Editorial

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Editorial

Dear colleagues,

Welcome to the second issue in Volume 14 of the IEEE TRANSACTIONS ON TERAHERTZ SCIENCE AND TECHNOLOGY (T-TST) with 15 original papers in a variety of topics of interest for the THz community. In this issue, we have an invited paper from the groups of Clara Saraceno and Sascha Preu. They present some exciting new results regarding the performance of photoconductive receivers at 1030 nm excited by high average power THz pulses in the order of 20 mW. I hope you will enjoy reading them.

I would also like to make an important announcement. The MTT award committee has selected the THz Science and Technology Best Paper Award for all the papers published in 2022. The award went to Koyama et al. [A1]. This paper proposes a compact, high-power, and high directivity surface-emitting THz source based on an array of active antennas with integrated patch antennas and resonant-tunneling diodes. The authors demonstrated an impressive value of maximum radiation power of 11.8 mW in a prototype of 6×6 array at an oscillation frequency of 0.45 THz. My sincere congratulations to the authors.

With this editorial, I would also like to take the opportunity to write a few words to highlight the accomplishments of T-TST in 2023. T-TST, with the support of the IEEE MTT Society, initiated two main activities to support the THz community. From every issue, we highlight papers in our new media platforms, such as Linked-In and our website, including visual images and a content abstract. The highlighted papers are picked up by the Editor-in-Chief with input from the editorial board and reviewers. With these new platforms, we would like to build a THz community that benefits from cross-over publications between science and technology. The second initiative has been initiated to recognize the fundamental contribution of the reviewers to the quality of IEEE T-TST. The editorial board, with the support of the MTT Society, organized a THz reviewer's thank you reception at the 48th Conference on Infrared, Millimeter, and Terahertz Waves conference in Montreal, Canada. The reception was very well attended with over 100 attendees. In 2023, we also transferred to the new IEEE Author Portal for paper submissions. We hope it was a smooth transition for all of you.

During 2023, we published six issues with a total of 85 papers covering a wide variety of topics. The main focus of T-TST is to publish high-quality contributions that are of interest to the THz community. The editorial board has worked on improving our prescreening time and review process to maintain the high quality of our papers with the aim of reaching an average first-time response of about a month. This has only been possible thanks to the great efforts of our editors:

Heinz-Wilhelm Hübers, German Aerospace Center, Germany;
Withayachumnankul, the University of Adelaide, Australia;
EunMi Choi, Ulsan National Institute of Science and Technology, South Korea;
Jeffrey L. Hesler, Virginia Diodes, USA;
Vincent P. Wallace, University of Western Australia, Australia;
Tadao Nagatsuma, Osaka University, Japan;
Benjamin S. Williams, University of California, Los Angeles;
Helena Rodilla, Chalmers University of Technology, Sweden;
Alexander P. Shkurinov, Moscow State University, Russia;
Zachary D. Taylor, Aalto University, Finland;
David González-Ovejero, French National Center for Scientific Research, France;
Andrea Neto, Technical University of Delft, The Netherlands;
Sascha Preu, Technical University of Darmstadt, Germany;
Adrian Tang, Jet Propulsion Laboratory, USA.

For 2024, Alexander P. Shkurinov will be retiring as an Associate Editor. I would like to thank him for his great service to T-TST. Alexander has supported the review of THz papers coming from the science side for nearly ten years. I would like to welcome our new additions to the editorial board: Prof. Frank Hegmann for papers coming from the THz scientific community, and Prof. Ho-Jin Song for papers related to THz communications and devices. The short biographies of these new members can be found at the end of this editorial. I would also like to mention that Ms. Sharri Shaw will continue to be our Editorial Administrator.

I am available to any of you for feedback and ideas on how to improve the journal. Please do not hesitate to contact me.

NURIA LLOMBART, *Editor-in-Chief*
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Pohang, Gyeongbuk, Korea

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APPENDIX
RELATED ARTICLES

[A1] Y. Koyama et al., "A high-power terahertz source over 10 mW at 0.45 THz Using an active antenna array with integrated patch antennas and resonant-tunneling diodes," *IEEE Trans. Terahertz Sci. Technol.*, vol. 12, no. 5, pp. 510–519, Sep. 2022, doi: 10.1109/TTHZ.2022.3180492.

Nuria Llombart received the master's degree in electrical engineering and the Ph.D. degree from the Polytechnic University of Valencia, Valencia, Spain, in 2002 and 2006, respectively.

During the master's degree, she spent one year at the Friedrich Alexander University of Erlangen Nuremberg, Erlangen, Germany, and she was at Fraunhofer Institute for Integrated Circuits, Erlangen. From 2002 to 2007, she was with the Antenna Group, TNO Defense, Security and Safety Institute, The Hague, The Netherlands, working as a Ph.D. student and then as a Researcher. From 2007 to 2010, she was a Postdoctoral Fellow with the California Institute of Technology, working with the Submillimeter Wave Advance Technology Group, Jet Propulsion Laboratory, Pasadena, CA, USA. She was a "Ramón y Cajal" Fellow with the Optics Department, Complutense University of Madrid, Madrid, Spain, from 2010 to 2012. In September 2012, she joined the THz Sensing Group, Technical University of Delft, Delft, The Netherlands, where since 2018, she has been a Full Professor.

Frank Hegmann received the Ph.D. degree in physics from McMaster University, Hamilton, ON, USA, in 1994.

He was as a Postdoctoral Researcher with the Center for Terahertz Science and Technology, University of California, Santa Barbara, Santa Barbara, CA, USA. In 1997, he joined the Department of Physics, University of Alberta, Edmonton, AB, Canada, and established the Ultrafast Spectroscopy Lab and Ultrafast Nanotools Lab for studying ultrafast phenomena in materials and devices using femtosecond laser sources and time-resolved terahertz pulse spectroscopy. From 2015 to 2019, he was the AITF Strategic Chair in Terahertz Science and Technology. His current research interests include ultrafast terahertz spectroscopy of transient photoconductivity in nanomaterials, exploring ultrafast nanoscale dynamics in materials using terahertz scanning tunneling microscopy (THz-STM), terahertz pulse generation, nonlinear terahertz dynamics in semiconductors, and terahertz pulse control of electron beams.

Ho-Jin Song (Fellow, IEEE) received the B.S. degree in electronics engineering from Kyungpook National University, Daegu, South Korea, in 1999, and the M.S. and Ph.D. degrees in electrical engineering from the Gwangju Institute of Science and Technology (GIST), Gwangju, South Korea, in 2001 and 2005, respectively.

Since he joined Nippon Telegraph and Telephone, Tokyo, Japan, in 2006, he had engaged in the development of submillimeter and terahertz wave devices, circuits and systems for communication, and remote sensing and imaging applications. Since 2016, he has been with the Department of Electrical Engineering, Pohang University of Science and Technology (POSTECH), Pohang, South Korea, and he is currently the Director of mm/THz Radio Research Center, established by Ministry of Science and ICT, South Korea. His current research interests include mmWave and terahertz circuits, antenna, packages and test-bed systems, particularly for wireless communication, connectivity and radar applications.

Dr. Song was the recipient of GIST Best Thesis Award (2005), NTT Microsystem Labs Research of the Year Award (2009 and 2014), Young Scientist Award of Spectroscopical Society of Japan (2010), IEEE Microwave and Wireless Component Letters Tatsuo Itoh Best Paper Award (2014), Distinguished Research Scientist of NTT Labs (2014), Best Industrial Paper Award at IEEE MTTs-IMS (2016), and IEEE Microwave Magazine Best Paper Award (2023).