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The IEEE Antennas and Propagation Society in Its 75th Year

A historical overview.

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The IEEE Antennas and Propagation Society (AP-S) in 2024 is 75 years old. This article describes the evolution of the Society from 1949 up to its 75th anniversary. The AP-S has come a long way since its beginning in 1949. From a mainly male Society to its present-day makeup, it has had four women presidents and is encouraging younger members through scholarships and activities, such as Women in Engineering (WIE) and Young Professionals (YPs). Another major change has been the internationalization of the Society from North American to having members distributed across the globe. This is also reflected in now holding its annual IEEE conferences in other countries. The strength of AP-S technical content is measured by the success of the Society's transactions, which ranks in the top three of all IEEE publications by downloads, and the creation of four other Society publications. The growth of the Society since the early 2000s and its solid financial position are driven by the wireless revolution and the use of electromagnetics and radiation in a wide range of applications.

INTRODUCTION

The AP-S is now 75 years old in 2024. Its current field of interest relates to all aspects of antennas and wave propagation; their application for science, defense, and telecommunications; and aspects of electromagnetics related to these broad areas, with the recent inclusion of biomedical applications. The purpose of this article is to chart the progress of the Society from its beginnings in 1949. This is supported by earlier histories of the Society, the most recent of which was completed in 2009, and new material has been included up to the present time.

EARLY HISTORY: 1949–1970

The Institute of Radio Engineers (IRE) was formed in 1912. After World War II, in 1948, with the growth of electronics and wireless techniques, it adopted a decentralized

"professional group" structure that allowed it to create rapidly developing new fields, such as electronic computers and information theory; hold specialized conferences; and publish specialized journals. At this time, Lester Clare Van Atta (18 April 1905–16 March 1994), pictured in [Figure 1](#), was requested by colleagues to create a professional group on antennas and wave propagation within the IRE (now IEEE) for sharing knowledge and experiences in this burgeoning field following the cessation of hostilities in 1945 [\[1\]](#).



FIGURE 1. Lester Van Atta [\[6\]](#).

To do this, Van Atta gathered 56 signatories for a petition that resulted in the creation of the third professional group of the IRE, on 1 February 1949 [\[2\], \[3\], \[4\], \[5\]](#), to be known as Antennas and Wave Propagation. Early in the history of the group, the executive committee dropped the word "wave" from the title, and it became the Professional Group on Antennas and Propagation (PGAP).

The group's formation came just 76 years after Maxwell's publication of his equations, in 1873, and subsequent confirmation of them and only 50 years after the first use of electromagnetic waves for radio and wireless telegraphy. A selection of technical discoveries prior to the formation of the PGAP appears in [Figure 2](#). For the sake of brevity and relevance, advances in broad areas, such as broadcasting or electron devices, that influenced innovation in antennas and propagation are not included in the list.

- 1861: James Clerk Maxwell proposes a displacement current to add to Ampere's law.
- 1873: First edition of Maxwell's book *A Treatise on Electricity and Magnetism*.
- 1874: Ferdinand Braun discovers point contact rectifier effect.
- 1884: Vector form of Maxwell's developed by Heaviside and Gibbs.
- 1886–1888: Hertz's verification of Maxwell's equations.
- 1880s: Lodge and Bose investigate radiation from horns.
- 1892: Rayleigh develops a modal theory for waveguides.
- 1894–1896: J.C. Bose undertakes the first millimeter-wave experiments.
- Mid-1890s: Marconi commences radio transmission experiments.
- 1897: Marconi establishes the first wireless telegraph company.
- 1905: Phased-Array antenna devised by Braun.
- 1909: Marconi and Braun receive Noble prize jointly in recognition of their contribution to the development of wireless telegraph.
- 1910: Debye and Hondros study dielectric rod antennas.
- 1905–1914: Wireless telegraph creates propagation distance records.
- 1914–1918: World War I, and Eiffel tower continues transmitting time signals.
- 1924–1930: Short Waves tested for transatlantic and maritime radio communication and the studies of ionospheric propagation.
- 1926: Yagi-Uda array invented and patented.
- 1931: First microwave link across the English Channel and first commercial service in 1935.
- 1931: Southworth study of dielectric rod antennas and extends theory of waveguide modes.
- 1936–1938: Barrow and Chu investigate and improve pyramidal horns.
- 1940–1945: World War II leads to great developments in theory and practice of antennas and propagation.
- 1945: R. W. P. King consolidates the theory of linear antennas.
- 1948: Cutler invents the corrugated surface.
- 1948: Chu discovers fundamental limit that sets minimum size of an antenna used at a given frequency and bandwidth.
- 1947–1951: Massachusetts Institute of Technology Radiation Laboratory series of books published, including Silver's volume 12, which discloses details of reflector and feed design, and Kerr's volume 13 on short radio wave propagation.

FIGURE 2. Twenty-three major antenna and propagation events and discoveries up to 1950, when the PGAP was formed.

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In September 1973, the Antennas and Propagation Group became the AP-S, and this title has remained the same up to the present time.

Van Atta was held in high regard by all his colleagues. He spent much of his career developing aircraft electronics and defense systems. In 1940, he became head of the antenna group at the Massachusetts Institute of Technology's Radiation Laboratory, which conducted microwave antenna research. In 1945, he joined the Naval Research Laboratory, and in 1950, he went to work for Hughes Aircraft, where he became director of Hughes Research Laboratories. He was senior scientist at Lockheed Missiles and Space from 1962 to 1964 and then became assistant director of NASA's Electronics Research Center before retiring in 1970 [6]. He became the first Society president in 1949. A list of Society presidents up to the present time is given in [Table 1](#).

| Year | Name | Year | Name | Year | Name |
|-----------|--------------------|------|--------------------|------|---------------------------|
| 1949–1950 | Lester C. Van Atta | 1975 | Wolfgang H. Kummer | 2000 | Thomas Milligan |
| 1950–1951 | Newbern Smith | 1976 | Raj Mittra | 2001 | Piegiorgio L. E. Uslenghi |
| 1951–1952 | George Sinclair | 1977 | Edward A. Wolff | 2002 | Magdy Iskander |

| | | | | | |
|--------------------|----------------------|------|---------------------|------|-------------------------|
| 1952–1953 | Arthur H. Waynick | 1978 | Allan C. Schell | 2003 | L. Wilson Pearson |
| 1953–1954 | Philip S. Carter | 1979 | Leon J. Ricardi | 2004 | John L. Volakis |
| 1954–1955 | Delmer C. Ports | 1980 | Richard C. Johnson | 2005 | Richard W. Ziolkowski |
| 1955–1956 | Delmer C. Ports | 1981 | Robert C. Hansen | 2006 | Andrew Peterson |
| 1956–1957 | Henry G. Booker | 1982 | Gary A. Thiele | 2007 | Charles Rhoads |
| 1957–1958 | J. I. Rohnert | 1983 | Robert J. Mailloux | 2008 | Jennifer T. Bernhard |
| 1958–1959 | Richard L. Mattingly | 1984 | Allan W. Love | 2009 | Makoto Ando |
| 1959–1960 | Arthur Dorne | 1985 | Robert E. McIntosh | 2010 | Robert Nevels |
| 1960–1961 | Edward C. Jordan | 1986 | Alan J. Simmons | 2011 | Magdalena Salazar Palma |
| 1961–1962 | Harry Fine | 1987 | George H. Knittel | 2012 | Steven R. Best |
| 1962–1963 | Sidney A. Bowhill | 1988 | Gary S. Brown | 2013 | Trevor S. Bird |
| 1963–1964 | Robert C. Hansen | 1989 | Irene C. Peden | 2014 | Tapan K. Sarkar |
| 1964–1965 | William E. Gordon | 1990 | David C. Chang | 2015 | Roberto D. Graglia |
| 1965–1966 | Alan T. Waterman Jr. | 1991 | Helmut E. Shrank | 2016 | Michael A. Jensen |
| 1966–December 1967 | Keeve M. Siegel | 1992 | Warren L. Stutzman | 2017 | Ahmed A. Kishk |
| 1968 | K. S. Kelleher | 1993 | Ron J. Pogorzelski | 2018 | Weng Cho Chew |
| 1969 | David R. Rhodes | 1994 | Donald G. Bodnar | 2019 | Koichi Ito |
| 1970 | Ralph E. Hiatt | 1995 | Yahya Rahmat-Samii | 2020 | Mahta Moghaddam |
| 1971 | Chen-To Tai | 1996 | Stuart. A. Long | 2021 | Yahia Antar |
| 1972 | John B. Damonte | 1997 | Edmond S. Gillespie | 2022 | Gianluca Lazzi |
| 1973 | Carlyle J. Sletten | 1998 | Ronald J. Marhefka | 2023 | Stefano Maci |
| 1974 | Charles H. Walter | 1999 | Daniel H. Schaubert | 2024 | Branislav Notaros |

For the first 18 years of the Society, the president's term was for 18 months, until a major revision of the Society's constitution and bylaws in 1967. Two presidents served two terms, namely, Delmer Ports, in 1954–1955 and 1955–1956, and Bob Hansen, in 1964–1965 and again in 1981.

These early years were ones of concern for the Society's financial situation as well as for its success as a professional group within the IRE [7]. Operating costs had to be controlled, and publication costs were relatively high. A newsletter was founded in 1951, and this was followed by an annual technical publication by the PGAP, also beginning in 1951. In 1952, the PGAP commenced publishing a bimonthly transactions. The group did not publish a separate newsletter until 1958. Instead, the transactions carried a section called "News and Views."

The main technologies discussed in the first decade of this period followed up on aspects of antennas from before and during the war, which included dipoles, plasmas, propagation studies and modeling, radar, and communication antennas. After about 1960, the themes changed to include asymptotic techniques, arrays, and the application of numerical methods.

During this period, the IRE merged with the American Institute of Electrical Engineers to form IEEE in 1963. IEEE adopted the decentralized professional group structure of the IRE over a centralized technical committee. The professional groups of the IRE became IEEE Societies, and thus, the Antennas and Propagation Group was born.

CONSOLIDATION OF THE SOCIETY: 1971–1999

By the 1970s, the antennas and propagation field had expanded with the use of more diverse communications, such as satellite and phased arrays in radar. The need for greater capacity in the available channels on satellites meant that techniques such as dual polarization became important in earth stations for example. Existing equipment had to be modified or newly constructed, and this required new people. This was just one new area building capability. Many joined the group as a result, and membership grew (see [Figure 3](#)). The Administrative Committee (AdCom) was expanded slightly, and there were new initiatives planned, such as electromagnetics education. In September 1973, the Antennas and Propagation Group became the AP-S, and this title has remained the same up to the present time. The AdCom consisted of 15 members at large and three officers: president, secretary, and treasurer.

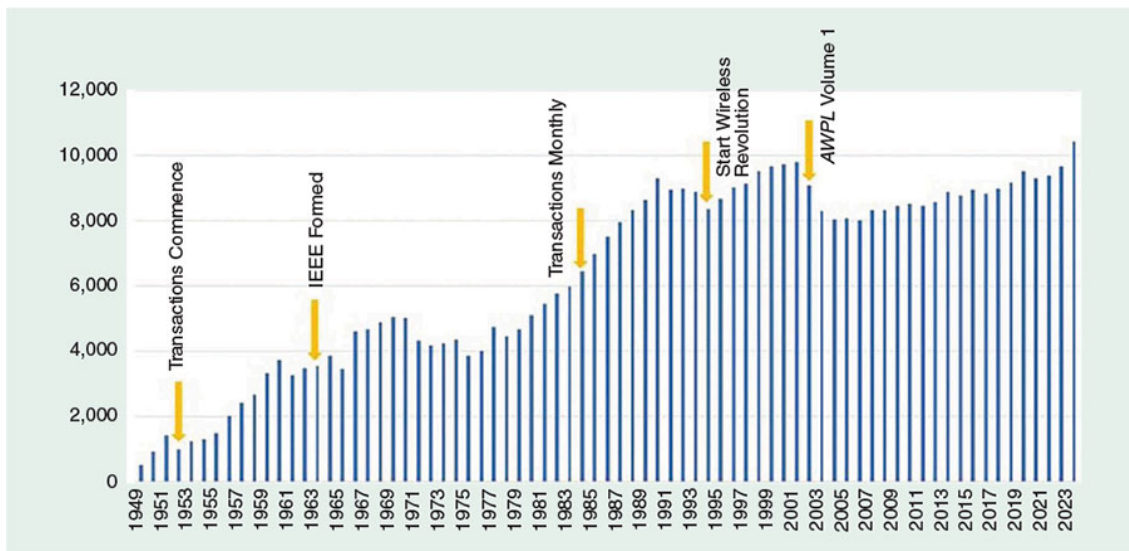


FIGURE 3. Membership numbers and noteworthy events in the 75 years of the Society. *AWPL: IEEE Antennas and Wireless Propagation Letters.*

In the 1980s, mobile wireless communications became important, and antennas and propagation were central to its expansion. Even as late as 1993, some thought mobiles would be restricted to below 3 GHz in operation, but this burgeoning area and new applications called for higher-frequency bands. To meet this expansion in interest, the publication of the transactions became monthly from January 1984 ^[8], although this increased pressure on the modest Society budget.

The Society was also beginning to change during this period, as evidenced by the election of Irene Peden as the first woman president, in 1989 ^[9]. Peden would be the first of four women elected so far to this leadership role (see [Table 1](#)).

Through all these expansions, the Society's finances continued to be the major issue discussed by the AdCom. With increased membership and a profitable summer

symposium ^[10], many proposals, such as publishing other journals, were raised. However, a tight fiscal policy was maintained for the sake of safety, and many innovative ideas were shelved. This was at the commencement of the wireless revolution, which drove change through the 1990s. The Society's membership grew rapidly, and wireless expanded by the introduction of new frequency bands and multiple-path channels, leading to multiple-input, multiple-output systems. To meet the need of rapid publication of these latest ideas, *IEEE Antennas and Wireless Propagation Letters (AWPL)* was created, with the proponent of this type of publication, Prof. Piergiorgio Uslenghi, as the first editor-in chief (EiC).

INTO THE SECOND MILLENNIUM: 2000–2024

In the early 2000s, there was a recession, which saw a decline in economic activity, most notably in developed countries. The recession affected the European Union during 2000 and 2001 and the United States from March to November 2001. This downturn is reflected in Society membership data ([Figure 3](#)), which saw a decline in numbers after a peak at the turn of the millennium. Nevertheless, there was consistent improvement and work on antennas for mobile devices through these years. Some things had changed, though. There was less emphasis on satellite communications components and increasing emphasis on biomedical applications and on-body antennas and on multifunction analysis using numerical and analytical techniques. Both these topic areas extended beyond the AP-S, and as a result, two new journals were created, the first since the creation of *AWPL*.



The finances of the AP-S were precarious for most of its early history and even up until about 2004.

SOCIETY STRUCTURES AND COMMITTEES

GOVERNANCE

The Society is governed by the AdCom, consisting of 12 members elected from the 10 IEEE Regions for three-year terms. As well, there are the officers (president, president-elect, secretary, and treasurer), life AdCom members, and the four immediate past presidents. After a one-year term, the president-elect serves for one year as president. The secretary and treasurer can serve several consecutive terms of three years. Some members of the 2024 AdCom are pictured in [Figure 4](#). The past presidents of the

Society are listed in [Table 1](#).



FIGURE 4. The AdCom meeting in February 2024, in Orlando FL, USA. New AdCom members and committee chairs are introduced by President Branislav Notaros (standing at the far left) at a 75th anniversary celebration.

| TABLE 2. THE EiCs OF THE AP-S TRANSACTIONS. | |
|--|----------------------|
| Period | EiC |
| 1952–1959 | John Smyth |
| 1960–1962 | Sidney Bowhill |
| 1963–August 1965 | Herman Cottony |
| August 1965–July 1968 | John Ruze |
| July 1968–July 1971 | Allan C. Schell |
| July 1971–July 1974 | Leon Ricardi |
| July 1974–July 1977 | William Crowell |
| July 1977–July 1980 | Walter Kahn |
| July 1980–July 1983 | Raj Mittra |
| July 1983–July 1986 | Ronald Fante |
| July 1986–July 1989 | Ronald Pogorzelski |
| July 1989–July 1992 | Robert McIntosh |
| July 1992–July 1995 | Ronald Marhefka |
| July 1995–July 1998 | Piergiorgio Uslenghi |
| July 1998–August 2001 | L. Wilson Pearson |
| September 2001–July 2004 | Alan W. Ch... |

| | |
|-------------------------|-----------------------|
| August 2001–July 2004 | Allen W. Glisson |
| August 2004–August 2010 | Trevor S. Bird |
| August 2010–July 2013 | Michael Jensen |
| August 2013–July 2016 | Kwok Wa Leung |
| August 2016–August 2022 | Danilo Erricolo |
| September 2022–present | Konstantina S. Nikita |

For the first 60 or more years of its existence, the AdCom met two times a year, except on a couple occasions, in the northern winter and summer during the annual IEEE International Symposium on Antennas and Propagation. As the latter is now held outside of North America, the AdCom presently meets three times a year, in the winter, summer, and fall in the northern hemisphere, unless a special meeting is called. These meetings are usually held in February, June–July, and October.

MEMBERSHIP

The PGAP membership grew from 91 members in 1950 to about 3,700 members and four affiliates by December 1961. In addition, the group’s field of interest expanded to include the area of radio astronomy.

Membership numbers fluctuate during a calendar year, and paid membership is usually a smaller figure than total membership, which includes members who are in arrears on dues payment. The chart in [Figure 3](#) shows the total membership numbers by year from 1949 to the present time.

It is seen that the membership numbers vary from year to year. These variations depend on several exogenous factors, such as economic conditions, whether people are employed in the antennas and propagation field, the state of economic growth, the prevailing technologies, and government policies. Some sectors are affected more significantly than others at various times due to cuts in spending in, say, defense areas, university employment, or industrial sectors. There have been some major global downturns, and these are reflected in some of the data. In the 75 years since 1949, the world economy has experienced four global recessions, in 1975, 1982, 1991, and 2009. In each of these episodes, there was a contraction in annual real per capita gross domestic product (GDP) and broad-based weakness in other key indicators of global economic activity. There have been several factors that reduced the impact of the downturns on the AP-S membership. In 1994, President Clinton and Vice President Gore set the goal of connecting every classroom and library in the United States to the Internet in a so-called wiring of the nation, but wireless was the better and cheaper

approach. This kickstarted the wireless revolution, which saw the AP-S membership gradually increase in the years following, despite economic downturns. Antennas and propagation, of course, is a vital part of wireless. In addition, the downturn in 2009 was offset by the increasing number of members from Region 10. With all these changes, by the end of 2023, the membership numbers had grown to over 10,000. The current annual rate of increase has been, on average, about 1% since 2004.

FINANCES

The finances of the AP-S were precarious for most of its early history and even up until about 2004. In the first few years, in order to finance publications, members paid a levy in addition to membership dues. It was originally set at US\$2, but in 1953, this levy had to be doubled. This did not solve the financial problem. An additional subsidy was obtained from IRE headquarters in 1961, and even so, the treasurer reported a deficit at the beginning of the following year. To reduce the losses, the AdCom recommended cutting pages and introducing page charges and increased advertising costs. The page charge was rejected by headquarters, and an additional subsidy had to be requested. This situation continued into the 1960s until 1967, when voluntary page charges were finally introduced. In the 1970s, the financial position stabilized, and the Society began generating a small surplus. Publication costs were still the largest expense, being about 60% of the total. By the early 1980s, with good surpluses, it was possible to increase the number of transaction pages published annually, from 1,250 pages in 1982 to 1,400 pages in 1983; increase funds available to Chapters; and reduce membership dues by 20%. This situation continued in the 1990s. Depending on the surplus from the previous year, the support needed for new activities, Chapters, often determined the number of pages published by the transactions.

A sea change occurred in 2003, when the Society began receiving a portion of the revenue from IEEE *Xplore*. The actual amount depended on the number of downloads of papers published by the Society. At this time, the Society was in the top three for downloads. This increased revenue meant, for example, that the transactions could start to clear the backlog of papers that had built up because of the earlier limit on published pages imposed by the AdCom.

The financial results for the years from 1996 are presented in [Figure 5](#). The reduced expenditure in 2020 was due to COVID-19 causing the IEEE International Symposium on Antennas and Propagation to be canceled. The increased income and expenditures from 2015 onward are probably due to new publications. It is seen that there has been a healthy income from various sources and especially IEEE *Xplore*, which contributes to about half of the total income. The growth in income corresponds to an

8% annual increase since 2000 compared with GDP growth, on average, of about 5%

[14]. The Society has maintained its position in the top tier of IEEE publications.

Annual surpluses are held in an IEEE account and are accessible through new ventures to support the growth of the Society and IEEE. Recent ventures have been new journals, support of new YPs activities, and WIE events.

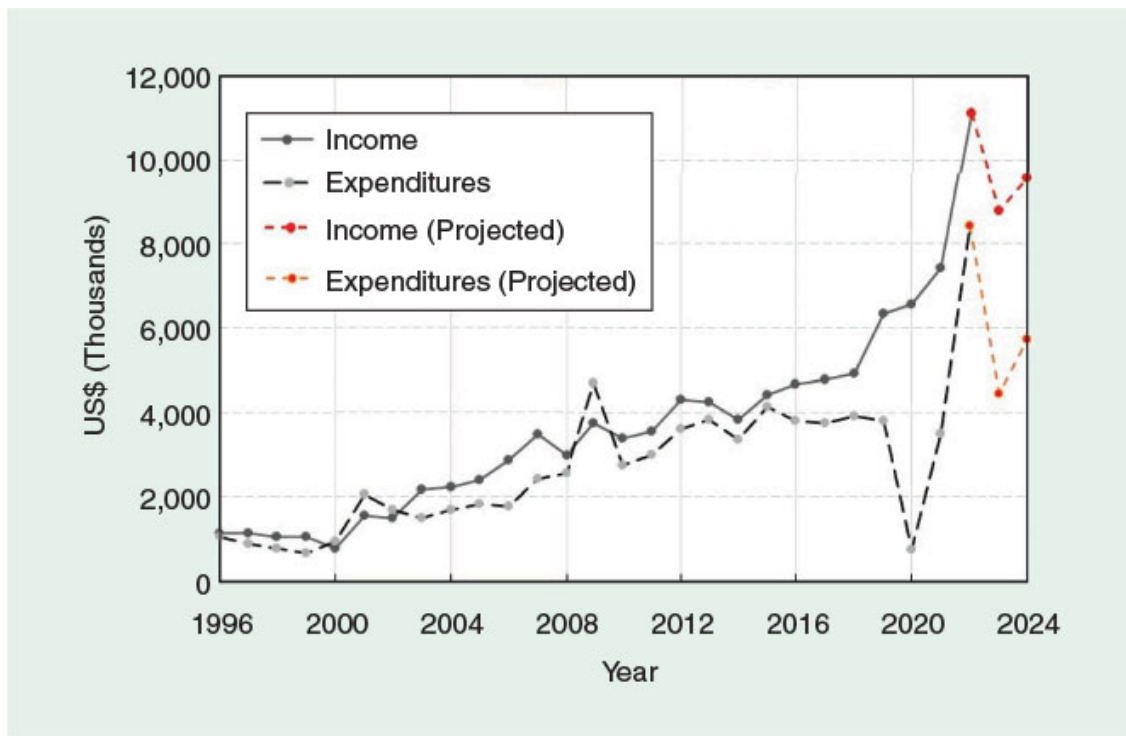


FIGURE 5. The AP-S income and total expenditures, 1996–2024.

PUBLICATIONS

From the founding of the Society, technical publications have been considered an important objective. Before the current transactions commenced publication in 1953, four distinctive blue-covered special issues were produced by the PGAP. The first, "PGAP-1," was published in February 1952 and contained papers from the August 1951 Western Convention, held in San Francisco, CA, USA. "PGAP-2" appeared in March 1952 and published papers presented at the International Union of Radio Science (URSI)–IRE meeting at Cornell University in October 1951. "PCAP-3," dated August 1952, had papers from the April 1952 URSI–IRE meeting held at the National Bureau of Standards (NBS), in Washington, DC, USA. The fourth and final publication in the series, "PGAP-4," dated December 1952, contained papers from the 1952 Western Convention, in Los Angeles, CA, USA. Clearly, there was a need to have a regular publication, and therefore, from July 1953, *IRE Transactions on Antennas and Propagation (TAP)* began publishing bimonthly, which continued for 18 years, and then monthly [8].

As mentioned by Hiatt [1], for a time before 1982, there were three other categories

of papers published in *TAP*. These were succinct papers, computer programs, and antenna design notes. All these types of papers were narrower in scope and shorter than communications. Succinct papers were published from March 1974 to 1977. Computer programs were published for antenna design, and antenna design notes were published on the design and fabrication of antennas [8]. When monthly publication of the transactions began, with the January 1984 issue, the format consisted of full papers and communications.

Before the introduction of full online processing in 2008, all papers were managed through international mail services. On receipt of a paper by the EiC, copies were forwarded to the associate editors for inviting reviewers. Once the reviewers provided their reports, the reviews were sent to the EiC. Depending on its quality, a paper was returned to the author with comments and a decision regarding publication. This could continue for two or three cycles before the paper was accepted or rejected. Accepted papers were finalized by the author and the editorial office. The EiC would prepare an issue for publication by physically arranging the papers in a 40 × 34-cm filing box, and when ready, this box was shipped to IEEE Publications, which today is in Piscataway, NJ, USA. The Transactions continued with a system of associate editors and an EiC until recent times [8]. The EiC makes the final decision on all manuscripts, although the EiC is advised by associate editors on papers received. This is important, as there should be a single decision point for consistency, which AP-S transactions have maintained over 70 years. A list of EiCs since 1952, when "PGAP-1" was published, is in [Table 2](#).

With the increased number of submissions to the Transactions in the 2000s, good turn-around time became difficult to maintain. The workload on the EiC increased significantly over the subsequent 10 years. In 2006, the new position of senior associate editor was introduced to take over the role of EiC in case the latter was unavailable for a brief time and to judge controversial issues, such as rejected papers or claims of bias. In the following three years, the workload on all editors increased further as the number of submissions increased dramatically due to the wireless revolution. In consultation with the Society Publications Committee, the EiC considered specializing some associate editors as track editors. Track editors were specialists in the major fields of interest of the Society. This was implemented by the following EiC, in 2013. The senior associate editor role was replaced with the new position of associate EiC, and track editors were introduced. After introducing this additional layer in the editorial system, the heavy workload of the EiC could be shared, and the editorial system became more sustainable. This is the system that currently

operates .

The AP-S newsletter continued to be published through the mid-1980s in a monochrome format. In January 1984, W. Ross Stone took over from Dan Schaubert as editor of *Antennas and Propagation Newsletter*, which, at the time, had a total page count of 224. In February 1990, the *Antennas and Propagation Newsletter* became *IEEE Antennas and Propagation Magazine*. The magazine's first six issues, edited by Stone, had a page count of 360, not including advertisements and noneditorial material. In 2000, Stone was still the EiC of the magazine, which had a page count of 893, without advertisements and editorials. Stone stepped down as EiC in 2014, after giving over 30 years of service in the role. The EiC after Stone, Prof. Mahta Moghaddam, adopted a more modern format. She employed IEEE Periodicals to lay out and print the magazine, with initially the same columns and departments to give a less "technical" feel to a publication that goes to all members of the Society. This has continued, with improvements under the present EiC, Prof. Francesco P. Andriulli.

The year 2002 saw the publication of *AWPL*. Its stated aim is to provide a forum for the rapid publication of new research results and ideas in the form of short contributions in the field of interest of the AP-S. *AWPL* aims to be one of the "fastest" journals among IEEE publications. This means that for papers that are eventually accepted, it is intended that an author may expect their paper to appear in *IEEE Xplore*, on average, around two months after submission. *AWPL* continued to grow successfully under its founding EiC, Prof. Uslenghi, and the following EiCs as the wireless revolution progressed. In 2023 (volume 22), *AWPL* published 3,215 printed pages, in the vicinity of 1,000 papers.

It took some years for the AP-S community to accept open access (OA) publishing, although many chose to publish through IEEE Access. In 2020, the Society began publishing *IEEE Open Journal of Antennas and Propagation (OJAP)* to meet increasing demand for open and transparent research exchanges and enabling authors to embrace best practices in data and code sharing. It publishes papers on mature topics as well as on emerging fields, including those at the nexus of other engineering and science disciplines that are dependent upon antennas and propagation. It welcomes contributions covering aspects from theory and design to applied engineering innovations, topical review, and perspective articles. The launch of *OJAP* marked a strategic expansion of the AP-S to the OA publishing model. The landscape of scholarly publishing has irreversibly shifted, posing the need to enrich the range of options for authors and researchers to support their work and needs in terms of funding requirements, readership, research impact, and academic recognition. Within this

context, the AP-S has been advancing technology within the antennas and propagation community by offering a collection of prestigious publication venues and is now embarking on a mission to provide a high-quality peerreviewed OA journal.

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The strength of the Society is driven by the continuing wireless revolution and the use of electromagnetics and radiation in wider applications.

Two other journals published with broad support from three other IEEE Societies resulted in the formation of two additional journals. These are *IEEE Journal on Multiscale and Multiphysics Computational Techniques (JMMCT)* and *IEEE Journal of Electromagnetics, RF, and Microwaves in Medicine and Biology (JERM)*. In 2015, the AP-S, the IEEE Microwave Theory and Technology Society (MTT-S), and the IEEE Electromagnetic Compatibility Society decided to jointly create *JMMCT* to better address common computational electromagnetic method (CEM) challenges facing the three Societies. The launch of *JMMCT*, in 2016, was important for the CEM community and the broader area of computational science and engineering. It was the recognition of CEM by the Society after an earlier schism. It was the first time that a computational journal was established among three sponsoring IEEE Societies to address the new challenges in computational science and engineering involving electromagnetic fields, namely, multiscale and multiphysics challenges.

The publication of *JERM* began in 2017, sponsored by the AP-S, the IEEE Engineering in Medicine and Biology Society (EMBS), and the MTT-S. Its objective is to publish papers related to electromagnetic, radio-frequency, and microwave technologies as applied to medical and biomedical applications. There was strong motivation within the AP-S to publish in this area, as projects in the area were increasing and raising a variety of ethical issues not normally encountered by the AP-S but prevalent in the EMBS. Much of the credit for the birth of *JMMCT* and *JERM* must be given to the continuous commitment of the AP-S presidents of the time (see [Table 1](#)).

CONFERENCES AND SYMPOSIA

From the 1950s, the PGAP sponsored technical sessions at the IRE National Convention, typically held in New York City, NY, USA, in March of each year, and some jointly with URSI. The first separate AP-S symposium was held in Boulder, CO, USA, in July 1963 [10] where there were about 400 attendees. Since then, the number of

July 1963 [10], where there were about 400 attendees. Since then, the number of attendees has increased to around 1,500–1,800 in recent years. A list of locations since Boulder, symposia chairs, and technical program chairs is in Table 3. The number of papers presented has grown even more rapidly, from an initial number of around 60 to today's symposia, which typically can have 14 or 15 parallel sessions of 10 papers each for both mornings and afternoons throughout the week. The IEEE International Symposium on Antennas and Propagation was held in North America until 2021, between the mainland United States and Canada, every five to six years [10]. It was first held outside mainland North America in 2007, when it was held in Hawaii, USA, and again in 2016, in Puerto Rico. The first time the IEEE International Symposium on Antennas and Propagation was held overseas was Singapore, in 2021. In 2024, it will also move outside of North America, to Florence, Italy.

TABLE 3. THE LOCATIONS OF AP-S SYMPOSIA, SYMPOSIA CHAIRS, AND TECHNICAL PROGRAM CHAIRS.

| Year | Location | General Chair | Technical Program Chair |
|------|-------------------------|------------------------|-------------------------|
| 1963 | Boulder, CO, USA | J. W. Herbstreit | H. V. Cottony |
| 1964 | Long Island, NY, USA | Henry Jasik | N. A. Spencer |
| 1965 | Washington, DC, USA | Ed A. Wolff | R. J. Adams |
| 1966 | Palo Alto, CA, USA | R. D. Egan | R. Leadabrand |
| 1967 | Ann Arbor, MI, USA | Ralph E. Hiatt | Tom B. A. Senior |
| 1968 | Boston, MA, USA | Edward E. Altshuler | Leon J. Ricardi |
| 1969 | Austin, TX, USA | Archie W. Straiton | A. H. LaGrone |
| 1970 | Columbus, OH, USA | C. H. (Buck) Walter | C. A. Levis |
| 1971 | Los Angeles, CA, USA | Wolf H. Kummer | Victor H. Rumsey |
| 1972 | Williamsburg, VA, USA | William Croswell | Cal T. Swift |
| 1973 | Boulder, CO, USA | Sam W. Maley | James R. Wait |
| 1974 | Atlanta, GA, USA | Demetrius T. Paris | Richard C. Johnson |
| 1975 | Urbana, IL, USA | George A. Deschamps | Raj Mittra |
| 1976 | Amherst, MA, USA | Robert E. McIntosh | Carl S. Sletten |
| 1977 | Palo Alto, CA, USA | John B. Damonte | Ken K. Mei |
| 1978 | College Park, PA, USA | Geoffery Hyde | Waller K. Kahn |
| 1979 | Seattle, WA, USA | Irene Peden | Akira Ishimaru |
| 1980 | Quebec, Canada | Jules A. Cummins | Keith G. Balmain |
| 1981 | Los Angeles, CA, USA | Robert S. Elliott | Victor Galindo-Israel |
| 1982 | Albuquerque, NM, USA | Carl E. Baum | Ken F. Casey |
| 1983 | Houston, TX, USA | Stuart A. Long | Liang C. Shen |
| 1984 | Boston, MA, USA | Allan Schell | Harold Reamer |
| 1985 | Vancouver, BC, Canada | Ed Jull | Stan J. Kubina |
| 1986 | Philadelphia, PA, USA | Charles Allen | Ali Afrashteh |
| 1987 | Blacksburg, VA, USA | Warren Stutzman | Charles Bostian |
| 1988 | Syracuse, NY, USA | A. T. (Bud) Adams | Tapan Sarkar |
| 1989 | San Jose, CA, USA | Ray King | Ken Mei |
| 1990 | Dallas, TX, USA | Shashi Sanzgir | Andy Blanchard |
| 1991 | Western Ontario, Canada | Allan Webster | H. James |
| 1992 | Chicago, IL, USA | P. L. E. Uslenghi | Allen Taflove |
| 1993 | Ann Arbor, MI, USA | John Volakis | Linda Katehl |
| 1994 | Seattle, WA, USA | Gary Miller | Leung Tsang |
| 1995 | Newport Beach, VA, USA | William Imbriale | Ronald Pogorzelski |
| 1996 | Baltimore, MD, USA | Jon Moellers | Joe Frank |
| 1997 | Montréal, QC, Canada | Stan Kubina | P. Barthia |
| 1998 | Atlanta, GA, USA | Andy Peterson | L. Wilson Pearson |
| 1999 | Orlando, FL, USA | Christos Christodoulou | Parveen Wahid |
| 2000 | Salt Lake City, UT, USA | Karl Warnick | Om Gandhi |
| 2001 | Boston, MA, USA | Robert M. Glendon | Donald H. Stutzman |
| 2002 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2003 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2004 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2005 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2006 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2007 | Hawaii, USA | John Volakis | John M. Joseph |
| 2008 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2009 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2010 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2011 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2012 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2013 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2014 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2015 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2016 | Puerto Rico | John Volakis | John M. Joseph |
| 2017 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2018 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2019 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2020 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2021 | Singapore | John Volakis | John M. Joseph |
| 2022 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2023 | San Jose, CA, USA | John Volakis | John M. Joseph |
| 2024 | Florence, Italy | John Volakis | John M. Joseph |

| | | | |
|------|----------------------|----------------|-----------------|
| 2001 | Boston, MA, USA | Robert McCanan | Ronald L. Fante |
| 2002 | San Antonio, TX, USA | Bob Nevels | Kris Michalski |
| 2003 | Columbus, OH, USA | Jonathan Young | Ronald Marhefka |

TABLE 3. THE LOCATIONS OF AP-S SYMPOSIA, SYMPOSIA CHAIRS, AND TECHNICAL PROGRAM CHAIRS. (Continued)

| Year | Location | General Chair | Technical Program Chair |
|------|-----------------------|--|---|
| 2004 | Monterey, CA, USA | Hseueh-Yuan Pao | Andrew Poggio |
| 2005 | Washington, DC, USA | Amir Zaghloul | Ozlem Kilic |
| 2006 | Albuquerque, NM, USA | Donald McLemore | Scott Tyo |
| 2007 | Honolulu, HI, USA | Magdy Iskander | Karl Warnick |
| 2008 | San Diego, CA, USA | Michael Thorburn | Aluizo Prata |
| 2009 | Charleston, SC, USA | Anthony Martin | Gianluca Lazzi |
| 2010 | Toronto, ON, Canada | George Eleftheriades | Lot Shafai, Costas Sarris, and Yahia Antar |
| 2011 | Spokane, WA, USA | Jeffrey Young | Shira Broschat and John Schneider |
| 2012 | Chicago, IL, USA | Danilo Erricolo | Susan Hagness and Nader Behdad |
| 2013 | Orlando, FL, USA | Parveen Wahid | Xun Gong and Gokhan Mumcu |
| 2014 | Memphis, TN, USA | Atef Elsherbeni | Fan Yang and Veysel Demir |
| 2015 | Vancouver, BC, Canada | Dave Michelson, Lot Shafai, and Rodney Vaughan | Costas Sarris, Sean Hum, and Ashwin Iyer |
| 2016 | Puerto Rico | Scott Tyo | Andrea Alu |
| 2017 | San Diego, CA, USA | Daniel Sievenpiper and Gabriel Rebeiz | Vitaliy Lomakin and Filippo Capolino |
| 2018 | Boston, MA, USA | Steven Best | Alan Fenn and Wajih Elsallal |
| 2019 | Atlanta, GA, USA | John Papapolymou and Manos Tentzeris | S. Balasubramaniam and Andrew Peterson |
| 2020 | Quebec, Canada | Ahmed Kishk | G. V. Eleftheriades, Ke Wu, A. K. Iyer, and M. Antoniadis |
| 2021 | Singapore | Zhi Ning Chen | Eng Leong Tan and Xudong Chen |
| 2022 | Denver, CO, USA | Branislav Notaros | Andrew Peterson |
| 2023 | Portland, OR, USA | Reyhan Baktur and Jamesina J. Simpson | C. Christodoulou, A. Chrysler, and Karl Warnick |
| 2024 | Florence, Italy | A. Monorchio, R. D. Graglia, and G. Manara | F. Andriulli, A. Kiourti, and A. F. Peterson |

As well as cosponsoring several conferences with a variety of organizations, including the Asia-Pacific Microwave Conference, the European Conference on Antennas and Propagation, and Asia-Pacific Conference on Antennas and Propagation, the Society has established two conferences of its own. The intention was to hold them outside North America where possible when the annual IEEE International Symposium on Antennas and Propagation was held elsewhere. These conferences are as follows:

- 1) *IEEE International Workshop on Antenna Technology*: This is a series of annual international antenna workshops that have been held annually since 2005. The first edition was held in Singapore, and since then, it has been held in a variety of locations, as shown in [Table 4](#).

TABLE 4. THE DATES AND LOCATIONS OF THE IEEE INTERNATIONAL WORKSHOP ON ANTENNA TECHNOLOGY.

| Year | Location |
|-------------|-----------------------|
| 2005 | Singapore |
| 2006 | White Plains, NY, USA |
| 2007 | Cambridge, U.K. |
| 2008 | Chiba, Japan |
| 2009 | Santa Monica, CA, USA |
| 2010 | Lisbon, Portugal |
| 2011 | Hong Kong, China |
| 2012 | Tucson, AZ, USA |

2) *IEEE Topical Conference on Antennas and Propagation in Wireless Communications*: The IEEE Topical Conference on Antennas and Propagation in Wireless Communications (APWC) is an annual international conference established in 2011 and, since then, 100% financially sponsored by the AP-S. All editions of the APWC are held jointly with the International Conference on Electromagnetics in Advanced Applications, another annual conference financially cosponsored by the AP-S and whose first edition dates to 1989. The 2011 edition of the APWC was held in Torino, Italy, and since then, the conference has been held all around the world, as reported by the venues in [Table 5](#). The areas of interest of the APWC concern the whole area of information and communication technology, with particular attention to wireless communications and satellite navigation technologies. The people behind establishing and chairing this conference are Prof. Uslenghi, of the University of Illinois Chicago, Chicago, IL, USA, and Prof. Roberto D. Graglia, of Politecnico di Torino.

TABLE 5. THE DATES AND LOCATIONS OF THE APWC.

| Year | Location |
|-------------|-------------------------------|
| 2011 | Torino, Italy |
| 2012 | Cape Town, South Africa |
| 2013 | Torino, Italy |
| 2014 | Palm Beach, Aruba |
| 2015 | Torino, Italy |
| 2016 | Cairns, Qld., Australia |
| 2017 | Verona, Italy |
| 2018 | Cartagena de Indias, Colombia |
| 2019 | Granada, Spain |
| 2021 | U.S. ... |

| | |
|------|-------------------------|
| 2021 | Honolulu, HI, USA |
| 2022 | Cape Town, South Africa |
| 2023 | Venezia, Italy |
| 2024 | Lisbon, Portugal |

3) *IEEE Conference on Antenna Measurements and Applications*: The first edition of the IEEE Conference on Antenna Measurements and Applications (CAMA) was held in 2014, at Antibes Juan-les-Pins, France. The leader of this conference is Prof. Christian Pichot, of Université Côte d’Azur, Sophia Antipolis, France. Since then, it has been held annually except in 2020, at the height of the COVID pandemic. The venues are listed in [Table 6](#). This year is the 10th edition of the conference.

| Year | Location |
|-------------|-------------------------------|
| 2014 | Antibes Juan-les-Pins, France |
| 2015 | Chiang Mai, Thailand |
| 2016 | Syracuse, NY, USA |
| 2017 | Tsukuba, Japan |
| 2018 | Vasteras, Sweden |
| 2019 | Kuta, Indonesia |
| 2021 | Antibes Juan-les-Pins, France |
| 2022 | Guangzhou, China |
| 2023 | Genoa, Italy |
| 2024 | Da Nang, Vietnam |

CHAPTERS

Chapters were founded a few years after the formation of the PGAP. In 1953, there were two Chapters, in Los Angeles and Chicago. Ten years later, 15 Chapters had been formed. There were 25 active Chapters in 1982, with some being formed outside of North America. In 2008 ^[4], there were over 70 AP-S Chapters. Today, in 2024, the Society has 211 Chapters throughout the world, as exhibited in [Figure 6](#). Each Chapter has a connection to the two arms of IEEE, namely, Societies (administered by the Technical Activities Board), and Sections (the Member and Geographic Activities Board). The former ensures that good technical activity is maintained, and the latter ensures that Chapters are properly organized and provides basic operational funding.

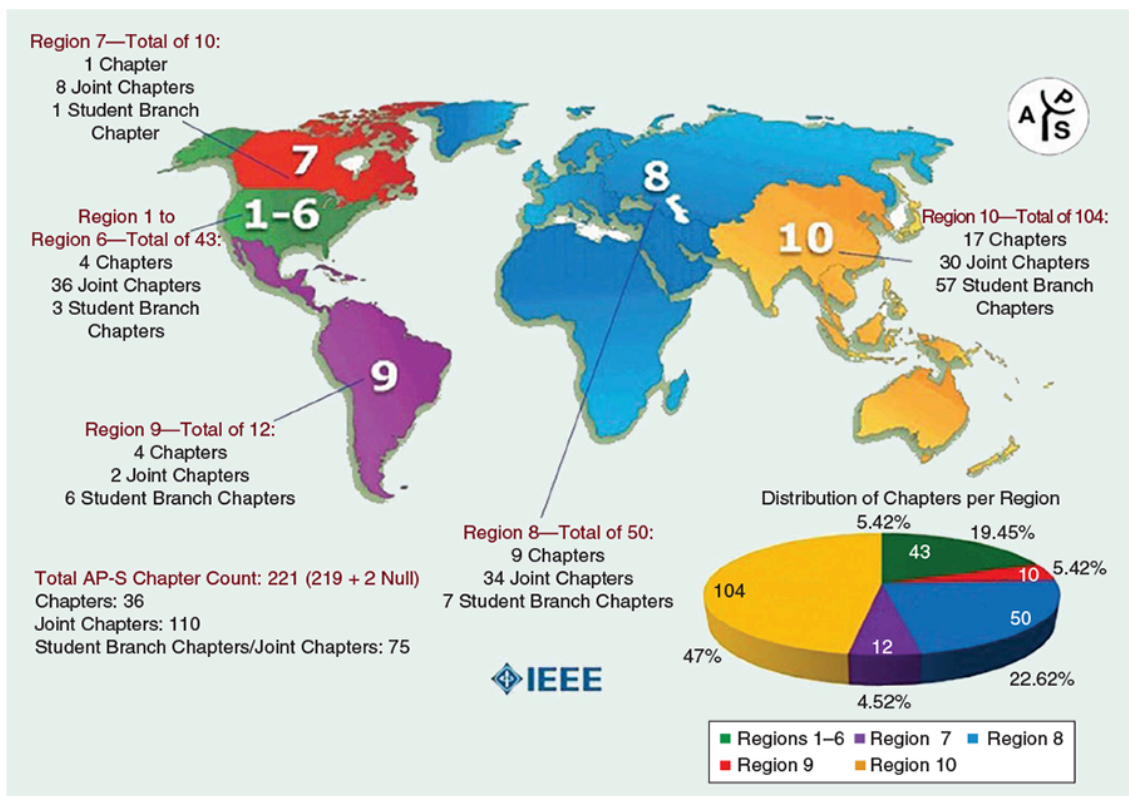


FIGURE 6. The distribution of AP-S Chapters in the 10 IEEE Regions.

The Society commenced a Distinguished Lecturer Program in 1973. This provides international speakers to the Chapters. The funding for this program is shared between the Society and the home Section of a Chapter. In the first few years, there were two lecturers. There are currently five lecturers, who can be invited to speak at any of the Chapters, given that funding is available.

PROFESSIONALISM

There are three main activities dealing with professionalism and the upskilling of Society members. The first relates to Chapters, which were covered in the previous section. The other two are WIE and YPs.

“

On its 75th anniversary, the Society now has an extensive range of awards for both technical and personal achievements.

WIE

The WIE program began in IEEE in the 1990s. It now is a global network of IEEE members and volunteers dedicated to promoting women engineers and scientists and

inspiring girls around the world to follow their academic interests in a career in engineering and science. AP-S WIE activity started in 1998, with a wine and cheese party at the annual IEEE International Symposium on Antennas and Propagation, through the enthusiasm of Parveen Wahid and others. In those days, there were barely 10–12 women at the conference. A small organization group consisted of Wahid, Jennifer Bernhard, Magda Elshenaway, Cynthia Furse, Kathleen Melde, and Rhonda Franklin. The group met during the conference to talk about ways to "integrate" with the other conference attendees and not feel isolated. The success of this first event resulted in a WIE conference held every year up to 2019 at the annual IEEE International Symposium on Antennas and Propagation. A core group from the WIE event in 2002 appears in [Figure 7](#). In 2004, the AP-S WIE Chapter was formed, with Wahid as the chair. Since 2019, WIE has had a column in *IEEE Antennas and Propagation Magazine*, with its main aim to give visibility to women engineers and to create a place where researchers and scientists of the antennas and propagation community can share their experiences and achievements to inspire other women and girls around the world to pursue a career in engineering. For further information, please refer to [\[11\]](#).



FIGURE 7. The WIE gathering at the 2002 IEEE International Symposium on Antennas and Propagation, in San Antonio, TX, USA. From left: unknown, Elise Fear, Parveen Wahid, Shelly Spittler, Susan Hagness, Jennifer Bernhard (2008 AP-S president), unknown, Cynthia Furse, Dijana Popovic, and Dulce Altabella.

YPS

IEEE YPs is a successor of an earlier program called IEEE Graduates of the Last Decade

to encourage recent graduates to continue as IEEE Members to enhance their careers. IEEE now defines YPs as those who have graduated with their first professional degree within the past 15 years. These include graduate students, postdoctoral fellows, and those with early careers in academia, government, and industry.

The AP-S has supported YPs activity since 2018, forming the YP Committee (YPC), chaired by Prof. Hao Xin, in 2018. Together with the AP-S Education Committee, the YPC holds a reception at each IEEE International Symposium on Antennas and Propagation to introduce YP members to the AP-S community. The YPC also serves as an avenue to foster opportunities for career advice and mentoring. In addition, a YPs column was introduced in *IEEE Antennas and Propagation Magazine*, with the first article appearing in the December 2018 issue [12]. Since then, many articles have been published in the column that are useful for YPs. A list of articles published so far can be found through [12]. In 2023, the AP-S YPs group won the IEEE Hall of Fame award for "impact on YPs career pathways, technical achievement, personal growth, and professional achievements."

AWARDS

The awards of the AP-S have varied over the Society's 75-year history [2]. In 1982, the AP-S bylaws listed three awards given by the Society. They were 1) the best paper award, 2) the best application paper award, and 3) the R. W. P. King award. In addition, the best hardware paper award was given for a paper presented at the annual IEEE International Symposium on Antennas and Propagation. The John T. Bolljahn Memorial Award [2] was created in 1961 as an annual prize for the best paper published in the transactions. In summary, in the earlier days, the awards were all given for papers. Over the following years, some awards have come and gone [3], [4].

On its 75th anniversary, the Society now has an extensive range of awards for both technical and personal achievements. Some are well established, and many have come into existence only in the last 10 years. These are set out in the bylaws and approved by the AdCom.



At its current growth rate, the Society can expect to have about 13,500 members by its centenary, in 2049.

These include the following:

- *Outstanding Service Award*: This award recognizes an individual or team that has performed exceptional service for the Society.
- *Distinguished Achievement Award*: The award recognizes outstanding career achievement by an individual in the field of antennas and propagation.
- *Chen-To Tai Distinguished Educator Award*: This award recognizes up to two individuals for outstanding career achievement as a distinguished educator in the field of antennas and propagation.
- *John Kraus Antenna Award*: This award honors an individual or team that has made a significant advance in antenna technology. It is named after a distinguished antenna engineer.
- *Lot Shafai Mid-Career Distinguished Achievement Award*: The award recognizes the past technical accomplishments and future potential of an outstanding woman of midcareer status in the field of antennas and propagation.
- *Harrington–Mittra Award in Computational Electromagnetics*: The award recognizes the past technical accomplishments and future potential of an outstanding contributor to the area of computational electromagnetics.
- *Donald G. Dudley Jr. Undergraduate Teaching Award*: This recognizes outstanding and original contributions to undergraduate education by an individual assistant professor or equivalent at an accredited institution of engineering education.
- *AP-S Chapter Award*: The award annually recognizes the best AP-S Chapter.
- *Distinguished Industry Leader Award*: This award recognizes an industry executive whose leadership in a company or consulting firm has resulted in major advances, new directions, and developments in the antenna and electromagnetics industry.
- *Industrial Innovation Award*: The award recognizes major industrial accomplishments, standards, and the deployment of important processes or products that are of substantial benefit to the public in the field of antenna and electromagnetic technologies.
- *IEEE Antennas and Propagation Society Young Professional of the Year*: To encourage professionalism among emerging talent, the Society selects 10–20 YPs ambassadors every year to serve for one year term. This award

its ambassadors every year to serve for one year term. This award recognizes one YP who gives significant service to the Society as an AP-S Young Ambassador.

There are several conference awards for papers and for young researchers to attend the annual IEEE International Symposium on Antennas and Propagation or a Society conference, up to 10 doctoral research grants, and an AP-S student design contest.

BEST PAPER AWARDS

At present, these include the following:

- *Sergei A. Schelkunoff Transactions Prize Paper Award*: This award is given for the best transactions paper published in the preceding calendar year.
- *Harold A. Wheeler Applications Prize Paper Award*: This award recognizes the best application paper published in the transactions in the preceding calendar year.
- *R. W. P. King Paper Award*: Established in honor of Prof. King, this award is given for the best paper published in the transactions in the preceding calendar year and authored by a person younger than 36.
- *Piergiorgio L. E. Uslenghi Letters Prize Paper Award*: Established for papers published in the preceding calendar year in AWPL, as judged on the original technical contribution, style, and presentation, this award bears the name of AWPL's originator and first EiC.
- *Edward E. Altschuler AP-S Magazine Prize Paper Award*: This award recognizes the best contribution to IEEE Antennas and Propagation Magazine in a calendar year and is named for an IEEE Life Fellow and longtime member of the AP-S.

MILESTONES

As the AP-S has matured and expanded, it has identified significant legacies of its history that should be recognized. A Society History Committee was formed in 2017, by Tapan Sarkar, and its main activities have been to plan sessions for upcoming annual symposia, contribute a column to *IEEE Antennas and Propagation Magazine*, and identify contenders for the IEEE Milestones program. The latter honors significant technical achievements in all areas associated with IEEE. It is a program administered through the IEEE History Center. Milestones recognize the technological innovation and excellence for the benefit of humanity found in unique products, services, seminal

papers, and patents.

Fifteen IEEE Milestones so far can be identified closely with the field of interest of the AP-S. These vary from the fundamentals of electromagnetics to Ampere's discovery and Maxwell's equations and to radio applications, such as radio astronomy. A notable absentee from this list is Michael Faraday. Hertz's verification of Maxwell and electromagnetic waves is a Milestone, as are some early radio telegraph transmissions by Bose, Popov, and Marconi. The list of IEEE Milestones is growing. The current list can be seen by going to [\[13\]](#).

Six Milestones with achievements that are particularly relevant to the AP-S are as follows:

- 1) *"Maxwell's Equations," 1860–1871, London, U.K., and Glenlair, U.K.:* Over this time and at these locations, James Clerk Maxwell conceived and developed his unified theory of electricity, magnetism, and light.
- 2) *"Directive Short Wave Antenna," 1924, Miyagi, Japan:* This Milestone recognizes the development of the Yagi–Uda antenna.
- 3) *"The Discovery of the Principle of Self-Complementarity in Antennas and the Mushiake Relationship," 1948, Tohoku University, Sendai, Japan:* Prof. Yasuto Mushiake discovered that antennas with self-complementary geometries are frequency independent.
- 4) *"NAIC/Arecibo Radiotelescope," 1963, Arecibo, Puerto Rico:* The Arecibo Observatory was the world's largest radio telescope. Its design and implementation led to advances in the electrical engineering areas of antenna design.
- 5) *"Parkes Radio Telescope," 1969, Parkes, NSW, Australia:* The Parkes radio telescope and Honeysuckle Creek station received voice and video signals from the Apollo 11 moonwalk. Parkes used the newly developed corrugated feed horn.
- 6) *"Giant Metrewave Radio Telescope," 1994, Pune, India:* The Giant Metrewave Radio Telescope, consisting of 30 antennas of 45-m diameter each and spanning 25 km, was one of the largest and most sensitive low-frequency (110–1,460-MHz) radio telescopes in the world. It pioneered new techniques in antennas and other receiver technologies.

CONCLUSIONS

The AP-S has come a long way since its beginning in 1949. From a predominantly male Society, it has had four women presidents in the intervening time, and as well as

Society, it has had four women presidents in the intervening time, and as well as supporting practicing engineers and researchers, it is more encouraging of younger members through scholarships and YPs. Another major change has been the internationalization of the Society from mainly North America to a distribution of members across the globe. This is reflected now through the holding of the annual IEEE International Symposium on Antennas and Propagation in other countries and having other Society conferences worldwide. The strength of the AP-S technical content is measured by the Society's transactions being in the top three among IEEE publications and the creation of four other Society publications. The strength is driven by the continuing wireless revolution and the use of electromagnetics and radiation in wider applications, such as medical and multiphysics applications, including for treating contaminated water supplies. It is expected that the Society will continue to expand and attract new members into the future. At its current growth rate, the Society can expect to have about 13,500 members by its centenary, in 2049.

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