

Reports from AP-S Committees & Activities

WIRELESS, ANTENNA, AND MICROWAVE SYMPOSIUM 2023

Report by: Dhaval Pujara and Sudhakar Rao 

The second edition of the Wireless, Antenna, and Microwave Symposium (WAMS 2023) was held at the Pandit Deendayal Energy University (PDEU) in Gandhinagar, India, from 7 to 10 June 2023. The conference focused on providing an affordable yet state-of-the-art international forum for students and young professionals, giving them a platform to interact with leading worldwide experts. The conference received an overwhelming response with 270 paper submissions and more than 300 attendees. WAMS 2023 was sponsored by the IEEE Antennas and Propagation Society (AP-S), IEEE, IEEE AP-S/Microwave Theory and Technology Society (MTT-S) Gujarat Chapter, Institution of Electronics and Telecommunication Engineers, and 10 industrial sponsors and exhibitors, including Diamond Microwave Chambers Ltd., Custom Microwave Inc., QuadGen, RaoS Consultants LLC, Aetos, ECIL, Jyoti Electronics, 3D Engineering, and PDEU. WAMS 2023 included 24 technical sessions, five keynote talks, four invited talks, eight special sessions, and a poster session. In addition, the conference included sessions on IEEE Young Professionals (YP), Women in Engineering (WIE), and IEEE student

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WAMS 2023 began with an inaugural session with a traditional lamp-lighting ceremony followed by opening remarks by Dr. Dhaval Pujara, general chair, WAMS 2023, who delivered a welcome address and expressed gratitude to the delegates for their contribution and active participation. Dr. Sudhakar Rao, the founding member of the WAMS Society and the AP-S liaison, briefed the audience about WAMS society's objectives, mission, and future plans. Rao emphasized the society's commitment to nurture and promote students and young researchers by creating a platform where they can present their work and interact with experts. Prof. Ramana Reddy, the Technical Program Committee (TPC) chair, presented the paper statistics and the details of the rigorous paper review process followed by the TPC. Patrons Mr. Nilesh Desai, director of the Space Applications Center (SAC), Indian Space Research Organisation (ISRO), and Prof. S. Manoharan,

director general of the Pandit Deendayal University, welcomed all of the delegates and presented their views on the role of the multidisciplinary symposiums like WAMS 2023 in the growth of society. Dr. Nacer Chahat from the Jet Propulsion Lab (JPL), National Aeronautics and Space

Administration (NASA), USA, emphasized the significance of collaboration and teamwork in accomplishing tasks, highlighting the importance of collective efforts in achieving technological breakthroughs.

The symposium booklet comprising the technical program and the abstracts of the technical papers was launched by the dignitaries, as shown in Figure 1. Exhibition showcasing the state-of-the-art advancements in antenna, microwave, and wireless was unveiled for the delegates to explore and engage with industry representatives. Figure 2 shows a photograph of the attendees in the main auditorium of PDEU. Dr. Rao, in his keynote address, highlighted the pivotal role of the IEEE in advancing engineering vocations and the advancement of technology and presented inspiring messages from the IEEE president, Prof. Saifur Rahman, and the AP-S president, Prof. Stefano Maci. Other keynote talks were given by Dr. Nacer Chahat (NASA/JPL), Dr. C.S. Rao (QuadGen), Mr. Rajeev Jyoti (In-SpaCe), and Prof. Levent Sevgi (ATLAS University, Istanbul). Invited talks were given by Dr. Nasiruddin

(Institute for Infocomm Research, Singapore), Dr. Jorge Teniente (Public University of Navarra, Spain), Prof. Desmond Sim (Feng Chia University, Taiwan), and Dr. Ashutosh Kedar (Electronics and Radar Development Establishment, Bangalore), covering all tracks of WAMS. Several delegates visited the Akshardham Temple in Gandhinagar, facilitating a cultural and social experience outside the purview of the symposium. The visit allowed attendees to appreciate the temple's architectural beauty and cultural significance and network with other participants and experts. Sessions on WIE, student activities, and YP attracted a lot of the audience,

where student papers were presented for awards selection. About 25 awards were given during the awards dinner banquet on 9 June 2023 and most of the awardees were students and YPs.

The symposium successfully concluded with a valedictory session with encouraging feedback from attendees. It was announced that WAMS 2024 shall be held at Raghu Institute of Technology (RIT), Visakhapatnam, from 29 February to 3 March 2024, with Prof. P.S.R. Chowdary as the general chair and Prof. C. Vedula as the TPC chair. Make plans to attend and enjoy the beach city hospitality by the WAMS 2024 organizing committee!

SUPPLEMENTARY MATERIAL



IEEE INTERNATIONAL WORKSHOP ON ANTENNA TECHNOLOGY 2023

Report by: Shuai Zhang^{ID} and Zhinong Ying^{ID}

The 2023 IEEE International Workshop on Antenna Technology (iWAT) was held as an on-site event just after the COVID restriction was removed in many countries worldwide. It was hosted at the Aalborg University Campus, Aalborg, Denmark, from 15 to 17 May 2023.

Aalborg is Denmark's fourth largest city and a lovely town. The city center of Aalborg, dating from the Middle Ages, lies on a series of clay banks between the former streams of Vesterå and Lilleå, which used to run into the sound.

iWAT 2023 was organized by Aalborg University. The workshop was sponsored by several industry partners (e.g., Microwave Vision, Huawei, TICRA, TMYTEK), *Sensors* (an open access journal by Multidisciplinary Publishing Institute), the European



FIGURE 1. Inauguration of WAMS 2023 by the dignitaries. Left to right are Dr. Manisha Shah, treasurer, IEEE Gujarat Section; Dr. Kiran Amin, chair, IEEE Gujarat Section; Dr. Rakesh Kumar, PDEU; Dr. Dhaval Pujara, general chair; Shri Nilesh M. Desai, director, SAC, ISRO; Dr. Sundar Manoharan, director general, PDEU; Dr. Sudhakar Rao, WAMS society advisor; Dr. Nacer Chahat, NASA/JPL; Dr. Ramana Reddy, TPC chair; and Dr. G. P. Pandey, PDEU.



FIGURE 2. Group photograph with attendees taken in the main auditorium of PDEU.

Association of Antennas and Propagation, and was technically supported by AP-S.

iWAT is an annual forum for the exchange of information on the progress of R&D in innovative antenna technology. The event especially focuses on small antennas and applications of advanced and artificial materials for antenna design. iWAT has single-track invited oral presentations by prominent researchers and poster sessions that facilitate valuable interaction and networking among the delegates. iWAT is run as a series of annual international antenna workshops. It has been held in Singapore, Singapore (2005); White Plains, NY, USA (2006); Cambridge, UK (2007); Chiba, Japan (2008); Santa Monica, CA, USA (2009); Lisbon, Portugal (2010); Hong Kong, China (2011); Tucson, AZ, USA (2012); Karlsruhe,

iWAT has single-track invited oral presentations by prominent researchers and poster sessions that facilitate valuable interaction and networking among the delegates.

Germany (2013); Sydney, NSW, Australia (2014); Seoul, South Korea (2015); Orlando, FL, USA (2016); Athens, Greece (2017); Nanjing, China (2018); Miami, FL, USA (2019); Bucharest, Romania (2020); and Dublin, Ireland (2022). A total of about 120 representatives from 27 countries or regions around the world attended this event.

The members of the organizing committee included the following: general co-chairs are Shuai Zhang, Aalborg University, Denmark and Zhinong Ying, Sony Research Center, Sweden. General vice-chair is Gert Frølund Pedersen, Aalborg University, Denmark. International Advisory Committee (IAC) chairs are Zhi Ning Chen, National University of Singapore, Singapore and Raj Mittra, The Pennsylvania State University, PA, USA. Technical Program Committee chairs are Jiang Zhu, Meta Reality Labs, USA and Ville Viikari, Aalto University, Finland. Paper Competition chairs are Tim Brown, University of Surrey, UK and Peng Mei, Aalborg University, Denmark. Sponsorship chair is Kun Zhao, Sony Research Center, Sweden. Exhibition chair is Daniel Serup, Aalborg University, Denmark. Publication chair is Peng Mei, Aalborg University, Denmark. Local Arrangements chair is Igor Strytsin, Aalborg University, Denmark. Finance chair is Diana Sokurova Gøttler, Aalborg University, Denmark. Administrative chair is Yang Cai, Aalborg University, Denmark.

The iWAT 2023 welcome reception was held at the AAU Science and Innovation Hub, Thomas Manns Vej 25, 9220 Aalborg, Denmark on the evening of 14 May 2023 (Figure 3).

In total, there were 87 high-quality technical-scientific contributions, which included six keynote speeches, 32 invited oral presentations, and 49 technical interactive posters (see www.iwat2023.org).

A lab tour to visit the antennas, propagation, and millimeter-wave system (APMS) section at Aalborg University was organized. The address of the APMS lab is Selma Lagerlöfs Vej 312, 9220 Aalborg Øst, Denmark, which is walking distance from the conference venue; it was appreciated by all conference delegates.

The gala dinner was held at the Restaurant Kronborg (Egholm)



FIGURE 3. iWAT 2023 at AAU Science and Innovation Hub.



FIGURE 4. Announcement of best paper awards at the gala dinner of iWAT 2023.

on 16 May 2023; the general chairs addressed the acknowledgments to the conference sponsors, volunteers, and contributors, IAC chair Prof. Zhining Chen described iWAT's 18 years of history and some memories.

The winners were announced by Prof. John Volakis at the gala dinner, held at the Restaurant Kronborg (Egholm). The winner of the best paper had pictures (Figure 4) with the chairs.

During the conference gala dinner, it was also announced by Prof. Qiang Chen that the 2024 iWAT conference is to be held in Tohoku, Japan, where the Yagi-Uda antenna was invented 100 years ago.

SUPPLEMENTARY MATERIAL



AP-S CHAPTER ACTIVITIES

Committee Chair: Ajay Poddar

Report by: Meisong Tong^{1b} and Ajay Poddar^{1b}

NEW AP-S CHAPTERS

- Formation of New York Section Joint Chapter MTT17/AP03/PHO36/NANO42, geo-code CH01296, 11 May 2023.
- Formation of Asansol Engineering College AP-S Student Branch Chapter (SBC) in the Kolkata Section, geo-code SBC41641782A, 29 May 2023.
- Formation of Vizag Bay Section AP-Society Chapter, geo-code CH11072, 18 June 2023.
- Formation of Kazakhstan Electronics Packaging, Microwave Theory and Technology, Antennas and Propagation, Circuits and Systems Joint Societies and Council on RFID Joint Chapter, geo-code CH08138, 16 June 2023.
- Formation of Sri Sai Ram Engineering College AP-S SBC in

the Madras Section, geo-code SBC60981AE, 24 June 2023.

- Formation of Military Institute of Science and Tech AP-S SBC in the Bangladesh Section, geo-code SBC15251, 17 July 2023.

If any of you reside in a location where you do not have access to an existing AP-S chapter and are interested in establishing a new one, please contact Chapter Activity Committee (CAC) chair, Dr. Ajay Poddar (akpodar@ieee.org) and AP-S chapter region coordinators for guidance through the petition process. Start by researching your area, then decide which route will best suit your needs and support a healthy, active society/technical council chapter environment (<https://mga.ieee.org/resources-operations/geographic-unit/chapters/how-to-create-a-new-ieee-chapter>).

As of 30 July 2022, there are 38 independent chapters, 110 joint chapters, and 77 SBCs for a total of 225 chapters (<https://tblanalytics.ieee.org/>). Many chapters have organized numerous technical seminars, workshops, outreach drives, Committee on Promoting Equality (COPE) projects (<http://aps-cope.org/>), Special Interest Group on Humanitarian Technology (SIGHT) projects (<https://sight.ieee.org/>), and social events at the chapter and regional levels. We would like to welcome and express gratitude to many new chapter officers for their time and hard work for the benefit of IEEE members.

2023 OUTSTANDING AP-S CHAPTER AWARD

This year, a total of 16 Outstanding Chapter Award nominations were sent to the CAC, of which three were selected as finalists. The chapter award consists of a plaque, US\$1,000, and a travel grant for attending an award event and chapter chairs meeting (CCM), complimentary conference registration, and award banquet ticket. Choosing the award winner is a rigorous process because it involves many factors (technical events, involvement with local IEEE volunteers, membership drive, STEM activities, humanitarian projects, mentoring new volunteers,

and engagement); the members of the Chapter Award Committee were: Prof. Gianluca Lazzi (2022 AP-S president) as chair and Dr. Ajay K. Poddar (Chair of AP-S CAC) as coordinator. Voting members were AP-S CAC members (<https://ieeeps.org/committees/current-committee-members>)

2023 AP-S OUTSTANDING CHAPTER AWARDS RECIPIENTS

- In first place was the IEEE AP/MTT Bangalore Joint Chapter: chair: Mr. Puneet Kumar Mishra; vice-chair: Dr. Chandrakanta Kumar; treasurer: Dr. Mahesh Appajappa; secretary: Dr. Ashutosh Kedar.
- In second place was IEEE AP/MTT New South Wales Joint Chapter: Chair: Dr. Yang Yang; vice-chair: Ms. Hijab Zahra; treasurer: Dr. Arslan Kiyani; secretary: Dr. Syed Muzahir Abbas, chair 2022.
- In third place was AP-S Indian Institute of Space Science and Technology (IIST) AP-S SBC Kerala Chapter: faculty advisor: Dr. Chinmoy Saha, AP-S CAC member; chair: Mr. Dipankar Saha; vice-chair: Ms. Kathu Sudevan; secretary: Ms. Shriya Kapoor.

Figure 5 shows the photo of the AP-S CCM and AP-S COPE joint luncheon meeting during the 2023 AP-S International Union of Radio Science USNC-URSI Symposium, held on Thursday, 27 July 2023, 12:00 to 4:30 p.m. (Pacific Time, Los Angeles), venue: Deschutes C (Hyatt Regency Portland, OR, first floor). The meeting was very successful, presented by AP-S leaderships and committee chair [Stefano Maci, AP-S president; Branislav M. Notaros, AP-S president elect; Camila Albuquerque, AP-S Administrative Committee (AdCom) member; Gianluca Lazzi, chair Chapter Award Committee; Koichi Ito, chair New Technology Directions Committee; Sima Noghianian, AP-S AdCom member; Claire Migliaccio, AP-S Diversity, Equity, and Inclusion (DEI) Committee chair; Debatosh Guha, chair



FIGURE 5. Photo of AP-S CCM and AP-S COPE Joint Luncheon meeting during the 2023 IEEE AP-S USNC-URSI Symposium, held on Thursday, 27 July 2023, 12:00 to 4:30 p.m. (Pacific Time, Los Angeles), at Deschutes (Hyatt Regency Portland, first floor). Front row, sitting, from left: Sima Noghianian, AP-S AdCom member; Claire Migliaccio, AP-S DEI chair; Debatosh Guha, chair AP-S MGA; C.J. Reddy, AP-S AdCom member; Cynthia M. Furse, chair AP-S Award Committee; Yahia Antar, cochair AP-S CAC, Ajay Poddar, chair AP-S CAC; Anisha Apte, AP-S AdCom member; Satish Sharma, finance chair 2023 AP-S USNC-URSI Radio Science Meeting.

AP-S Member and Geographic Activities (MGA); C.J. Reddy, AP-S AdCom member; Cynthia M. Furse, chair AP-S Award Committee; Yahia Antar, cochair AP-S CAC, chair AP-S CAC; Anisha Apte, AP-S AdCom member; Chinmoy Saha, AP-S R10 CAC coordinator; Jawad Siddiqui, chair AP-S SIGHT; Ashwin K. Iyer,

AP-S AdCom member; Reyhan Baktur, AP-S AdCom member; Jiro Hirokawa, AP-S AdCom member], invited speaker Mr. Sampathkumar Veeraraghavan, IEEE Eta-Kappa Nu (HKN) president and past IEEE Humanitarian Activities Committee chair, AP-S chapter chairs, and AP-S volunteers.

Figure 6 shows the photo of invited distinguished speakers of 2023 AP-S USNC-URSI Radio Science Meeting plenary talks and AP-S leaderships, plenary event held on Monday, 24 July 2023 from 3:30 to 6:20 p.m., (Pacific Time, Los Angeles), venue, Oregon Convention Center, Portland, OR, USA. Dr. Yihong Qi, first plenary speaker, gave a talk with the title “Narrowing the Gap Between Theoretical Research and Real-World Practice for EM Engineering.” Qi is an engineer, scientist, inventor, entrepreneur, and adjunct professor. He is president and chief scientist of General Test Systems. He is the founder of five high-tech companies, including multibillion-dollar company Sunway Communications. Qi is an inventor of more than 500 published and pending patents, has published 150 academic papers, is a distinguished lecturer (DL) of AP-S, a fellow of the Canadian Academy of Engineering, a fellow of the National Academy of Inventors, and an IEEE Fellow.

The second speaker, Prof. Monisha Ghosh, gave a talk titled “The New Mid-Band for Next-Generation Terrestrial Broadband Systems: 7–24 GHz.”



FIGURE 6. Photo of 2023 AP-S USNC-URSI Radio Science Meeting plenary talks and AP-S leaderships, plenary event held on Monday, 24 July 2023, 3:30 to 6:20 p.m. (Pacific Time, Los Angeles) at the Oregon Convention Center, Portland, OR, USA. From left: Prof. Vladimir Okhmatovski, chair APS Membership and Benefits Committee; Prof. Monisha Ghosh, electrical engineering, University of Notre Dame, IN, USA; Mr. R. Todd Parris, principal research electronics engineer Air Force Research Laboratory, Space Vehicles Directorate; Dr. Yihong Qi, president and chief scientist of General Test Systems; Dr. Ajay K. Poddar, chair AP-S CAC; Dr. Anisha M. Apte, AP-S AdCom member; Dr. Charlotte Blair, AP-S R1 CAC member; and Prof. Jamesina J. Simpson, general chair 2023 IEEE AP-S USNC-URSI Symposium.

Ghosh is a professor of electrical engineering at the University of Notre Dame, IN, USA, a member of the Notre Dame Wireless Institute, and also the policy outreach director for SpectrumX, the first National Science Foundation (NSF) Center for Spectrum Innovation and the cochair of the Federal Communications Commission's Technological Advisory Council Working Group on Advanced Spectrum Sharing. She is an IEEE Fellow, obtained her B.Tech. from the Indian Institute of Technology (IIT) Kharagpur in 1986 and her Ph.D. degree from the University of Southern California in 1991.

The third speaker, Mr. R. Todd Parris, gave a talk titled "Perspectives on Satellite Communications and Space-Based PNT Services." Parris is serving as principal research electronics engineer of the Air Force Research Laboratory, Space Vehicles Directorate. He is currently fostering research activities across space communications and space positioning, navigation, and timing, including several ongoing and upcoming space flight experiments, and research collaborations with industry and academic partners.

IEEE R10 SBC EVENTS

IEEE SBC at RIT, Visakhapatnam and at Vignan's Foundation for Science, Technology, and Research (VFSTR), Guntur organized two one-day workshops on 12 June 2023 at RIT and 14 June 2024 at VFSTR. The workshops were planned and coordinated by Dr. Sudhakar Rao together with the two IEEE SBC chairs, Ms. Sai Harshini of RIT and Mr. Raja Babu of

VFSTR. Thanks to AP-S CAC Chair Dr. Ajay Poddar, chief scientist at Synergy Microwave, NJ, USA, for providing financial support for organizing student chapter activities targeting STEM initiatives and YP activities for the benefit of local members. The details of the talks are as follows:

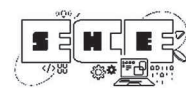
- Dr. Sudhakar Rao, RaoS Consultants LLC, Rancho Palos Verdes: "Advanced Antenna Designs for Space, Air, and Ground Communications: Simple Is Elegant!"
- Dr. Nacer Chahat, NASA/JPL, Pasadena, CA, USA: "Mars Helicopter Communication Link and Innovative Antenna Designs for CubeSats, Landers, and Rovers."
- Dr. C.S. Rao, QuadGen Wireless Solutions, Bangalore, India: "Digital Transformation in Public 5G Network Architectures w.r.t AAS & AAA."
- Prof. Desmond Sim, Feng Chia University, Taiwan: "The Development of Wideband Antenna for Vehicular Applications."
- Prof. Levent Sevgi, Atlas University, Istanbul, Turkey: "From Engineering Electromagnetics to Electromagnetic Engineering: Teaching/Training Next Generation."
- Dr. Gaurangi Gupta, NASA/JPL, Pasadena, CA, USA: "Innovative Antennas for Satellite Telecom, Radar Systems, and Radio Telescopes."
- Prof. Ramana Reddy, Jawaharlal Nehru Technological University, Anantapur College of Engineering, Pulivendula, India: "Design of Portable Wideband Antenna Using Machine Learning Approach."

A gala dinner was organized by VFSTR, where students and staff discussed their research projects with the speakers. The photos of event can be found at <https://drive.google.com/drive/folders/1V7Qv-68pBUfUy9fzc1nd99N7ZskfOdV3?usp=sharing>.

COPE CORNER

Committee Chair: Weng C. Chew

Report by: Anisha Apte 



**IEEE SOARING
HIGH-POWERED
EXCELLENCE IN**

ELECTRICAL AND COMPUTING ENGINEERING 2023 EVENT

Report by: Durga Misra and Anisha Apte

On 27 June 2023, the IEEE North Jersey Section, in collaboration with IEEE Electron Device Society (EDS), IEEE Circuits and Systems Society, AP-S COPE, and Electrical and Computer Engineering Department at the New Jersey Institute of Technology (NJIT) hosted a "One-Day Summer Camp for Female High School and Middle School Students" on the NJIT campus. The focus of the event was to encourage female students to join engineering, especially electrical engineering and/or computer engineering. The program was organized from 8:30 a.m. to 3:30 p.m. The theme was "Soaring High-Powered Excellence" (SHE) in IEEE and SHE in electrical and computer engineering (ECE) (Figure 7).

More than 80 girls entering seventh to 12th grades from the local schools attended the event. The student group included many minority



FIGURE 7. Group picture at NJIT SHE in ECE event, held on 27 June 2023.

students. Students were welcomed by Prof. Durga Misra, and spoke about the developing new technologies in high-tech industry and in space research and encouraged the young female students to be the leaders of the technology and innovation. He emphasized the role of IEEE, such as Try Engineering programs and appreciated the financial support from the various IEEE societies that supported this event.

The opening remark was given by Ms. Marjorie Perry, CEO and sole principal of MZM Construction. Perry inspired the girls to be engineers and mentioned how electrical engineers and computer engineers are leading the way from self-driving cars to communication using their mobile phones. She encouraged them to do well in the science and mathematics in school.

Following the opening keynote, a panel discussion was held. The panel consisted of women faculty members and industry leaders in the engineering field. The faculty panelists were Prof. Ratna Raj of the Department of Electrical and Computer Engineering and Prof. Kerri-lee Chintersingh, Department of Chemical and Materials Engineering. The industry panelists were, Ms. Chitra Venkatraman, retired telecommunication engineer from Nokia; Dr. Anisha Apte, senior design engineer at Synergy Microwave Corporation (AP-S COPE vice-chair); Dr. Charlotte Blair, technical manager, ANSYS, AP-S COPE committee member, and WIE chair of IEEE region 1; Ms. Carol Benitez, vice president of operations

The panelists told the students to be strong and brave as a female electrical engineer because female engineers make highly positive impact in new technology development and innovation.

at Greener by Design; and Ms. Amira Feknous, Strategic Teleport Partners at SES Satellites. The panel was moderated by Ms. Susan Gross, vice provost for enrollment management at NJIT. Most of the panel members talked about their high school days and explained how they selected their career as an engineer, especially an electrical engineer. They advised the students how they can think about selecting their career. The panelists told the students to be strong and brave as a female electrical engineer because female engineers make highly positive impact in new technology development and innovation. They also suggested exploring more about at the IEEE Try Engineering programs and the WIE initiatives to select their engineering career.

After the panel discussion, the students were divided into four groups and rotated among: a visit to Makerspace, university campus tours, a hands-on activity, and the current electrical and computer engineering female

undergraduate students' panel. In the Makerspace the students were shown 3D printing and other machines that the students use to make new things. Then a campus tour followed by a hands-on activity guided by Dr. Byron Chen, director of Labs of the ECE Department. The students were given the Snap Circuits Green Energy from Elenco Electronics and a multimeter to work on several circuits using solar energy and wind energy.

They were excited to build their projects and wanted more time. The fourth group activity was with current female ECE students to "ask anything" in an informal environment.

During lunch, Mr. Steven Eck, Director of NJIT's admission office, guided the high school seniors in the application process and declared that the application fee will be waived if they apply to the ECE Department or any engineering program for their undergraduate program at NJIT. An excellent breakfast and a hot lunch were provided to the students. Ms. Teri Bass and Ms. Ryoko Mathes of the ECE Department of NJIT worked tirelessly from January 2023 to make this event a success. Around 15 ECE students worked as volunteers to help the students have an excellent time.

The attendees were approximately distributed as follows: entering grade 9: 12%; grade 10: 22%; grade 11: 42%; grade 12: 15%; and the remaining



FIGURE 8. Interactive session at the Fergusson College Pune. Front row seated from left: Dr. Ajay Poddar, Prof. G.S Mani, Prof. Madhukar Zmabare, and many professors and students attendees seen standing, including Prof. Mandar Khurjekar.

9% were as young as entering grades 7 and 8.

Following the program, a survey was conducted to receive feedback from the female high school and middle school students. More than 50% of the students who attended the program responded. The responders were 41.3% Asian, 43.9% African American and Latino, 9.8% White, and 5.0% “other,” including American Indians. About 42% strongly agreed and about 50% of the respondents agreed that they felt they know more about the field of ECE after attending this event.

ACTIVITIES IN REGION 10

Report by: Ajay Poddar 

The IEEE Pune Section held several events, including AP-S COPE and intersocieties activities, where Dr. Ajay Poddar, AP-S COPE Committee cochair, interacted with undergrad and grad students, faculty, YPs, WIE, industry people, and local volunteers. Figure 8 shows the visit to Fergusson College Pune, a truly appropriate place for COPE activities, due to the social and educational influence of the institute. Fergusson College is an autonomous public/private college offering various courses in the streams of arts and science in the city of Pune, India that was founded in 1885 by Vaman Shriram Apte, Bal Gangadhar Tilak, Vishnushashtri Chiplunkar, Mahadeo Ballal Namjoshi, and Gopal Krishna Agarkar, who were the stalwarts as social reformers, journalists, thinkers, and educationists during the freedom movement of India under the British rule.

The visit to the Symbiosis Institute was part of IEEE intersection actives under a memorandum of understanding between Pune and North Jersey Sections, turned out to be productive and impactful. Most of the students showed great interest in becoming IEEE members. Thanks to Prof. G.S. Mani and his team for organizing the events and interactive sessions with students and also for organizing Pune–North Jersey section joint events and a visit to Tata

It started as an awareness activity in Pune region, blossomed as a technology dissemination program, and later upgraded as a national event for raising the education bar among high school children.

Institute for Fundamental Research, for interaction and engagement with students and researchers as a part of AP-S COPE, YP, and STEM activities. Poddar also joined on 12 July the IEEE Mumbai and Pune Section jointly organized IEEE Life Fellow felicitation, which was also graced by the presence of IEEE President Prof. Saifur Rehman. Many thanks also go to Dr. Surekha Deshmukh, chair IEEE Pune Section, for joint collaborative workshops and events.

On another note, Dr. Shailaja Patil represented the Pune Section in several events cosponsored by the North Jersey Section during her visit to the United States, including AP-S COPE activities.

AP-S COPE cosponsored Project Eu-Reka 2023 is going on in full swing. Eu-Reka has been a flagship activity for the IEEE Pune section for several years. It started as an awareness activity in the Pune region, blossomed as a technology dissemination program, and later upgraded as a national event for raising the education bar among high school children. Every year about 15,000 school children participate in the activity, with about 50% of them from rural areas. With Eu-Reka 2023, the goal is to improve the tempo and spread culture in areas where the response has been poor. All interactive sessions with school children will emphasize the use of technological tools and techniques for humanitarian/sustainable development purposes. Some of the suggested topics include agriculture, rural engineering, health and wellbeing, communications, space exploration and national security,

technologies for environment, climate change, and natural disasters, etc. These areas create interest and curiosity among the children.

AP-S COPE cosponsored Project SWASTH is also making good progress. The main theme of SWASTH is centered on the college students, schoolteachers, and nongovernmental organization (NGO) members working as mentors/guides where the school children assemble a low-cost microscope (called FOLDSCOPE) and use it to examine the quality of water and food available to them. The mentors help them to make slides/photos using the microscope and upload them, help them to understand the need for clean water and food and the causes for ill-health, while creating interest and curiosity among high school children about science and technology through the “learning by doing” process.

Another AP-S COPE cosponsored project, working along with local NGOs and other institutions, is a digital learning lab, planned to be setup in a school for underprivileged children of the society. Mahatma Gandhi School, Pune has been chosen for the project after careful consideration of various aspects. Founded in 2014, the school is currently catering to the education of 425 children of prisoners, sex workers, daily wagers, domestic workers, single mothers, and orphans residing in the slums of and around Yeravda in Pune. The school provides free books, uniforms, shoes, bags, stationery, sweaters, and conveyance to the children.

AP-S COPE FUNDING REQUEST DEADLINE FOR 2023 – OCT 31ST 2023

AP-S COPE aims to fund projects that provide good use of IEEE expertise exhibiting strong technological component, with clear engagement with the community, indicating that the proposed solution is both desired and feasible. It should include established relationships, ideally documented, with stakeholders who will be involved in the project, implementation with

a clear, detailed, and credible project assessment matrix, project implementation plan, and budget. The team should demonstrate combined experience to credibly execute the project, identify and address potential risks, and show the project to have real, tangible impact. If a proposal is missing the mark on two or more of these areas, it might not be ready for funding.

AREAS OF FOCUS

AP-S COPE is prioritizing immediate impact on poverty mitigation and inequality reduction through the following project areas:

- upgrading marginalized populations
- STEM education for marginalized population, information, and communications technology (ICT) for the underserved population
- sustainable power sources for the underserved population
- water, sanitation, and hygiene for the underserved population.

Projects must be successfully completed and submitted to AP-S through final reporting indicating the status of the project and utilization of funds at the end of each calendar year. Expense vouchers should be submitted as supporting documents for audit. A spreadsheet “AP-S COPE Project Budget Template 2023” should be submitted for budget proposal during application and an expense report on completion of project. Fund utilization should be clearly indicated. Each AP-S chapter/joint chapter/SBC may submit multiple proposals. Proposals are

subject to review and scrutiny and the total project funding will not exceed US\$3,000 for any calendar year. For additional funding, they are encouraged to submit a proposal to AP-S SIGHT and AP-S CAC.

AP-S chapter officers/members can fill out and submit the AP-S COPE/ Special Project Funding Request Form 2023 using the online submission link. Please use the link given below to the Google Form to submit your project proposals under the COPE mission. 2023 AP-S COPE Special-Project Funding Request Application (Google Form).

If Google Forms is not available in your region you may use the AP-S Special Project Request Form MS Word, PDF, or 2023 AP-S COPE Special Purpose Fund Request Form (MS Word). found on the AP-S website. Chapter officers can submit their write-ups, photos, videos of COPE events to be uploaded to the COPE website (aps-cope.org) and/or to be published in the *IEEE AP-S Magazine* “COPE Corner” column.

DISTINGUISHED LECTURERS

Committee Chair: Kwai Man Luk 

The call for nominations of the first IEEE MTT-S and AP-S Inter-Society DL has received overwhelming response. Under the leadership of Prof. Luca Pierantoni together with Profs. Kin Fai Tong, Debabani Choudhury, and Kwai Man Luk as members, the Selection Committee has selected Piero Angeletti, from the European

Space Agency, on the topic: “Advances in Multibeam Antennas and Beam-forming Networks,” as the first Inter-Society DL of this new initiative proposed by Prof. Ke Wu. Chapter chairs are encouraged to invite Dr Angeletti to deliver the talk to your local members and students.

The call for nominations of the IEEE AP-S DL in 2024 has been announced. The deadline for submitting nominations is on 31 August 2023. Self-nominations are also very welcome!

IEEE DISTINGUISHED LECTURE SERIES BY PROF. DEBATOSH GUHA

The series was organized by the AP-S/ MTT-S Chapter of Bangalore Section, AP-S Chapter of Madras Section, and AP-S/MTT-S IIT Kharagpur SBC.

A series of five lectures was organized in March 2023 by three IEEE units, e.g., AP-S Madras Chapter, AP-S/ MTT-S Bangalore Chapter, and AP-S/ MTT-S SBC of IIT Kharagpur. The event at Bangalore was held on 23 March 2023 at the Defense Research Officers Mess Institute conference room in C. V. Raman Nagar, Bangalore, India at 5.30 p.m. Mr. Puneet Kumar Mishra, chair AP-S/MTT-S Joint Chapter and Dr. Ashutosh Kedar, secretary AP-S/MTT-S Joint Chapter welcomed and formally introduced the speaker. Prof. Guha addressed a gathering of about 45 attendees comprising scientists from the Defense Research and Development Organisation (DRDO) and ISRO, young graduate and postgraduate students, IEEE senior members, and academicians and talked on “In Search



FIGURE 9. 23 March 2023: DL at Bangalore, India.

of Science Behind Some Antenna Innovations.” He kept everyone glued to his presentation, having a seamless flow bringing out the need to be aware and observe even simpler things, which later give rise to technological breakthroughs. It was a truly interactive and fruitful session. Dr. D.C. Pande, scientist (H) (retired), DRDO Raja Ramanna fellow, felicitated Prof. Debatosh Guha with a memento as a token of respect and gratitude (Figure 9).

The second and third DLs of the series were held at Shanmugha Arts, Science, Technology, and Research Academy (SASTRA) Deemed University, Thanjavur on 24 and 25 March 2023, and they were organized by the AP-S Madras Chapter in association with SASTRA Student Branch. Prof. Guha addressed the core RF team and young researchers in the afternoon of 24 March. In his two-hour talk and extensive interactions, Guha enlightened the research group on the topic “Metalodielectric Resonator Antenna and Its Challenges.” On 25 March 2023, he gave a talk entitled “Is It Antenna Engineering Which Transformed the Technology?” which was attended by about 50 students and faculty members. This session covered exciting insights on the origin of electromagnetics and its applications in communications, as well as various scientists involved in invention and evolution. His lecture brought many significant ideas in the minds of young researchers and at the same time clarified several doubts in the young minds. The event was conducted by Dr. Ramya Vijay under the guidance of Dr. K. Thenmozhi (Figure 10).

The fourth DL of the series was organized by the AP-S Madras Chapter in association with IEEE Student Branch and the Department of ECE of the SRM Institute of Science and Technology (IST), Kattankulathur, Chennai, India. The lecture was held on 25 March 2023 from 4.30 to 6.00 p.m. at Sir J. C. Bose Hall of the Tech Park. Guha talked on “Challenges in Antenna Research” before a group of about 35 bright antenna researchers. The event was coordinated by Dr. M. Susila, executive member, AP-S Madras Chapter and Dr. M. Sangeetha, IEEE SRM Student Branch counselor. The speaker enlightened the audience with



FIGURE 10. 24–25 March 2023: DLs at Thanjavur, India.

the technical challenges in the context of the latest technology, like artificial intelligence and machine learning in antenna engineering. Prof. T. Rama Rao felicitated Prof. Debatosh Guha with a memento as a token of appreciation.

The fifth of the DL series was held on 29 March 2023 at the IIT Kharagpur, which was organized by AP-S/MTT-S SBC under the IEEE Kharagpur section. The topic of the distinguished lecture was “Is Antenna Made of Mathematics? Search for a Missing Link Between the Maxwell Theory and Practice.” He mainly focused on the Maxwellian electrodynamics from a different angle and tried to find out the reason why Maxwell himself failed in the experimental validation of his own theory. He also shared his experience of visiting the place of Hertz’s first radio wave experiment at the Karlsruhe Institute of Technology and also the original artifacts preserved in the Deutsche Museum in Munich. This lecture was attended by about 45 participants comprising 28 AP-S members and student members and was concluded with a brief question and answer session. The event was a great success.

SUPPLEMENTARY MATERIAL



YOUNG PROFESSIONALS

Committee Chair: C.J. Reddy 

2022 IEEE AP-S YP OF THE YEAR AWARD ANNOUNCED

The Antennas and Propagation Society Young Professional of the Year Award is to recognize one YP member of the AP-S for significant service to the AP-S during the one-year term as AP-S Young Ambassador. This award consists of US\$2,000 cash honorarium as well as a plaque and/or certificate to be given during the awards ceremony at the 2023 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting (AP-S/URSI 2023) during 23–28 July 2023, at the Oregon Convention Center and Hyatt Regency, in Portland, OR, USA.

This year AP-S is pleased to announce Prof. Zhijiao Chen of Beijing University of Posts and Telecommunications (BUPT), China, as the 2022 IEEE Antennas and Propagation Society Young Professional of the Year Awardee! Congratulations to Prof. Chen!



Prof. Zhijiao Chen

Prof. Zhijiao Chen received a B.S. degree from BUPT in 2010, and a Ph.D. degree from Queen Mary University of London in 2014. She joined the School of Electronic Engineering in BUPT as a lecturer in 2014 and currently is an associate professor. She was secondment to Ace-Axis

Wireless Technology Laboratories Ltd. (Essex, UK) in 2012, and joined Northeastern University (Boston, MA, USA) as a visiting student in 2013. In 2018, she joined the State Key Laboratory of Terahertz and Millimeter-Wave in City University of Hong Kong (Hong Kong, China) as a visiting scholar. In 2019, she joined the National Physical Laboratory (London, UK) as a visiting scholar. She received the Best Paper Award at iWAT (IEEE iWAT2013, Karlsruhe, Germany), the Best Student Paper Award at IEEE International Symposium on Antennas and Propagation and USNC-URSI National Radio Science Meeting (IEEE APS/URSI 2013, Orlando, FL, USA), and the TICRA Travel Grant at European Conference on Antennas and Propagation (EuCAP 2014, The Hague, The Netherlands). She has authored/coauthored more than 30 journal articles, one English book, and more than 50 conference papers. She serves as the associate editor for *Microwave and Optical Technology Letters*. Her research interests include but are not limited to dielectric resonator antennas, millimeter-wave antenna array, semismart base station antennas, and antennas for radio astronomy.

IEEE AP-S YP WEBINAR SERIES

AP-S YPs is pleased to announce a new Webinar Series by AP-S YP ambassadors. The schedule of the webinars can be found at <https://ieeeps.org/committees/yp-webinars>.

Webinars are recorded and are posted on the AP-S Resource Center at <https://resourcecenter.ieeeps.org/>.

YPs Webinar Series coordinators: Prof. Ashwin Iyer University of Alberta, AB, Canada and Dr. Cristina Yepes, Universidad Pública de Navarra (UPNA)



Prof. Ashwin Iyer



Dr. Cristina Yepes

HISTORICAL COMMITTEE

Committee Chair: Trevor S. Bird 

The AP-S has a History Committee, which meets formally one or two times per year. The purpose of this committee is to pursue IEEE milestones relevant to the society's field of interest, contribute to the "Historically Speaking" column, and to follow-up on society history. The present members are Ted Simpson, who is the AP historian, Bill Liles, Roberto Graglia, and Trevor S. Bird, who is the current chair. Ross Stone was a member until his sad passing in March 2023, and we are now joined by Luciano Paiusco. Other AP members interested in history are welcome to contact the chair about joining.

The most recent face-to-face meeting was held on Zoom on 5 July 2023. At this meeting, we paid tribute to Ross's contribution to this committee. Activities for the past year were summarized and progress was reviewed. Articles for the "Historically Speaking" column are coming in slowly, but there are presently enough articles until early next year. The chair's request to past presidents to provide articles of their presidential year for a historical record of the society was greeted enthusiastically, but only one article has appeared in the magazine so far.

The number of IEEE milestones that are directly in the field of interest of AP-S is only about three, namely "Directive Short Wave Antenna, 1924" (location Miyagi, Japan, dedicated 17 June 1995); the "Discovery of the Principle of Self-Complementarity in Antennas and the Mushiake Relationship, 1948" (location Tohoku University, dedicated 27 July 2017); and the "NAIC/Arecibo Radio Telescope, 1963" (location Arecibo, Puerto Rico, dedicated 1 November 2001). There are another three milestones related to the foundations of electromagnetics, and two others on radio telescopes; both categories are shared with other societies [1]. A noted glaring omission in the list

of IEEE milestones is that there are none related to Michael Faraday. Particularly relevant to AP, and IEEE in general, is his discovery of induction at the Royal Institution in London in 1831. His workshop as he left it is now on display in the basement of this building and is very worthwhile visiting. Another possible milestone is the first computer propagation model of Maurice Wilkes.

This year and the next are notable historical occasions for AP-S; 2023 is the 70th anniversary of the *AP Transactions*, and next year is the 75th anniversary of the society. The latter was formed on 15 July 1949, as the "Professional Group on Antennas and Propagation" (IRE). Ultimately, IRE and the AP Group became IEEE and AP-S by August 1973.

To celebrate the 70th anniversary of the *Transactions*, several articles have appeared in the journal recognizing this year [2], [3]. From commencement, publications were important to the Group. Four blue-covered issues were produced by the AP Group before our familiar brown-covered *Transactions* appeared in July 1953.

The History Committee plans to contribute to the 75th anniversary, and suggestions are invited from the wider membership. One possibility is the AP-S leading the preparation of an IEEE milestone nomination for Faraday in 2024.

The AP membership will be kept informed of developments through this column.

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- [3] T. S. Bird, "Platinum jubilee of the IEEE Transactions on Antennas and Propagation," *IEEE Trans. Antennas Propag.*, vol. 71, no. 8, pp. 6276–6285, Aug. 2023, doi: 10.1109/TAP.2023.3287414.

