Guest Editorial Special Issue on Multifunctional Circuits and Systems for Future Generations of Wireless Communications—II

THE explosive demand in wireless-capable devices, especially with the proliferation of multiple standards, indicates a great opportunity for adoption of wireless technology at a mass-market level. The communication devices of both today and the future will have not only to allow for a variety of applications, supporting the transfer of characters, audio, graphics, and video data, but they will also have to maintain connection with many other devices in a variety of environments rather than with a single base station. Moreover, to provide various services from different wireless communication standards with higher capacities and higher data-rates, fully integrated and multifunctional wireless devices are required. Multifunctional circuits and systems can be made profitable by a large scale of integration, elimination of external components, reduction of silicon area, and extensive reuse of resources. Integration of (Bi)CMOS transceiver RF front-end and analog baseband circuits with computing CMOS circuits on the same silicon chip further reduces costs of multifunctional mobile devices.

However, as batteries continue to determine the lifetime and size of mobile equipment, further extension of capabilities of wearable and wireless devices will depend critically on the integrated circuits and systems solutions. The demand for multifunctional, multistandard, and multimode wireless devices is accompanied by many significant challenges at system, circuit, and technology design levels.

In this (second part of the) Special Issue on Multifunctional Circuits and Systems for Future Generations of Wireless Communications, we have focused on the circuits and systems solutions for multiple communication standards addressing these challenges. The topics covered include:

- adaptive radio circuits and systems;
- multifunctional multistandard multiband circuits and systems;
- software-defined radio circuits and systems;
- low-voltage low-power RF and analog circuits for future generations wireless systems
- ultra-wide-band circuits and systems.

We would like to thank all the authors, the reviewers who participated in the final selection of the papers, and the Editorial Staff of the IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS—II: EXPRESS BRIEFS for their efforts in creating this Special Issue. We hope that this issue will provide you, the reader, new insights into multifunctional circuits and systems for future generations of wireless communications.

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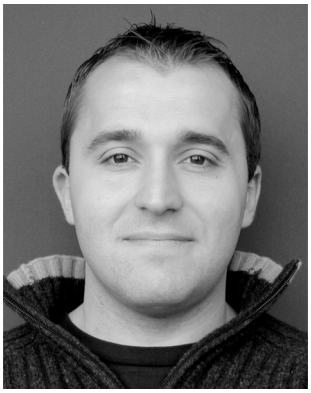

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