of information, ideas, and inspiration related to improving living conditions of the underserved around the world. IEEE North Jersey Section initiates STEM and Humanitarian Project Activities towards enabling the vision that IEEE will possess a large network of next generation students and young professional volunteers for carrying out and/or supporting impactful humanitarian activities on the local level. I encourage one and all to attend technical events cosponsored by our Section, stay current with opportunities and gain insights around the community's shared interests including location, or career pursuits, network with like-minded people, discover and receive answers to technical and professional questions.

As the COVID-19 Vaccine Booster Dose is now available it is highly recommended to take it for better protection from Covid variants and also follow the guidelines for holding in-person Chapter events. We look forward to the year 2022 with a hope to return to normalcy. Our North Jersey Section will support AP-S COPE (Committee on Promoting Equality). ISV (IEEE Smart Village), SIGHT (Special Interest Group on Humanitarian Technology), HAC (Humanitarian Activity Committee), and Try Engineering Project for spreading the Science and Engineering Education as an outreach effort for the community.

During my Section Chairmanship, IEEE North Jersey section has a call to action to its ExCom members and Chapter Officers to cultivate professional and educational agendas promoting and supporting capacity building for engineering and technical professionals in the schools where those resources are negligible.

You do not have to be an IEEE member but prior registration is encouraged to attend any event. IEEE North Jersey Section Website The Section Executive Committee Roster

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https://iln.ieee.org/public/TrainingCatalog.aspx



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With articles, infographics, and course news, the IEEE *Innovation at Work* blog is a hub for continuing education resources. Subscribe to stay up to date on the latest technologies and what you need to know to succeed as a technical professional!



IEEE Try Engineering aims to empower educators to foster the next generation of technology innovators by providing resources, lesson plans, and activities that engage and inspire. Sign up to receive the latest news and information for educators, students, and. students, and others interested in engineering education.

The *TryEngineering Summer Institute Scholarship* is a need-based scholarship that offers financial assistance to students interested in attending the TryEngineering Summer Institute. There are a limited number of full and partial scholarships for each location.

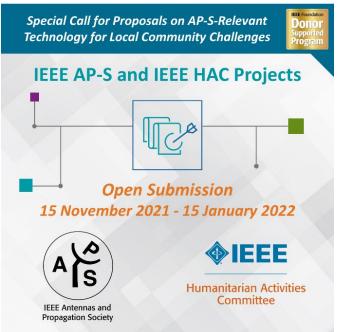
- A full scholarship is the equivalent to full tuition.
- A partial scholarship is the equivalent to 50% off the tuition cost.

The scholarship may only be applied towards the reduction of Summer Institute tuition for the year of application. It cannot be used towards related expenses such as, but not limited to, travel and purchase of individual Summer Institute supplies AdCom member

incurred before, during or after attendance. If the student is selected, the scholarship will be applied directly to the student's tuition balance. The scholarship is not tax deductible. Know a student who has a passion for engineering, nut who doesn't have the financial means to attend the program? Let them know to apply for a need-based scholarship before 1 April 2022!

Scholarships - TryEngineering Summer Institute (ieee.org)

# IEEE Antennas and Propagation Society (AP-S) and IEEE HAC Call for Proposal



IEEE AP-S and IEEE HAC are currently offering a **special Call for Proposals to support AP-S Chapter projects** that utilize AP-S-relevant technology to address local community challenges. The Call is open through 15 January 2022. Awards of up to US\$3,000 will be made to selected projects that present a convincing plan to a) understand the real needs of a local community or local stakeholder organization and b) complete in no more than six months' time a pilot project utilizing AP-S-relevant technology to address those local community challenges. *The Call for Proposals is supported in part by the IEEE SIGHT Fund of the IEEE Foundation*. For detail information, contact Dr. Anisha Apte (anisha\_apte@ieee.org), member AP-S SIGHT and elected IEEE AP-S AdCom member, 2022-2024.

I wish all the members good health and a productive time ahead.

Ajay Poddar, IEEE North Jersey Section Chair

### IEEE – IMPORTANT EVENTS, ARTICLES, ANNOUNCEMENTS AND REMINDERS:

- This Month's Communications Society News from Around the World
- "Concrete Barriers" An article by Harry Roman for the January Newsletter

#### **Concrete Batteries**

From Sweden comes news of a new concrete battery-yes, you heard that right, concrete.

Recalling the original Edison nickel-iron batteries, Swedish researchers use the same metal electrode combination in their unusual battery. The concept involves a cement-based mixture [electrolyte], with small amounts of short carbon fibers added. Embedded within the mixture is a metal-coated carbon fiber mesh -- iron for the anode, and nickel for the cathode. And there are the main components of the battery!

Batteries like this are a way to store renewable energy during peak production times (like the sunniest part of the day for solar cells, or the windiest days for wind turbines) and feed it back into the grid during peak usage times. Imagine a cement building becoming a giant storage battery, turning our most versatile building material into a valuable storage technique. Why not sidewalks as long storage batteries?

Concrete's "energy per unit volume" isn't very big, but we use so much cement that the small energy amount quickly adds up. For comparison, lithium-ion batteries (small, but very powerful) have an energy density of about 250-to-350-watt hours per liter (Wh/L). Swedish scientists found prepared concrete rates at just 0.8 Wh/L. While this would perform way below almost any existing material that touts itself as a battery, our way of life requires so much concrete there will always be a huge, steady supply into which we can tap.

Talk to you again soon...

Harry

Harry T. Roman, Life Senior Member Author & Advisor, Edison Innovation Foundation (Retired-PSE&G Co.) htroman49@aol.com



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### **Calendar of Events**

# **Current Events – January Events**

<b>Date and Time</b>	Title
11 Jan 2022 12:00 PM to 01:00 PM	Technology Enablers for 21st Century Applications in mm-wave Communications and Nanomedicine: North Jersey Section Jt Chapter, AP03/MTT17, CAS04/ED15, EMB18  Location: Required - External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Durga Misra, (dmisra@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org), Har Dayal ( Speaker: Prof. Rhonda Franklin of Department of Electrical and Computer Engineering University of Minnesota
12 Jan 2022 06:30 PM to 08:30 PM	IEEE North Jersey Section - EXCOM - Zoom: North Jersey Section  Location: Required - External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Adriaan van Wijngaarden (avw@ieee.org)
13 Jan 2022 06:30 PM to 09:30 PM	Arduino PRO for Telecommunications, IoT, and Industry 4.0: North Jersey Section Affinity Group, CNNNI Location: Required - External Registration Link Required - vTools Registration link Contact: info@technologyontap.org  Speaker: Massimo Sacchi (@MassimoSacchi7), Corporate Partnerships Manager at Arduino Pro
18 Jan 2022 11:00 AM to 12:00 PM	Advances in C-V2X and automotive connectivity: North Jersey Section Jt Chapter, AP03/MTT17, CAS04/ED15  Location: Required - External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Durga Misra (dmisra@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speaker: Holger Rosier of Rohde & Schwarz, Daniel Ion of Rohde & Schwarz
26 Jan 2022 04:45 PM to 06:30 PM	SDR: Past, Present, and Future: North Jersey Section Jt Chapter, CAS04/ED15, AP03/MTT17  Location: Required - External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Durga Misra, (dmisra@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speaker: Prof. Cherif Chibane of New Jersey

## **Past Month's Events – November and December Events**

<b>Date and Time</b>	Title
02 Nov 2021 02:00 PM to 03:00 PM	From design to real RF device - connecting EDA simulation and hardware test: AP03/MTT17  Location: Required - Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speakers: Markus Loerner of Rohde & Schwarz, Dr. Gent Paparisto of AWR Group, Cadence
03 Nov 2021 06:30 PM to 08:30 PM	IEEE North Jersey Section - EXCOM - Zoom: North Jersey Section  Location: Required - vTools Registration link  Contact: Adriaan van Wijngaarden (avw@ieee.org)
09 Nov 2021 12:00 PM to 01:00 PM	Avoiding RF Isolators - Reflectionless Filtering Components for Emerging Wireless Systems: AP03/MTT17  Location: Required - Registration link Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org) Speaker: Prof. Roberto Gomez-Garcia of Department of Signal Theory and Communications, University of Alcalá, Alcalá de Henares, Spain.
10 Nov 2021 12:00 PM to 01:00 PM	1. Interference Hunting in a 5G World: What you Need to Know, 2. Investigate RF power amplifier linearization benefits in EDA - including a comparison to hardware test: AP03/MTT17  Location: Required - Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speaker: Peter Busch of Rohde & Schwarz International GmbH, Dr. Florian Ramian of Rohde & Schwarz
12 Nov 2021 09:00 AM to 11:00 AM	Distribution Voltage Regulation Seminar - Parts 9 & 10: North Jersey Section Chapter, PE31 Affinity Group, LM North Jersey/Prin-Ctr Jersey Jt Sections Chapter, IA34, LM10327  Location: Required - vTools Registration link Contact: Ronald Quade (rwquade@ieee.org) Speaker: Bob McFetridge of Beckwith Electric
14 Nov 2021 10:00 PM to 11:00 PM	Augmentation of Integral Equations for Low-Frequency Analysis of Electromagnetic Problems: AES10, AP/MTT, ED/CAS, RA/EMBS/TM  Location: Required - vTools Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speaker: Prof. Meisong Tong of Tongji University
15 Nov 2021 06:00 PM to 08:00 PM	From ENGINEERING ELECTROMAGNETICS to ELECTROMAGNETIC ENGINEERING: Teaching/Training Next Generations: AP03/MTT17, CAS04/ED15  Location: NJIT, Room ECEC 202, 154 Summit Street, Newark, NJ 07102  Required - vTools Registration link  Contact: Dr. Ajay K. Poddar, (akpoddar@ieee.org), Prof. Edip Niver, (edip.niver@njit.edu) Prof. Durga Misra (dmisra@ieee.org), Dr. Anisha M. Apte, (anisha_apte@ieee.org)  Speaker: Dr. Levent Sevgi of OKAN University, Engineering Faculty, Tuzla – İSTANBUL
18 Nov 2021 06:30 PM to 09:30 PM	New audio/video/wireless technologies for Home Entertainment - Part 1: North Jersey Section Affinity Group, CN  Location: Required -External Registration link  Contact: cnnnj0@technologyontap.org  Speaker: Aldo Cugnini

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20 Nov 2021 05:00 PM to 06:00 PM	COPE PROJECTS: Try Engineering, Student Workshop and STEM Program: North Jersey Section Jt Chapter, AP03/MTT17, SIGHT177, YP10327
	Location: Required -External Registration link Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org) Speaker: Prof. Felix Vega, Dr. Ajay Poddar
24 Nov 2021 11:00 AM to 12:00 PM	How to ensure Multi Gigabit automotive Ethernet compliance with OPEN Alliance TC15: North Jersey Section Jt Chapter, AP03/MTT17  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speaker: Dimitrakopoulos of Rohde & Schwarz, Jithu Abraham of AWR Group, Cadence
28 Nov 2021 09:00 AM to 11:00 AM	Recent advances in Photonics: North Jersey Section AP03/MTT17, CH01178, PHO36  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Dr. Naresh Chand (chandnaresh@gmail.com),  Speaker: Dr. Naresh Chand
30 Nov 2021 06:00 PM to 09:30 PM	IEEE North Jersey Section End-of-the-Year 2021 Dinner Meeting Event: North Jersey Section  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Adriaan van Wijngaarden (avw@ieee.org)  Speaker: Prof. Atam Dhawan
01 Dec 2021 08:30 AM to 09:30 AM	The Nuts and Bolts (and Qubits) of Quantum Computing: North Jersey Section, AP03/MTT17  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), David Gil, Berkeley Nucleonics dgil@berkeleynucleonics.com  Speaker: David A. Brown of Berkeley Nucleonics
01 Dec 2021 02:00 PM to 03:00 PM	Investigate RF power amplifier linearization benefits in EDA - including a comparison to hardware test: North Jersey Section Jt Chapter, AP03/MTT17  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speakers: Dr. Gent Paparisto of RF Solutions Architect, Cadence, Dr. Florian Ramian of Rohde & Schwarz
09 Dec 2021 12:00 PM to 01:00 PM	Four phases of the holistic 5G network optimization, AP03/MTT17  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speaker: Arnd Sibila of Rohde & Schwarz; Magnus Hylén of Rohde & Schwarz
10 Dec 2021 09:00 AM to 11:00 AM	Enabling Large-Scale Commercial EV Fleet Charging Through A "Grid To Plug" DC Distribution Approach: North Jersey Section Chapter, PE31, IA34, LM10327  Location: Required -External Registration link Contact: Ronald Quade (rwquade@ieee.org) Speaker: Daniel Simounet of Hitachi Energy
14 Dec 2021 09:00 AM to 11:00 AM	Opportunities, Ideas and Challenges: Calling for Humanitarian Technology Innovations, AP03/MTT17  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speakers: Dr. Ajay Poddar

14 Dec 2021 12:00 PM to 01:00 PM	What Every Microwave Engineer Should Know About Quantum Computing  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speakers: Dr. David E. Root of Keysight Laboratories, Keysight Technologies, Inc.
14 Dec 2021 11:45 PM to 15 Dec 2021 12:45 AM	Innovative Trends in Communication  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speakers: Dr. Naresh Chand
15 Dec 2021 06:00 PM to 07:30 PM	Our Planet's Sustainability Crisis in 2021: Realizing the promise of smart and connected cities By Carlos E. Jimenez-Gomez, BEng, MSc, MA: North Jersey Section Chapter, SIT30  Location: Required -External Registration link Contact: Kirit Dixit (kdixit@ieee.org) Speaker: Carlos E. Jimenez-Gomez
16 Dec 2021 06:30 PM to 08:30 PM	New audio/video/wireless technologies for Home Entertainment - Part 2: North Jersey Section Affinity Group, CN  Location: Required - External Registration link  Contact: cnnnj0@technologyontap.org  Speaker: Aldo Cugnini
21 Dec 2021 07:00 AM to 09:00 AM	Microwave and Wireless Technology: Calling for Humanitarian Technology Innovations AP03/MTT17  Location: Required -External Registration link  Contact: Ajay Poddar (akpoddar@ieee.org), Edip Niver (edip.niver@njit.edu), Anisha Apte (anisha_apte@ieee.org)  Speakers: Dr. Ajay Poddar

## **2021 IEEE North Jersey Section Volunteers**

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Co-Chair -Edip Niver niver@adm.njit.edu

Co-Chair – Anisha Apte anisha\_apte@ieee.org

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Chair - Vacant

Membership Development Chair - Michael Newell msnewell@ieee.org

MTT/AP Trade Show and Symposium

Chair - Kirit Dixit kdixit@ieee.org Vice-Chair - Har Dayal dayalhar@gmail.com

TPC Co-Chair - George Kennall gkk@lgsinnovations.com TPC Co-Chair - Ajay Poddar akpoddar@synergymwave.com

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