Introduction to the Special Section on the 2017 RFIC Symposium

THIS Issue of the IEEE JOURNAL OF SOLID-STATE CIRCUITS features a special section with expanded versions of key invited papers presented at the 2017 Radio Frequency Integrated Circuits Symposium (RFIC Symposium), held in the Hawaii Convention Center, Honolulu, HI, USA, on June 4, 2017–June 6, 2017.

The RFIC Symposium is the world's premier conference focused on RF and millimeter-wave (mmWave) integrated circuits and systems technology. It is co-located with the IEEE MTT-S International Microwave Symposium (IMS) and is co-sponsored by the IEEE Solid-State Circuits Society. Industry professionals and academics from around the world meet at the conference annually to exchange new ideas through paper presentations, workshops, panels, and industrial showcase. The conference is committed to its mission of providing the best venue for technical discussion, the best educational forums, and the highest quality papers.

Fifteen outstanding papers covering a wide range of topics were selected for publication in this Special Issue of the Journal. They are mainly extensions to their corresponding conference papers available in the 2017 RFIC Symposium conference digest, providing extra materials such as extensive mathematical analysis, in-depth presentation of the architecture and circuit concepts, and extra measurements and benchmark comparison data to the state of the art. Because the theme of the 2017 RFIC Symposium is on the emerging 5G technology, there are several 5G-focused papers in this Special Issue, presenting full 5G mmWave transceivers with integrated antennas, various beam-steering techniques, and various building blocks for 5G. The remaining papers cover various sub-6-GHz circuit techniques related to transceiver linearization, harmonic rejection, improved selectivity, interference rejection, and efficiency enhancement, as well as various applications such as automotive radar, terahertz (THz) imaging, and Internet of Things (IoT).

I want to thank the authors for accepting my invitation to submit extended papers to this Special Issue and for working with me to meet various milestones in a timely manner. I also want to thank the anonymous reviewers whose feedback and comments ensure the high quality of the Journal. Special thanks go to the JSSC Editor-in-Chief, Dr. Jan Craninckx, for his guidance, and to the JSSC administrators for their assistance.

I believe the technical details presented by the papers in this Special Issue will be interesting and useful to the Journal readers, and provide a good snapshot of the state of the art in RF and mmWave integrated circuit design. I would also like to encourage readers to attend the 2018 RFIC Symposium, which will be held on June 10–June 12 at the Pennsylvania Convention Center, Philadelphia, PA, USA. For more information, please visit the conference website at: http://rfic-ieee.org. See you all in Philadelphia!

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Osama Shana'a (S'94–M'01–SM'03) received the B.Sc. degree (Hons.) in electrical engineering from the University of Jordan, Amman, Jordan, in 1992, the M.S.E.E. degree from Portland State University, Portland, OR, USA, in 1996, and the Ph.D. degree in electrical engineering from Stanford University, Stanford, CA, USA, in 2001.

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Dr. Shana'a is a Fulbright Scholar and a member of the Etta Kappa Nu Honor Society. He currently serves on both Steering and Technical Program Committees of the IEEE RFIC Symposium. He has previously served as an Associate Editor for the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES and as a Distinguished Lecturer for the IEEE Solid-State Circuits Society.

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