Report From AP-S Committees and Activities

IEEE AP-S DISTINGUISHED LECTURERS WORKSHOP AND MEETING SERIES ON 17–19 OCTOBER 2024 IN BELGRADE, SERBIA

Report by: Branislav M. Notaroš, *2024 IEEE AP-S President*

This is a report on the IEEE Antennas and Propagation Society (AP-S) Distinguished Lecturers (DL) Workshop and Meeting Series held from 17 to 19 October 2024 in Belgrade, Serbia. This is an example of a series of innovative and impactful international membership-oriented workshops and meetings in collaboration among various standing committees, most notably the DLs Program Committee (DLPC) and Chapter Activities Committee, of AP-S and AP-S chapters in all IEEE regions throughout 2024 and beyond [1]. The Belgrade Workshop was initiated and organized by Prof. Branislav Notaroš, the 2024 IEEE AP-S president, with fantastic help from Prof. Olivera Notaroš and Prof. Milan Ilić. The event took place at the University of Belgrade, in the Ceremonial Hall of the School of Electrical Engineering (Figure 1). In addition to colleagues and students from the University of Belgrade, we had representation from research institutes and companies in Serbia and delegations from the University of Niš and University of Novi Sad.

The DLs Workshop on 17 October 2024, constituting the technical part

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FIGURE 1. The IEEE AP-S DLs Workshop and Meeting Series held on 17–19 October 2024 in Belgrade, Serbia, with the technical part of the event comprising seven Distinguished Lectures on the most current and emerging AP and related topics, the professional part including joint panels by six AP-S Committees on AP-S professional opportunities for members and students, one session focusing on university/industry collaboration, and the inauguration ceremony for the IEEE Serbia and Montenegro AP-S Chapter.

of the event, comprised seven Distinguished Lectures on the most current and emerging antenna, propagation, microwave, electromagnetics, communications, and health/medicine topics (Figure 1). After a welcome by Prof. Milan Ilić, of the University of Belgrade, Prof. Branislav Notaroš, from Colorado State University, USA, first introduced the event and the IEEE AP-S and then presented "Electromagnetics, Antennas, and Propagation: From Maxwell's Equations to Interdisciplinary Applications." Our distinguished guest, Prof. Maurizio Bozzi, 2024 president of the IEEE Microwave Theory and Technology Society (MTT-S), from the University of Pavia, Italy, gave a talk titled "Novel Topologies and Technologies for Microwave Sensors." Prof. Atif Shamim, IEEE AP-S DL, from King Abdullah University of Science and Technology, Saudi Arabia, gave a Distinguished Lecture titled "On-Chip Antennas: The Last Barrier to True RF System-on-Chip."

Prof. Meisong Tong, IEEE AP-S DL, from Tongji University, Shanghai, China, presented "A Novel Meshless Method for Solving Electromagnetic Problems." Prof. George Shaker, IEEE Sensors Council DL, from the University of Waterloo, Canada, presented "Radars, Digital Twins, and the Future: The Unseen Heroes of Tomorrow's Technology." The lecture of Prof. Qammer Abbasi, IEEE AP-S DL, from the University of Glasgow, Scotland, was titled "How to Bring 6G to Reality? Its Enabling Technologies." The talk by Prof. Levent Sevgi, IEEE AP-S DLPC chair and former DL, from Atlas University, Turkey, was titled "From Engineering Electromagnetics to Electromagnetic Engineering: Teaching/Training Next Generations."

The professional part of the event, themed "IEEE AP-S Professional Opportunities and University/Industry Collaboration," took place on 18 October 2024 (Figure 1). Prof. Branislav Notaroš presented "State of the IEEE Antennas and Propagation Society: An Overview of Operation, Activities, Accomplishments, and Impacts." Prof. Maurizio Bozzi presented "IEEE MTT-S Overview." Both presidents talked about fruitful collaboration between the two sister societies, where personal friendships among the presidents and other leaders further enhanced work on impactful joint activities and initiatives for the benefit of our memberships and the profession at large.

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This was followed by the IEEE AP-S Special Interest Group on Humanitarian Technology (SIGHT)–Committee on Promoting Equality (COPE)–Diversity Equity, Inclusion, and Belonging (DEIB) Panel, of the IEEE AP-S SIGHT Committee, COPE, and the DEIB Committee [2], moderated by Prof. Meisong Tong, COPE vice chair, and Prof. Claire Migliaccio, DEIB chair. This panel focused on the financial, technical, and professional support that the Society provides to impactful humanitarian projects, workshops, and other activities throughout the world, where AP-S is probably the leading IEEE society/council.

Next, we had the IEEE AP-S Membership and Benefits (M&B)–Young Professionals (YP) Panel, of the IEEE AP-S M&B Committee and YP Committee [2], led by Prof. George Shaker, M&B vice chair, and Prof. Qammer Abbasi, YP vice chair. They outlined opportunities for research grants, scholarships, fellowships, and travel grants to students, along with other educational and professional development opportunities for students and all members, where AP-S is one of the IEEE societies and councils with the highest level of student support.

During the Women in Engineering (WIE) Serbia presentation, Prof. Biljana Stošić, of the University of Niš, Serbia, chair of the WIE Serbia Section, presented WIE activities in Serbia and comprehensive data and statistics about the representation of women among faculty members at universities, the overall research community, and the Ph.D. population in the country, including both the history and current trends.

Starting the University/Industry Collaboration session, Prof. Milan Ilić, chair of the Electromagnetics Department at the School of Electrical Engineering, University of Belgrade, gave a talk titled "Electromagnetics in Belgrade Overview," including the history of research and education in electromagnetics, antennas, and microwaves at the university and their current activities and accomplishments in the field.

Marija Nikolić Stevanović, vice dean, presented "University of Belgrade School of Electrical Engineering Overview," with information about all the departments of the school and their personnel, research, courses, and outreach; the school governance; and industry and international collaborations.

In continuation of the session, Prof. Branko Kolundžija, president of WIPL-D, Belgrade, Serbia, described the history and present state of the company, as well as the collaboration with the University of Belgrade. Prof. George Shaker, chief scientist of the Spark Technology Labs, Waterloo, ON, Canada, and founder of some other startup companies, gave a tutorial on technology transfer and entrepreneurship and strategies and experiences in creating and enhancing university spin-offs.

A highlight of the event was the inauguration ceremony for the IEEE Serbia and Montenegro Section AP-S AP-03 Chapter, conducted by Prof. Branislav Notaroš, IEEE AP-S

president, and Milan Ilić, the inaugural IEEE Serbia and Montenegro AP-S Chapter chair (Figure 1).

The event culminated with a narrated technical tour of the Nikola Tesla Museum in Belgrade, with many of Tesla's original experimental setups, devices, patents, and demos, as well as personal items, on hand and where his ashes are also kept. We saw and played with demos of the principle of the rotating magnetic field and polyphase alternating currents producing it, Tesla coils, and principles of power distribution and wireless transfer using alternating currents. We were shown documents and artifacts related to the "war of currents" to decide whether Edison's existing dc systems or Tesla's newly proposed ac systems would be the chosen technology for the global electric power distribution of the future in America, which ended in 1893, with the opening of the Chicago World Exposition, spectacularly illuminated by a hundred thousand lamps with alternating current from Tesla's generators, as well as the world's first ac hydroelectric power plant on Niagara Falls, based on Tesla's design, which was put into operation in 1896. We participated in reproductions of Tesla's demonstrations including powering electric lamps we held, without harm, by Tesla coils through air without wires and spectacular spark discharges (Figure 2).

In addition to colleagues and students from the University of Belgrade, we had representation from research institutes and companies in Serbia and delegations from the University of Niš and University of Novi Sad.

The vibrant social/networking program included a comprehensive tour on 19 October 2024 of Belgrade, one of the oldest cities in Europe, at the confluence of two of the biggest rivers in Europe and the historical confluence of West and East, where international colleagues from around the world, and practically all of them visiting for the first time, embraced an opportunity to understand the history, art, and culture of the city and the country (Figure 2). We saw landmarks and highlights of old Belgrade, such as Kalemegdan Fortress; the river confluence; the Temple of Saint Sava; and several iconic historic squares, streets, and buildings in Belgrade. Modern engineering vitally involves all these aspects of humanity in fulfilling our mission as IEEE and AP-S.

FIGURE 2. Further activities of the IEEE AP-S Belgrade Workshop and Meeting Series, October 2024, such as a technical tour at the Nikola Tesla Museum in Belgrade, with many of Tesla's experimental setups, including a demonstration of electric lamps in our hands powered by Tesla coils through air and spectacular spark discharges, and a social/networking program containing a comprehensive tour of Belgrade, with an opportunity for colleagues coming from all around the world to learn and experience the city's history, art, and culture.

REFERENCES

[1] B. M. Notaroš, "What a year! Activities and accomplishments of the IEEE Antennas and Propagation Society in 2024 [President's Message]," *IEEE Antennas Propag. Mag.*, vol. 66, no. 6, pp. 6–16, Dec. 2024, doi: 10.1109/MAP.2024.3487403.

[2] B. M. Notaroš, "State of the IEEE Antennas and Propagation Society: An overview of operation, activities, accomplishments, and impacts," *IEEE Antennas Propag. Mag.*, vol. 66, no. 3, pp. 16–27, Jun. 2024, doi: 10.1109/MAP.2024.3393891.

IEEE AP-S ADCOM MEETING AND INDUSTRY PANEL ON 5–7 OCTOBER 2024 IN COLORADO

Report by: Branislav M. Notaroš, *2024 IEEE AP-S President*

This is a report on the third meeting of the Administrative Committee (AdCom) of the IEEE Antennas and Propagation Society (AP-S) of the year held on 5–6 October 2024 in Denver, CO, USA, and the subsequent IEEE AP-S AdCom Panel with Colorado Antennas, Propagation, RF, Wireless, and Electromagnetics Industry Leaders on 7 October 2024, at Colorado State University, in Fort Collins, CO, USA. Both events involved the AP-S AdCom at Large, constituted by all Society officers, standing committee chairs, and editors-in-chief of our publications [1].

In addition to the establishment of 12 AP-S technical committees (TCs) [2], a very important change for AP-S as we did not have TCs before; the appointment of inaugural chairs of TCs; and many other valuable discussions, comprehensive reports, and far-reaching decisions, the main theme of the AdCom Denver Meeting was AP-S membership growth and retention. Increasing and retaining our membership is incredibly important as we can make the strongest impact if colleagues and students are our members so we can reach them, and they can be active with us and take advantage of everything we as a Society can offer to them.

We have discussed initiatives and strategies for global membership development, as well as targeted efforts and actions toward individual geographic regions. Our focus is on formation of new AP-S chapters across the world, an activity led by Ajay Poddar; proactively recruiting new colleagues and students; and improving the gender, sector (e.g., industry), and geographic diversity of AP-S participation–wherever possible, in collaboration with our sister IEEE societies [2].

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We analyzed (work by Jawad Siddiqui) all IEEE regions and identified IEEE sections and subsections within each region that have potential for chapter formation but do not yet have an established AP-S chapter as these geographic areas represent growth opportunities for AP-S, for targeted engagement and outreach. We specifically discussed the AP-S strategy for Region 9 (Latin America). We looked at many universities and schools across all IEEE regions and identified potential for quick formation of AP-S student branch chapters. We established processes to incentivize chapter officers to recruit new members and receive travel grants to attend chapter chairs meetings at AP-S conferences and discounted conference registration fees.

We launched the AP-S Senior Member (SM) Drive, led by George Shaker, with a goal to elevate a large number of new AP-S SMs, whereas only a fraction of eligible members are SMs currently. Recognition drives retention, engagement, and chapter growth; namely, retention rates are much higher for SMs, and they are much more likely to volunteer and lead efforts in chapter creation. We will send personal invitations to eligible members, focusing on recognition and tangible benefits; help with the nomination/application processes, including securing references and rapid recommendations; and provide public recognition and mentorship for new SMs.

As a result of all these and other concerted efforts and actions throughout the year, including the 75th AP-S Anniversary Celebration [2], and thanks to incredible work and contributions by all AP-S leaders and volunteers, we added 1,300 new AP-S members in less than three months, from the AdCom Denver Meeting to year end, which is the fastest growth ever recorded in AP-S and possibly other IEEE societies. On 31 December 2024, we topped the 13,000 AP-S members mark (Figure 3), an unprecedented 25% growth in just one year, 2024 alone. We established 50 new

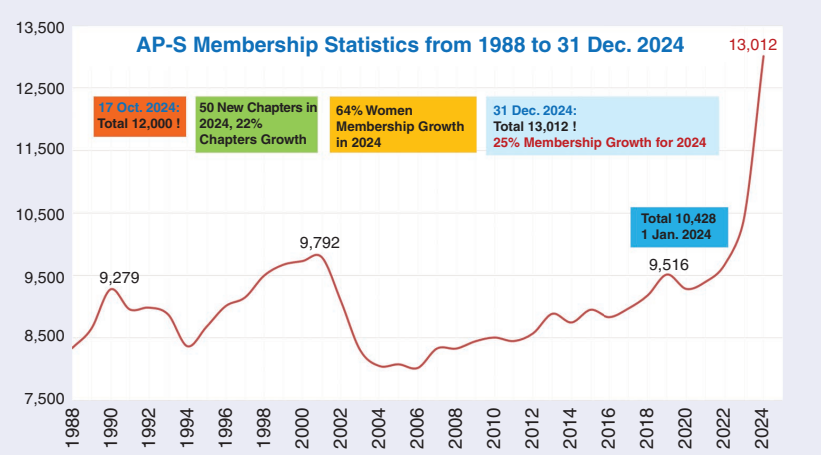

FIGURE 3. The membership count of AP-S over the past 37 years and recent highlights.

AP-S chapters in 2024, a chapter growth of 22% in a year, much more than in any single year in the Society's history. Remarkably, in 2024, AP-S women membership grew by 64%.

The AP-S AdCom/Colorado Industry Panel took place after the AdCom Meeting, with AdCom at Large members engaging in a full four hours of open discussion with 15 industry leaders from Lockheed Martin, BAE Systems (formerly Ball Aerospace), Northrop Grumman, HP, Keysight Technologies, ANSYS, Thermo Fisher Scientific, Numerica, and ITS/NTIA, among others (Figure 4).

The goal was to learn why industry colleagues are not more involved with AP-S, what we can offer to each other, and how to increase IEEE and AP-S industry membership, and then address these needs and opportunities and make a specific and strategic action plan for the Society. The discussion was extremely lively and productive, and the ideas and suggestions from industry leaders were phenomenal. Cast as action items, they can be summarized as follows:

- Explore developing certificate programs in partnership with industry to address skills gaps; coordinate involvement of universities in developing professional certification programs; consider offering short courses on popular software packages used by engineers in the field; investigate creating webinars or online training for professional development targeted at industry members; and enhance the involvement of industry colleagues in AP-S standards activities.
- Continue and expand the NanoVNA Initiative, where AP-S chapters receive NanoVNAs for education and professional development, including courses; discuss and develop a "lab in a box" program, through intersociety collaboration, for parts of the world in most critical need for such help and support; explore implementing software initiatives as part of the "lab in a box" program; and investigate partnering with industry for discounted or in-kind contributions to the program.
- Explore expanding industry-focused workshops and panels at AP-S conferences; create more opportunities for industry demonstrations and exhibits at conferences; consider implementing a "best talks" session at conferences to highlight the most innovative and relevant research and encourage industry attendance; increase the number of industry special sessions and those joint with academic authors; offer some components of conferences, such as short courses and plenary sessions, in a hybrid fashion, for industry colleagues who cannot take the time or will not be funded by their company to attend in person; and extend some of the travel grants and other opportunities available to students also to young professionals in industry.
- Expand AP-S awards specifically recognizing industry achievements with, for example, "Best Patent of the Year" and "Best Project Engineer" awards; and consider featuring industry member profiles or achievements in each issue of *IEEE Antennas and Propagation Magazine*.
- Engage industry professionals in AP-S chapters and local and global activities; investigate ways to better facilitate the transition of Student Members to Members as they enter industry; explore ways to better promote and facilitate the Senior Member elevation process for qualified industry members; work with the newly created AP-S Fellows Search Committee on enhancing nominations from industry; and consider creating an industry partner Fellow program to recognize company Fellows within different industries in relationship to the IEEE Fellow designation.

We looked at many universities and schools across all IEEE regions and identified potential for quick formation of AP-S student branch chapters.

We will do our very best to further analyze and implement as many of these ideas as possible.

FIGURE 4. The IEEE AP-S AdCom Panel with Colorado Industry Leaders held on 7 October 2024 at Colorado State University.

REFERENCES

[1] B. M. Notaroš, "State of the IEEE antennas and propagation society: An overview of operation, activities, accomplishments, and impacts," *IEEE Antennas Propag. Mag.*, vol. 66, no. 3, pp. 16–27, Jun. 2024, doi: 10.1109/MAP.2024.3393891.

[2] B. M. Notaroš, "What a year! Activities and accomplishments of the IEEE antennas and propagation society in 2024 [President's Message]," *IEEE Antennas Propag. Mag.*, vol. 66, no. 6, pp. 6–16, Dec. 2024, doi: 10.1109/MAP.2024.3487403.