President's Column

Focus on the IEEE Microwave Theory and Techniques Society Administrative Committee

■ Dominique Schreurs

This month, I introduce you to the new members who joined the IEEE Microwave Theory and Techniques Society (MTT-S) Administrative Committee (AdCom) last month. Before doing that, though, I would like to recognize the numerous MTT-S volunteers serving on various MTT-S committees overseen by the AdCom. For the complete listing, I refer you to the MTT-S website (mtt.org). AdCom chairs are making explicit efforts to involve more young professionals in committee operations and broaden geographical and gender diversity.

First, as to AdCom officers, I welcome Sherry Hess (United States), who will be serving as AdCom secretary. Sherry works in the microwave industry and has been actively involved in MTT-S Women in Microwaves (WIM) activities since 2010. Second, as to the AdCom membership, two new members joining us in 2019 were elected by the MTT-S AdCom itself: N. Scott

IMAGE LICENSED BY INGRAM PUBLISHING

Barker (United States) and Anding Zhu (born in China, now living in Europe), both from academia. Scott is the former editor-in-chief of *IEEE Microwave and Wireless Components Letters*, while Anding served as the AdCom secretary in 2018.

Dominique Schreurs (dominique.schreurs@kuleuven.be), MTT-S president, is with Katholieke Universiteit Leuven, Belgium. (Photo by Ed Niehenke.)

In addition, each year, one new AdCom member is elected by the MTT-S membership-at-large—thus, by you all. So I am happy to note that Ajay Poddar (born in India, now living in the United States) was elected to the 2019 AdCom in this way. Like Sherry, Ajay works in the microwave industry.

There are also a number of ex-officio AdCom members, mainly the editors-in-chief (EiCs) of MTT-S publications. In 2019, two new EiCs were appointed: Imran Mehdi (United States) is now the EiC for *IEEE Transactions on Terahertz Science and Technology*, and Thomas Zwick (Europe) is the incoming EiC for *IEEE Microwave and Wireless Components Letters*. At the end of this column, you can find short biographies of each of these incoming AdCom members.

When I inquired about their motivations for volunteering, spending endless hours for the MTT-S, reactions were diverse.

- **Sherry Hess:** As a result of my continued involvement with IEEE MTT-S WIM activities, I have been approached on occasion to think about serving the MTT-S

more officially. Yet, as I tried to find the right mix of time for my career, volunteering, and a personal/family life, a more official role never materialized. However, once I learned that Dominique would be the first female Society president, everything changed. As an often outspoken advocate for women in engineering, I felt it was time to put my words into action and get involved to support not only the Society but also the other females taking an active role. There was no better time or place to start than with Dominique.

I am very happy to join the Society as its 2019 secretary, and I look forward to working with the AdCom members, committee chairs, and volunteers. In this role, I know I will get to know others quite well (and vice versa), so that, together, we can continue to collaborate on ways to keep our Society strong and vibrant.

- *N. Scott Barker*: The MTT-S has supported my career through sponsoring world-class conferences, top-rated journal publications, and a wide variety of awards. It is only fitting that I do what I can to support this Society and maintain the level of excellence that was handed down.
- *Anding Zhu*: With the remarkable advances in technology development and continuously emerging new applications, the MTT-S needs to rapidly adapt to new challenges to harvest new opportunities. The MTT-S would need to serve greater regions and cover broader technical areas. As an international person (born in China, educated and working abroad), I believe I can bring significant benefits to the AdCom by dealing with complex issues that may involve people from different regions reflecting different cultures and technologies as well as multiple disciplines.
- *Ajay Poddar*: I would like to initiate the Humanitarian Technology

Project using microwave/wireless technology and jointly collaborate with industries and academic institutions to create excitement among our young students about the opportunities in emerging microwave technology where they can contribute and make a significant impact as future engineers, researchers, and entrepreneurs.

- *Imran Mehdi*: I feel that the MTT-S is one of the most vibrant technical societies with world-class publications and conferences. It is an honor and privilege to serve on the MTT-S AdCom.
- *Thomas Zwick*: For me, the MTT-S is the most important IEEE Society. It not only covers nearly all my research activities, but I also have many friends there.

I also asked the new members about their plans while serving on the AdCom.

- *N. Scott Barker*: As chair of the Publications Committee, I will work to maintain the high quality of our flagship journals as well as develop solutions to the increasing pressure for open access publications within our field of interest.
- *Anding Zhu*: In 2019, my first priority is to work on the MTT-S website (mtt.org) to make sure our Society website will act as the best window for the Society and provide the best service to our members. On the technical side, I will use my system-level expertise and my role in the IEEE Future Networks Initiative to push for much greater involvement by the MTT-S in 5G (and beyond) technology development led by the IEEE. As vice chair of the Publications Committee, I will continue promoting the MTT-S on wider publication platforms and encourage joint efforts among multiple IEEE Societies.
- *Ajay Poddar*: I would like to create a positive atmosphere for new job opportunities among students by organizing interactive workshops, webinars, and design contests on

emerging technologies such as drones, CubeSats, autonomous cars, solar-driven cars, and smart city and alternative energy solutions. A large percentage of MTT-S members are members of IEEE Sister Societies, in particular, the IEEE Antennas and Propagation Society (AP-S). We need to collaborate on inter-Society relations for a positive future of individual Societies and the IEEE as a whole. My experience as an AP-S AdCom member can help in building inter-Society relationships for providing collaborative Humanitarian Technology Project engagement and networking for the benefit of the society we live in.

- *Imran Mehdi*: While my first priority is to serve the Society by carrying out my duties as EiC of *IEEE Transactions on Terahertz Science and Technology*, I hope to contribute to the AdCom by planning for continued strength in our flagship publications. In a rapidly changing world, we need to innovate to make sure we stay relevant and a “must-have” for all professionals in our field.
- *Thomas Zwick*: As the only three-page letter journal in the MTT-S, we should provide a first-class publication choice and a compact format for the newest scientific results in the MTT field. I will do my best to further reduce the time to publication since, to me, this is the key figure of merit for such a letters journal.

I wish to thank all AdCom members, new and continuing, as well as all MTT-S volunteers for offering their services to the benefit of the global MTT-S community. I welcome you now to read this theme issue on emerging topics in wireless communications.

New AdCom Members

Sherry Hess is presently vice president of marketing at the AWR Group of National Instruments. She has more than 20 years of electronic design automation experience spanning business

development, sales, marketing, and management in both the United States and Europe. Sherry is an active member of the MTT-S and a regular contributor to *High-Frequency*

Electronics and other publications advocating for women in engineering. She holds B.S.E.E. and M.B.A. degrees from Carnegie Mellon University, Pittsburgh, Pennsylvania.

N. Scott Barker received a B.S.E.E. degree from the University of Virginia, Charlottesville, in 1994 and M.S.E.E. and Ph.D. degrees in electrical engineering from the University of

Michigan, Ann Arbor, in 1996 and 1999, respectively. He is currently a professor of electrical and computer engineering at the University of Virginia. He has more than 100 publications and several patents in this field. In 2011, he cofounded Dominion MicroProbes, Inc., to develop and market terahertz-frequency technology coined by his group at the University of Virginia, including 500–750- and 750–1100-GHz on-wafer probes. He was elevated to IEEE Fellow in 2018.

Anding Zhu received a Ph.D. degree in electronic engineering from University College Dublin (UCD), Ireland, in 2004. He is currently a professor in the School of Electrical and

Electronic Engineering and the head of the RF and Microwave Research Group at UCD. His research interests are in the area of nonlinear modeling and characterization of RF circuits and systems, with a particular emphasis on digital linearization of RF power amplifiers for wireless communications. He is an associate editor of *IEEE Microwave Magazine* and an editorial board member of the IEEE Future Networks Tech Focus. He served as secretary of the MTT-S AdCom in 2018 and is currently vice chair of the Electronic

Information Committee and also vice chair of the Publications Committee.

Ajay Poddar, an IEEE Fellow, currently works as a chief scientist at Synergy Microwave, New Jersey, with responsibility for the design and development

of signal generation and signal processing electronics for communication systems, radar, and test and measurement equipment. He holds more than a dozen patents, has published over 200 papers, and coauthored six books/chapters. He graduated from the Indian

(continued on page 20)

**Get Up to Speed
— Fast!**

RF Technology Certification

Next Session Starts Soon! - Online

Applied RF Engineering I

Next Session Starts Soon! - Online

Radio Systems: RF Transceiver Design from Antenna to Bits & Back

Feb. 25 to Mar. 1, 2019, San Diego, CA - Dr. Waleed Khalil

mm-Wave RFIC and MMIC Design Techniques

February 25-27, 2019, San Diego, CA - Dr. Ali Darwish

Cognitive Radios, Networks, & Systems for Digital Communication

Feb. 28 to Mar. 1, 2019, San Diego, CA - Scott Bullock

Transceiver & Systems Design for Digital Communications

February 25-27, 2019, San Diego, CA - Scott Bullock

GaN Power Amplifiers - Web Classroom

April 2-4, 2019, Online, On-Demand - Dr. Ali Darwish

Phase Noise & Jitter - Web Classroom

April 8-10, 2019, Online, On-Demand - Dr. Waleed Khalil

EMI/EMC and Signal Integrity Boot Camp

July 29 to August 2, 2019, San Diego, CA - Dr. Arturo Mediano

www.BesserAssociates.com

Corporate Training Services

Besser Associates can provide our online and traditional classroom courses exclusively for your team. Our instructors can present almost any course from our full catalog at your domestic or international location. Contact us for more details!

On-demand courses available online. Start Anytime! www.BesserAssociates.com

www.besserassociates.com

info@besserassociates.com

combined analysis of the entire sample population who participated in these studies, as well as in the adolescent population. However, the strength of the association differed somewhat. The association was stronger in the second study than in the first study, although with a wider confidence interval, and was also statistically significant in the operator data but not when combined with self-reported exposure estimates.

Looking at the Data

The question of whether RF/microwave radiation emitted by cell phones during use could disturb brain activity in children and lead to impaired learning ability or behavioral problems has persisted for some time. To date, there remains a paucity of existing scientific data and relevant knowledge, including data on cognitive functions of adolescents. As a result, the question cannot be easily answered based on existing scientific evidence. Reported results may lead to the conclusion that RF/microwave

radiation emitted from GSM cell phones does not produce acute effects on an adolescent's cognitive or memory function. But available data suggest that significant decreases in figural memory were found to be consistently associated with cumulative exposure of the brain of adolescents to 1,000–4,000 mJ/kg per day over one year. Therefore, a cautious approach to risk management, especially in relation to children and adolescents, is warranted.

References

- [1] "Mobile phone ban in France." [Online]. Available: <https://www.euronews.com/2018/06/08/mobile-phone-ban-in-france>
- [2] "France passes new law banning smartphones, tablets and smartwatches in schools." [Online]. Available: <http://www.abc.net.au/news/2018-08-01/france-bans-smartphones-and-tablets-in-classrooms/10060590>
- [3] M. Anderson and J. Jiang, "Teens, social media & technology." [Online]. Available: <http://www.pewinternet.org/2018/05/31/teens-social-media-technology-2018>
- [4] J. C. Lin, "Children's cognitive function and cell-phone electromagnetic fields," *IEEE Antennas Propagat. Mag.*, vol. 47, no. 6, pp. 118–120, 2005.

- [5] J. C. Lin, "Cell-phone microwaves and cognitive function in children," *IEEE Microwave Mag.*, vol. 7, no. 1, pp. 32–35, 2006.
- [6] J. C. Lin, "Mental process in humans and exposure to cell-phone radiation," *IEEE Microwave Mag.*, vol. 5, no. 4, pp. 26–30, 2004.
- [7] A. W. Preece, S. Goodfellow, M. G. Wright, S. R. Butler, E. J. Dunn, Y. Johnson, T. C. Manktelow, and K. Wesnes, "Effect of 902 MHz mobile phone transmission on cognitive function in children," *Bioelectromagn.*, suppl. 7, pp. S138–S143, 2005.
- [8] C. Haarala, M. Bergman, M. Laine, A. Revonsuo, M. Koivisto, and H. Hämäläinen, "Electromagnetic field emitted by 902 MHz mobile phones shows no effects on children's cognitive function," *Bioelectromagn.*, suppl. 7, pp. S144–S150, 2005.
- [9] A. Schoeni, K. Roser, and M. Rösli, "Memory performance, wireless communication and exposure to radiofrequency electromagnetic fields: A prospective cohort study in adolescents," *Environ. Int.*, vol. 85, no. 1, pp. 343–351, 2015.
- [10] M. Foerster, A. Thielens, W. Joseph, M. Eeftens, and M. Rösli, "A prospective cohort study of adolescents' memory performance and individual brain dose of microwave radiation from wireless communication," *Environ. Health Perspect.*, vol. 126, no. 7, pp. 077007, 2018.

President's Column (continued from page 11)

Institute of Technology–Delhi, India, received a Dr.-Ing. degree from the Technical University Berlin, Germany, and holds a postdoctorate degree (Dr.-Ing. habil) from Brandenburg University of Technology–Cottbus, Germany. He received the 2015 IEEE IFCS Cady Award in recognition of his outstanding scientific contributions on frequency-generating and frequency-controlled electronics and timing devices for industrial, medical, and space applications.

Imran Mehdi received his B.S.E.E. degree in 1985, M.S.E.E. degree in 1986, and Ph.D. degree in 1990, all from the University of Michigan, Ann

Arbor. He is a senior research scientist at the Jet Propulsion Laboratory (JPL), California Institute of Technology, Pasadena. He joined JPL in 1990 and is currently a group supervisor in the Instrument Electronics and Software Section. He is an IEEE Fellow and serves as editor-in-chief for *IEEE Transactions on Terahertz Science and Technology*. His current interests include millimeter- and submillimeter-wave devices and technology, nanotechnology, high-frequency instrumentation, 3D submillimeter-wave systems, and the development of compact, low-power heterodyne receivers for planetary missions.

Thomas Zwick received his Dipl.-Ing. (M.S.E.E.) and Dr.-Ing. (Ph.D.E.E.)

degrees from the Universität Karlsruhe, Germany, in 1994 and 1999, respectively. He is director of the Institute of Radio Frequency Engineering and Electronics at

the Karlsruhe Institute of Technology, Germany, and has authored or co-authored more than 300 technical papers and 20 patents. He was selected as an MTT-S Distinguished Microwave Lecturer in 2013–2015. In 2017, he became a member of the Heidelberg Academy of Sciences and Humanities, and, in 2018, he was elevated to IEEE Fellow.