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Guest Editorial

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Guest Editorial

THIS TRANSACTIONS contains both the “Mini-Special Issue on the 2014 IEEE Microwave Theory and Techniques Society (IEEE MTT-S) International Microwave Workshop Series on RF and Wireless Technologies for Biomedical and Healthcare Applications (IMWS-Bio)” and the “Mini-Special Issue on the 2015 IEEE Topical Conference on Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS).” It includes four papers extended from presentations from the 2014 IEEE MTT-S IMWS-Bio, London, U.K., December 8–10, 2014, and the 2015 IEEE BioWireleSS, San Diego, CA, USA, January 25–28, 2015.

The IEEE IMWS is an initiative promoted by the IEEE MTT-S Members and Geographic Committee to complement the existing workshops of the IEEE MTT-S International Microwave Symposium (IMS). The purpose of this platform is to boost and promote IEEE MTT-S technical and educational activities, as well as IEEE MTT-S international exchanges and collaborations. The 2014 IMWS-Bio workshop was technically cosponsored by the IEEE MTT-S, the IEEE Antennas and Propagation (AP) Society, and the Institution of Engineering and Technology (IET). The conference, which was held in London, U.K., was the perfect setting for such multi-disciplinary event focusing on innovation cutting-edge research. The workshop hosted 8 world-renowned keynote speakers, 22 excellent invited talks, and a special distinguished banquet evening talk. The IMWS-Bio 2014 received a total submission of 120 papers, including invited papers and regular papers from 24 countries with 120 registrants at the event itself. After performing rigorous and thorough technical reviews, all of the invited papers and 70 regular papers were accepted for oral and poster presentations divided into 10 oral sessions and two main poster sessions. The conference also included a quick-fire presentation session for Best Student Paper contest finalists (8 were selected) and the contest was judged by a panel of international experts in the fields.

The IEEE BioWireleSS has been since 2011 an event specifically dedicated to wireless developments in the exciting biomedical fields. Its multidisciplinary aspects are cosponsored by several societies, i.e., the IEEE MTT-S, the IEEE AP-S, and the IEEE Engineering in Medicine and Biology Society

(EMBS). The 2015 conference, San Diego, CA, USA, January 25–28, 2015, received 28 submitted manuscripts. 23 papers were accepted and organized with 5 oral sessions including 2 invited papers and 1 poster session. A workshop focusing on the research activities in Asia was organized. The conference also integrated common events of 2015 Radio Wireless Week such as the Plenary Session, the Student Paper Contest, the demo track presentations, and the Industrial Exhibition.

Authors of the presented papers were invited to submit an expanded version of their papers to this TRANSACTIONS’ Mini-Special Issue. The expanded version requires new technical content including more in-depth information and results beyond the respective conference paper and taking into account discussions generated at the IMWS-Bio 2014 and BioWireleSS 2015, respectively. A total of 16 submitted papers were reviewed in the same manner as regular submissions to this TRANSACTIONS. After rigorous reviews, four papers were accepted for publication in this TRANSACTIONS’ Mini-Special Issue. Those papers that need a longer time to revise beyond the deadline of this TRANSACTIONS’ Mini-Special Issue were suggested to resubmit for consideration in future regular issues.

We would like to express special thanks to all the reviewers for their time and dedication without which the review processes would not have been successfully completed in time. On behalf of the conference Technical Program Committees, we extend our sincere thanks to all the authors of the IMWS-Bio 2014 and BioWireleSS 2015, as well as the authors of this TRANSACTIONS’ Mini-Special Issue for sharing their excellent research works. Finally, we also sincerely thank the Editors-in-Chief of this TRANSACTIONS, Prof. Dominique Schreurs and Prof. Jenshan Lin, Associate Editor, Prof. Jung-Chih Chiao, and the IEEE MTT-S Editorial Board for their support.

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Akram Alomainy (M'03–SM'13) received the M.Eng. degree in communication engineering and Ph.D. degree in electrical and electronic engineering (with a specialization in antennas and radio propagation) from Queen Mary University of London (QMUL), London, U.K., in 2003 and 2007, respectively.

In 2007, he joined the School of Electronic Engineering and Computer Science, QMUL, where he is currently an Associate Professor (Senior Lecturer) with the Antennas and Electromagnetics Research Group. He is a member of the Institute of Bioengineering and Centre for Intelligent Sensing, QMUL. His current research interests include small and compact antennas for wireless body area networks, radio propagation characterization and modeling, antenna interactions with human body, computational electromagnetics, advanced antenna enhancement techniques for mobile and personal wireless communications, and advanced algorithms for smart and intelligent antenna and cognitive radio systems. He currently leads a research portfolio of around £3 m funded by research councils, charities and industrial partners on projects ranging from fundamental electromagnetic to wearable technologies. He is the lead of Wearable Creativity research at Queen Mary University of London. He has authored or coauthored 1 book, 5 book chapters, and more than 150 technical papers (2200+ citations and H-index 23) in leading journals and peer-reviewed conferences.

Dr. Alomainy He is a member of the IET. He is a Fellow of the Higher Education Academy (U.K.). He is also a College Member for Engineering and Physical Sciences Research (EPSRC) (U.K.) and its ICT prioritization panels. He has been invited to participate at the Wearable Technology Show 2015, Innovate U.K. 2015, and also in the recent Wearable Challenge organized by Innovate U.K. IC Tomorrow as a leading challenge partner to support SMEs and industrial innovation. He was selected to deliver a TEDx talk about the science of electromagnetic and has also participated in many public engagement initiatives and festivals. He is also a reviewer for many funding agencies around the world including the Expert Swiss National Science Foundation (SNSF) Research, the EPSRC, U.K., and the Medical Research Council (MRC), U.K. He is an elected member of the U.K. International Union of Radio Science (URSI) panel to represent the U.K. interests of URSI Commission B (September 1 2014–August 31, 2017). He was the recipient of the Isambard Brunel Kingdom Award in 2011 for being an outstanding young science and engineering communicator.



Katia Grenier (S'99–M'03) received the M.S. and Ph.D. degrees in electrical engineering from the University of Toulouse, Toulouse, France, in 1997 and 2000, respectively.

After a Postdoctoral Fellowship with Agere Systems (Bell Laboratories) in 2001, she joined the Laboratory of Analysis and Architecture of Systems, National Scientific Research Center (LAAS-CNRS), Toulouse, France, where she was engaged in the development of RF microelectromechanical systems (RF MEMS) circuits on silicon. From 2007 to 2009, she was a Visiting Researcher with the Laboratory for Integrated Micromechatronic Systems, CNRS (LIMMS-CNRS), and the University of Tokyo, Tokyo, Japan, where she was engaged in launching research activities on miniature microwave and millimeter-wave-based biosensors. Since 2009, she has been heading a research group with LAAS, which is dedicated to the development of high frequency and fluidic microwave microsystems. She holds one patent. Her research interests are focused on the interaction of RF electromagnetic waves with complex fluids at the milliscale and microscale. It involves the development of fluidic-based and RF microsystems and nanosystems for biological and medical

applications, as well as for reconfigurable wireless. Her main research orientations include: dielectric spectroscopy in microwave and millimeter-wave ranges for nondestructive and noninvasive sensing applications; the impact of electromagnetic waves on the living at the microscale; and reconfigurable RF circuits with liquids.

Dr. Grenier is a member of the Institute of Electronic and Electrical Engineers (IEEE) Microwave Theory and Techniques (MTT-10) Technical Committee on Biological Effect and Medical Applications of RF and Microwave of the IEEE Microwave Theory and Techniques Society (IEEE MTT-S). She also serves as a member of the European Microwave Association (EuMA) and as a Program Committee member of several conferences such as MEMSWAVE (until 2007), SPIE Technologies for the New Millennium Conference, the IEEE BioWireless and IEEE MTT-S International Microwave Symposium (IMS). She serves as a reviewer of the IEEE European Microwave Conference (EuMC), the *Journal of Micromechanics and Microengineering*, IEEE MICROWAVE AND COMPONENTS LETTERS, *Electronic Letters*, IEEE TRANSACTIONS ON ELECTRON DEVICES, the *Journal of Materials Chemistry*, *Applied Physics Letters*, and *Sensors and Actuators B*. She has authored or coauthored 180 international published papers in peer-reviewed journals and conferences with more than 1100 citations (h-index: 17, i10-index: 35), with several book chapters and invited papers in the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, IEEE ARFTG, IEEE BioWireless, IEEE Bipolar/BiCMOS Meeting, IEEE APMC, SPIE Microtechnologies for the New Millennium and IEEE IEDM conferences, notably, and *IEEE Microwave Magazine*. She is also chair of the IEEE BioWireless 2015 and 2016 conferences. She has also organized focus session and workshops during conferences such as IEEE BioWireless, IEEE EuMW, and IEEE MTT-S IMS.