

# IEEE Microwave and Wireless Components Letters Tatsuo Itoh Award

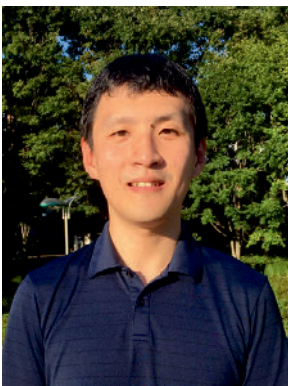
*Recognizes, on an annual basis, the most significant contribution in a paper published in the IEEE Microwave and Wireless Component Letters.*

**Ibrahim Abdo, Teruo Jyo, Adam Pander, Hitoshi Wakita, Yuta Shiratori, Miwa Muto, Hiroshi Hamada, Munehiko Nagatani, Carrel da Gomez, Chun Wang, Kota Hatano, Chenxin Liu, Ashbir Aviat Fadila, Jian Pang, Atsushi Shirane, Kenichi Okada, and Hiroyuki Takahashi** — “300-GHz-Band Four-Element CMOS-InP Hybrid Phased-Array Transmitter With 36circ Steering Range,” *IEEE Microwave and Wireless Components Letters*, vol. 33, no. 6, pp. 887-890, June 2023



## Ibrahim Abdo

Ibrahim Abdo received the B.Sc. degree in electronics engineering from Princess Sumaya University for Technology (PSUT), Amman, Jordan, in 2014, and the M.E. degree in physical electronics and the Ph.D. degree in electrical and electronic engineering from Tokyo Institute of Technology, Tokyo, Japan, in 2017 and 2021, respectively. He is currently a researcher with NTT Device Technology Laboratories, NTT Corporation, Japan. His research interests include sub-terahertz wireless transceiver circuit design and phased-array implementation. Abdo was a recipient of the Japanese Government (MEXT) Scholarship, the 2021–2022 IEEE SSCS Predoctoral Achievement Award, and the 2024 IEEE MTT-S Japan Young Engineer Award.



## Teruo Jyo

Teruo Jyo received the M.E. degrees in electronic engineering from Keio University, Yokohama, Japan, in 2014, and the Ph.D. degree in electronic engineering from Ritsumeikan University, Kyoto, Japan in 2024. In 2014, he joined NTT Corporation. He is currently a Researcher with NTT Device Technology Laboratories, Japan. His research interests are high-speed analog circuit for optical fiber communication and terahertz wave wireless communication.

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## Adam Pander

Adam Pander received the Ph.D. degree with honors in materials science from Kochi University of Technology, Kochi, Japan, in 2017. Since 2020, he has been involved with NTT Corporation, Atsugi, Japan, where he conducts research and development of the millimeter-wave/terahertz metasurface technology to control wave propagation in wireless communication and sensing. He focuses on 300-GHz-band beamforming, wave focusing, and active control of metasurface devices. His research interest also includes nano- and microscale fabrication, process development, InP-based semiconductors, carbon-based materials, metal-oxide semiconductors, antenna design, 3D printing, etc.



## Hitoshi Wakita

Hitoshi Wakita (Member, IEEE) received a B.S. in organic and polymeric materials in 2008 and an M.S. in chemistry and materials science in 2010, both from Tokyo Institute of Technology. In 2010, he joined NTT Photonics Laboratories, where he has been engaged in the research and development (R&D) of ultrahigh-speed mixed-signal ICs and modules for optical communications systems. He is currently with NTT Device Technology Laboratories. He is a member of the Japan Institute of Electronics Packaging (JIEP).

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## Yuta Shiratori

Yuta Shiratori Senior Research Engineer, Materials and Devices Laboratory, NTT Device Technology Laboratories. He received the B.E., M.E., and Ph.D. degrees in electrical engineering from Hokkaido University, Sapporo, Hokkaido, Japan, in 2006, 2008 and 2011, respectively. In 2011, he joined NTT Photonics Laboratories, Atsugi, Kanagawa, Japan, where he engaged in research on ultrahigh-speed InP-based double heterojunction bipolar transistors. In 2014, he is currently with in NTT Device Technology Laboratories. He has been a member of the Technical Program Committee for the VLSI Symposium on Technology and Circuits since 2017.



## Miwa Muto

Miwa Muto received the B.S. and M.S. degrees in Department of Physics and Electronics from Osaka Prefecture University, Osaka, Japan, in 1996 and 1998, respectively. In 1998, she joined NTT Photonics Laboratories, NTT Corporation, Kanagawa, Japan, where she was engaged in research of Delta-Sigma Modulator Using a Resonant-Tunneling Diode Quantizer. Her current research interests research on high-reliability techniques for InP-based HBTs.

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## Hiroshi Hamada

Hiroshi Hamada received the B.E. and M.E. degrees in electrical engineering from Tokyo Institute of Technology, Tokyo, Japan, in 2009 and 2011, respectively. He joined NTT Corporation, Atsugi, Japan, in 2011, where he has been engaged in the R&D of the THz integrated circuits for wireless communications such as 300-GHz power amplifiers, mixers, transceivers, and 500-GHz amplifiers in NTT Photonics Labs and Device Technology Labs. Currently, he is a Senior Research Engineer in NTT Device Technology Labs. He has been serving as a member of the IEEE MTT-S Technical Committee on Microwave and Millimeter-Wave Solid State Devices (TC-9) since 2021.



## Munehiko Nagatani

Munehiko Nagatani received the M.S. and Ph.D. degrees in electrical and electronics engineering from Sophia University, Tokyo, Japan in 2007 and 2021, respectively. He joined NTT Photonics Laboratories in 2007 and is currently a distinguished researcher at NTT Device Technology Laboratories and NTT Network Innovation Laboratories. His current research interests include ultra-broadband analog and mixed-signal ICs for communications systems and emerging applications. He served as a TPC member for IEEE CSICS from 2014 to 2017, and ISSCC from 2019 to 2023. He has been serving as a TPC member for IEEE BCICTS since 2018.

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## Carrel da Gomez

Carrel da Gomez (Graduate Student Member, IEEE) received the B.Sc. degree in electrical engineering from the Institut Teknologi Bandung, Bandung, Indonesia, in 2017, and the M.Eng. degree in electrical and electronic engineering from the Tokyo Institute of Technology, Tokyo, Japan, in 2020, where he is currently pursuing the Ph.D. degree in electrical and electronic engineering. His current research interests include CMOS millimeter-wave and sub-terahertz integrated circuits for wireless communication and radar. He was a recipient of the Japanese Government (MEXT) Scholarship, in 2018.



## Kota Hatano

Kota Hatano received the B.E. degree in electrical and electronic engineering from Tokyo University of Science, Tokyo, Japan, in 2019, and the M.E. degree in electrical and electronic engineering from Tokyo Institute of Technology, Tokyo, Japan, in 2021, respectively. His current research interests include CMOS 300GHz integrated circuits for wireless communication.

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## Chenxin Liu

Chenxin Liu received the B.E. degree from the Nanjing University of Science and Technology, Nanjing, China, in 2019, and the M.E. degree in electrical and electronic engineering from the Tokyo Institute of Technology, Tokyo, Japan, in 2021, where he is currently pursuing the Ph.D. degree in electrical and electronic engineering. His current research is about millimeter-wave wireless communication system design.



## Jian Pang

Jian Pang (Member, IEEE) received the bachelor's and master's degrees from Southeast University, Nanjing, China, in 2012 and 2014, respectively, and the Ph.D. degree from the Department of Physical Electronics, Tokyo Institute of Technology, Tokyo, Japan, in 2019. From 2019 to 2020, he was a Post-Doctoral Researcher with the Tokyo Institute of Technology. From 2020 to 2022, he was a Special-Appointed Assistant Professor with the Tokyo Institute of Technology. From 2022 to 2023, he was a Special-Appointed Associated Professor with the Tokyo Institute of Technology.

Dr. Pang is currently an Associated Professor with the Shanghai Jiao Tong University, Shanghai, China, focusing on B5G/6G millimeter-wave systems. His current research interests include high-data-rate low-cost millimeter-wave transceivers, power-efficient power amplifiers, multiple-in-multiple-out (MIMO), and mixed-signal calibration systems.

Dr. Pang was a recipient of the IEEE SSCS Student Travel Grant Award in 2016, the IEEE SSCS Pre-Doctoral Achievement Award for the term 2018–2019, the Seichi Tejima Oversea Student Research Award in 2020 and the IEEE MTT-S Japan Young Engineer Award in 2021.

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## Ashbir Aviat Fadila

Ashbir Aviat Fadila earned his Bachelor of Science in Electrical Engineering from the Institut Teknologi Bandung, Indonesia, in 2015. After graduating, he worked as a Standard Cells Mask Layout Engineer at Marvell Technology in Jakarta for a year. From 2016 to 2017, he served as a Research Assistant at his alma mater, where his work focused on developing Systems on Chip (SoC) designed for Internet of Things (IoT) applications. He completed his Master of Engineering in Electrical and Electronic Engineering at the Tokyo Institute of Technology in Japan in 2020. Ashbir is now working towards his Ph.D. at the same institute. His research now revolves around analog-mixed signal processing, data converters, and the design of synthesizable analog circuits.



## Atsushi Shirane

Atsushi Shirane (S'13–M'15) received the B.E. degree in electrical and electronic engineering and the M.E. and Ph.D. degrees in electronics and applied physics from the Tokyo Institute of Technology, Tokyo, Japan, in 2010, 2012, and 2015, respectively. From 2015 to 2017, he was with Toshiba Corporation, Kawasaki, Japan, where he developed 802.11ax Wireless LAN RF transceiver. From 2017 to 2018, he was with Nidec corporation, Kawasaki, Japan, where he researched on intelligent motor with wireless communication. He is currently an Associate Professor in Laboratory for Future Interdisciplinary Research of Science and Technology, Institute of Integrated Research, Institute of Science Tokyo. His current research interests include RF CMOS transceivers for IoT, 5G, and satellite communication and wireless power transfer. He was a recipient of the Docomo Mobile Science Awards for Excellence in Advanced

Technology, 2024. He has been a member of the technical program committee for IEEE International Solid-State Circuits Conference Student Research Preview since 2019-2024. He is a member of the IEEE Solid-State Circuits Society, and the Institute of Electronics, Information and Communication Engineers (IEICE), the Japan Institute of Electronics Packaging (JIEP).



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## Kenichi Okada

Kenichi Okada received the B.E., M.E., and Ph.D. degrees in communications and computer engineering from Kyoto University, Kyoto, Japan, in 1998, 2000, and 2003, respectively. From 2000 to 2003, he was a Research Fellow of the Japan Society for the Promotion of Science in Kyoto University. In 2003, he joined Tokyo Institute of Technology as an Assistant Professor, where he is currently a Professor of electrical and electronic engineering in Institute of Science Tokyo. He has authored or co-authored more than 500 journal and conference papers. His current research interests include millimeter-wave and terahertz CMOS wireless transceivers for 20/28/39/60/77/79/100/300GHz for 5G, WiGig, satellite and future wireless systems, digital PLL, synthesizable PLL, atomic clock, and ultra-low-power wireless transceivers for Bluetooth Low-Energy, and sub-GHz applications.

Prof. Okada is a member of the Institute of Electrical and Electronics Engineers (IEEE), the Institute of Electronics, Information and Communication Engineers (IEICE), the Information Processing Society of Japan (IPJS), and the Japan Society of Applied Physics (JSAP). He was a recipient or co-recipient of the Ericsson Young Scientist Award in 2004, the A-SSCC Outstanding Design Award in 2006 and 2011, the ASP-DAC Special Feature Award in 2011 and Best Design Award in 2014 and 2015, the MEXT Young Scientists' Prize in 2011, the JSPS Prize in 2014, the Suematsu Yasuharu Award in 2015, the MEXT Prizes for Science and Technology in 2017, the RFIT Best Paper Award in 2017, the IEICE Best Paper Award in 2018, the RFIC Symposium Best Student Paper Award in 2019, the IEICE Achievement Award in 2019, the DOCOMO Mobile Science Award in 2019, the IEEE/ACM ASP-DAC Prolific Author Award in 2020, the Kenjiro Takayanagi Achievement Award in 2020, the KDDI Foundation Award in 2020, the IEEE CICC, Best Paper Award in 2020, the IEEE ISSCC Author-Recognition Award in 2023, and more than 50 other international and domestic awards. He is a Fellow of IEEE. He is/was a member of the technical program committees of IEEE International Solid-State Circuits Conference (ISSCC), VLSI Circuits Symposium, European Solid-State Circuits Conference (ESSCIRC), Radio Frequency Integrated Circuits Symposium (RFIC), Asian Solid-State Circuits Conference (A-SSCC), and a Distinguished Lecturer and AdCom member of the IEEE Solid-State Circuits Society (SSCS), and he is/was also Guest Editors and an Associate Editor of IEEE Journal of Solid-State Circuits (JSSC), an Associate Editor of IEEE Transactions on Microwave Theory and Techniques (T-MTT).



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## Hiroyuki Takahashi

Hiroyuki Takahashi Senior Research Engineer, Supervisor, NTT Device Technology Laboratories. He received a B.S. and M.S. degrees in applied physics from Nagoya University, Nagoya, Japan, in 2001 and 2003, respectively. He also received an Ph.D in advanced electronics and optical science from Osaka University, Osaka, Japan in 2014. In 2003, he joined Nippon Telegraph and Telephone (NTT) Microsystem Integration Laboratories, NTT Corporation, Atsugi-shi, Japan. He is engaged in research and development of MMW/THz MMICs. His other research interests include ultrahigh-speed wireless technologies. He is a member of the IEEE Microwave Theory and Techniques Society (IEEE MTT-S) and the Institute of Electronics, Information and Communication Engineers (IEICE), Japan. He was the recipient of the 2008 Young Engineers Prize presented at the European Microwave Integrated Circuits

Conference, the 2009 Radio Achievement Award of the the Association of Radio Industries and Businesses, the 2010 Asia–Pacific Microwave Conference (APMC) Prize, the 2012 IEEE Microwave Theory and Techniques Society (IEEE MTT-S) Japan Young Engineer Award and, the 2012 Asia–Pacific Microwave Conference APMC Prize.

## Chun Wang

No photo or bio available at time of publication.