

Guest Editorial

Special Issue on 5G Wireless Communication Systems and Technologies

ENORMOUS growth of mobile wireless data service demands in combination with ever-increasing user expectations on quality of experience (QoE) is pushing the frontiers of wireless communication technologies, systems, and networks. Emerging wide area wireless services and usage cases are shaping the next-generation 5G wireless vision and driving the 5G technology requirements. Ultrahigh throughput, enhancement in network capacity, ultra-low latency, ubiquitous connectivity, energy efficiency, high reliability, low-cost devices, and quality of service are just some of the requirements that the next-generation 5G wireless network needs to achieve. At the core of such network are the microwave and millimeter wave technologies that the IEEE Microwave Theory and Techniques Society (IEEE MTT-S) contributes to. Although the emerging requirements for 5G are diverse and complex, there is an opportunity for the IEEE MTT-S to contribute to the larger 5G vision with different aspects of IEEE MTT-S relevant microwave and millimeter-wave technologies.

In view of such needs, we have put together this special issue on 5G wireless communication systems and technologies with hopes to bring awareness of this exciting opportunity and help make the architectural evolution possible. The papers in

this Special Issue leverage on both old and new technologies, such as lens antenna, multilayer LTCC, and so on, combined with modern system concepts, such as massive MIMO and millimeter wave 3-D channel modeling in urban environment to support 5G wireless key metrics. We would like to extend special thanks to all the reviewers for their valuable time and effort. We also thank the T-MTT Editors-in-Chief, Jenshan Lin and Dominique Schreurs, as well as Associate Editor Olga Boric-Lubecke, for their support of this Special Issue.

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Dr. Choudhury was the recipient of several NASA recognition awards for her work on heterodyne receivers, devices, multipliers, and guiding structures/modules for space and defense applications. She is the Chair of the IEEE MTT-S Technical Committee on Wireless Communications.



Takao Inoue (S'95–M'98–SM'14) received the B.S. and M.S. degrees from Oregon State University, Corvallis, OR, USA, in 1996 and 1998, respectively, and the Ph.D. degree from The University of Texas at Austin, Austin, TX, USA, in 2009, all in electrical engineering.

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