

an archival paper published at least 20 years prior to the year of the award.

- The Microwave Application Award recognizes an individual or team for an outstanding application of microwave theory and techniques.
- The Distinguished Educator Award recognizes a distinguished educator in the field of microwave engineering and science who best exemplifies the special human qualities of Fred Rosenbaum, who considered teaching to be a high calling and demonstrated his dedication to the MTT-S through tireless service.
- The Distinguished Service Award recognizes an individual who has given outstanding service for the benefit and advancement of the MTT-S.
- The N. Walter Cox Award recognizes an MTT-S member who has given exemplary service to the MTT-S in the spirit of selfless dedication and cooperation.

- The Outstanding Young Engineer Award recognizes an outstanding young MTT-S member who has distinguished him/herself through achievements within the MTT-S field of interest that may be technical, may represent exemplary service to the MTT-S, or may be a combination of both.
- The Microwave Prize recognizes the most significant contribution by a published paper to the field of interest of the MTT-S.
- The Tatsuo Itoh Award recognizes the most significant contribution in a paper published in *IEEE Microwave and Wireless Component Letters*.
- The Transactions on Terahertz Science and Technology Best Paper Award recognizes the most significant contribution in a paper published in *IEEE Transactions on Terahertz Science and Technology*.
- The Microwave Magazine Best Paper Award recognizes the most

significant contribution in an article published in *IEEE Microwave Magazine*.

Every year, the deadlines for the nomination for the MTT Society and best paper awards and for the IEEE-level awards are as follows:

- *IEEE MTT-S Awards*: 31 July
- *IEEE Fellows*: 1 March
- *IEEE Technical Field Awards*: 15 January
- *IEEE Medals*: 15 June.

For more information about all of these awards (the citation, criteria, nomination process, past awardees, and so on) visit <https://mtt.org/ieee-and-mtt-s-awards/>.

The Awards Committee continues to work hard to increase the number of nominations in all categories of the MTT-S awards and nominations of MTT-S members for the IEEE-level awards as well as to achieve better diversity among the nominees and recipients, based on IEEE Region, gender, and professional affiliation.

## The MTT-S Education Committee—Promoting Education for All—2022

■ Wenquan Che , Raafat Mansour, Xun Gong, and José Rayas-Sánchez

One of key roles of the IEEE Microwave Theory and Technology Society (MTT-S) Education Committee is to help with the career development of students and professionals at different stages in their careers. There are at least three major targets of the committee.

Wenquan Che ([eeqwqche@scut.edu.cn](mailto:eeqwqche@scut.edu.cn)) is with South China University of Technology, Guangzhou 510641, China. Raafat Mansour is with the Center for Integrated RF Engineering (CIRFE), University of Waterloo, Canada. Xun Gong is with the Department of Electrical and Computer Engineering, University of Central Florida, Orlando, FL 32816 USA. José Rayas-Sánchez is with ITESO, The Jesuit University of Guadalajara, Guadalajara 45604, Mexico.

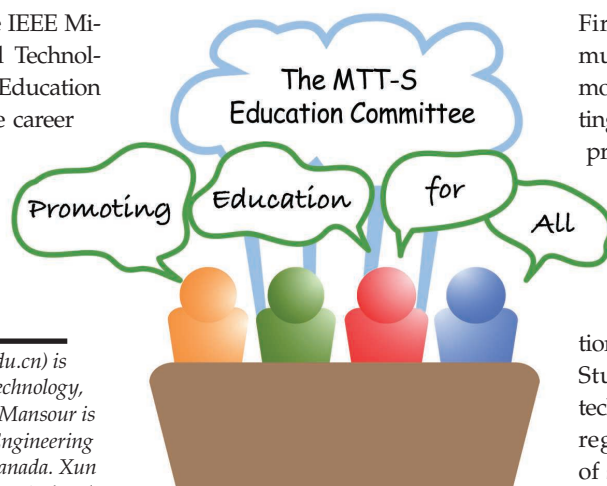


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First, the committee aims to develop multiple education resources, such as monthly MTT-S webinars and the Distinguished Microwave Instructors (DMI) program. Next, the committee shares these resources through different activities and platforms, including undergraduate scholarships and graduate fellowships, as well as many student design competitions at MTT-S-sponsored conferences. Student newsletters feature review technology articles and announcements regarding the application deadlines of scholarships/fellowships as well as some important conferences. Finally, the committee works hard to increase the regional presence of the MTT-S through a wide range of activities.

The MTT-S offers several fellowships/scholarships for graduate and undergraduate students. Applications for these scholarships can be accessed at <https://mtt.org/students/>, which also describes the application criteria and the deadline. The fellowships and scholarships include the following:

- **Graduate Students Fellowship:** This fellowship is open to master's-level and Ph.D.-level graduate students, with an award of US\$6,000 and a travel supplement of US\$1,000 to attend the International Microwave Symposium (IMS).
- **Medical Graduate Students Fellowship:** This award is dedicated to graduate students who are involved in medical/electromagnetic-related research. It offers an award of US\$6,000 and a supplement of US\$1,000 to attend IMS.
- **Undergraduate Students Scholarship:** This scholarship is open to bachelor's and bachelor's/master's students in electrical engineering, with an award of US\$1,500 and a travel supplement of US\$1,000 to attend IMS.

In addition to the fellowships/scholarships, the DMI program stimulates interest not only among undergraduate and graduate students but also professionals from both industry and academia. This helps to form a pathway for the development of future microwave technologies.

The DMI program is targeted toward attracting undergraduate students at freshman and sophomore levels. In an era when there are many highly competitive fields, it is critical for the MTT-S to form relationships with undergraduate students while they are still identifying future career paths. DMI workshops are offered three times a year, for Region 8, Region 10, and Regions 1–7 and Region 9, respectively, which are based on time zones. In these workshops, three invited DMIs each give a short 20-min presentation to introduce different perspectives on microwave technology at a rudimentary level through vivid pictures and animations. Afterward, a 30–60-min Q&A

session helps students to better understand the presentation materials and focus on career choices. The workshops are recorded and then archived at the MTT-S Resources Center to download free of charge. Significant efforts were made in the Education Committee to reach out to a large number of universities through hand-picked ambassadors in each Region. In addition, virtual meetings have been used extensively to facilitate participation from students throughout the COVID-19 restrictions (see Figure 1). It is expected that in the future, more students will be able to gather in large classrooms to attend the DMI workshops and that DMIs will be able to travel to their selected campuses to interact with the students.

For graduate students, in addition to fellowships and contests, the Ph.D. Student Initiative Program provides opportunities to early stage Ph.D. students to attend MTT-S-sponsored conferences. Through this program, the plan is to invite mid-stage Ph.D. students (without any papers at the

conferences) from local universities and institutions to participate in the conferences. The invited students should be in the preliminary stage of their research work, with a clear idea of their research problem statement. The basic premise is to encourage early level doctoral candidates in the RF and microwave domain and provide them exposure during the conference. The Ph.D. Student Initiative has been a very successful tool to assist these students in transitioning to niche RF/microwave topics.

Our Subcommittee on Regional Education has recently focused on increasing MTT-S educational projects and activities in Region 9. The overall objective is to enhance the presence of the MTT-S in Latin America, for which the following initiatives have been implemented:

- Graduate student travel support was implemented for the IEEE MTT-S Latin America Microwave Conference (LAMC), held in Arequipa, Peru, and Cali, Colombia.



Figure 1. A scene from the second DMI workshop for Region 8.

Query Date	Active Members	Changes	
15 June 2020	134	+17.9%	+30.6%
2 June 2021	158		
5 June 2022	175	+10.7%	

Figure 2. Significant growth in MTT-S membership in Region 9 has been observed. (Data source: IEEE OUI Analytics.)

- A set of educational kits to support the teaching of RF and microwave engineering courses at undergraduate and graduate levels was created. These “RF Trainer Kits” consist of a set of fundamental microstrip components enclosed in robust packaging structures with coaxial connectors. They include transmission lines, filters, directional couplers, power dividers, resonators, and planar antennas. Their distribution among qualifying

- MTT-S Chapters in Latin American countries started in June 2022.
- Implementing multilingual MTT-S webinars can significantly enhance the impact of the MTT-S in non-English regions and countries as well as increase the diversity of the microwave community in terms of nations and cultures. Several MTT-S webinars that are fully in Spanish have been implemented, while plans to implement MTT-S webinars in Portuguese are in progress.

- A Focus Session on RF and Microwave Research in Latin America will be implemented as part of IMS2023, in San Diego, California, USA, to increase the visibility of RF and microwave research efforts undertaken in Latin America.

These initiatives, along with others implemented by the MTT-S Membership and Geographical Activities Committee, have been making a positive impact on MTT-S Region 9 membership (see Figure 2).

## The MTT-S Historian: Passing on the MTT-S Legacy—2022

■ Steven N. Stitzer 

The IEEE Microwave Theory and Technology Society (MTT-S) started as the “Professional Group on Microwave Theory and Techniques” (PG MTT) when the founding committee received approval from the then Institute of Radio Engineers (IRE) on 7 March 1952. The first committee meeting, held on 1 May 1952, included Ben Warriner as the chair; Andre Clavier as the vice chair; Bill Mumford as the secretary-treasurer; and members Paul Coleman, Don King, Harry Marvin, Joe McCann, George Rosselot, Harald Schutz, and George Southworth. There were 15 Administrative Committee (AdCom) members in 1954. The early history of the MTT-S was covered in articles by the MTT-S’s first historian, Ted Saad, in the September



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1984 [1] and March 2002 [2] issues of *IEEE Transactions on Microwave Theory and Techniques* and by your current historian in the September 2016 [3] issue of *IEEE Microwave Magazine*.

The title of *chair* changed to *president* in 1972, with the term thenceforth coinciding with the calendar year.

**TABLE 1. The MTT-S AdCom presidents since 2016.**

2017 Dylan Williams
2018 Tom Brazil and Dominique Schreurs
2019 Dominique Schreurs
2020 Alaa Abunjaileh
2021 Gregory Lyons
2022 Rashaunda Henderson

The one recent exception was caused by the unexpected passing of Tom Brazil in 2018. His term was completed by President-Elect Dominique Schreurs, who then served a full term in 2019. Today’s AdCom comprises 22 members. Tables 1 and 2 list all of the AdCom presidents

and members serving since the last update in 2016. Nuno Borges Carvalho is president-elect for 2023.

In its first year, MTT-S membership was 942. Membership in 2022 is about 11,400. There were four local Chapters in 1954: Albuquerque–Los Alamos, Boston, Buffalo–Niagara, and Chicago. Today, there are more than 150 Chapters worldwide. The latest change is the name of the Society—now “Microwave Theory and Technology”—starting in fall 2022.

### Publications

One issue of *Transactions* was published in 1953, consisting of 10 papers and one abstract, for a total of 48 pages.

Steven N. Stitzer ([s.stitzer@ieee.org](mailto:s.stitzer@ieee.org)), *IEEE Microwave Theory and Technology Society historian, is a consulting engineer with Northrop Grumman Missions Systems, Linthicum, MD 21091 USA. He is a Life Fellow of IEEE.*

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