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 rather than with a single base station, in a variety of environments. Moreover, to provide various services from different wireless communication standards with higher capacities and higher data-rates, fully integrated and multifunctional wireless devices will be 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 and multi-mode wireless-capable devices is accompanied by many significant challenges at system, circuit, and technology levels.

In the Special Issue on Multifunctional Circuits and Systems for Future Generations of Wireless Communications, we are looking for circuits and systems solutions for multiple communication standards. Examples of topics qualifying for the special issue include:

- Adaptive radio circuits and systems
- Multifunctional multistandard multi-band circuits and systems
- Software-defined radio circuits and systems
- Cognitive radio circuits and systems
- Low-voltage low-power RF and analog circuits for future generations wireless systems
- Ultra Wide Band circuits and systems

All papers will be reviewed according to the standard peer review process of the IEEE Transactions on Circuits and Systems – Part II. Manuscripts should conform to the standard requirements for IEEE Transactions and should be submitted electronically through the web page of the TCAS-II (http://tcas2.polito.it). Authors should follow the same steps for submission as for regular papers, but during the submission process, please be sure to place the phrase “Wireless-Comm” before the title of your manuscript whenever prompted on a web form (i.e. if the title is “Recent advances in UWB” you should write in the web form “Wireless-Comm: Recent advances in UWB”), so that your paper is identifiable as a special issue submission.

Important: Since the IEEE TCAS-II is a journal for rapid publication of express briefs (5 pages maximum length in double-column format), the aim of the special issue is to publish highly-focused, short contributions describing in a concise and precise form the recent advancements in the field of circuits and systems for Future Generations of Wireless Communications. The goal is to produce an issue bringing to the readership the same excitement as from the participation of a focused special session in the most prestigious conference in the area.

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