Introduction to Selected Extended Papers from PIMRC'2018

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Dear Colleague,

It is our pleasure to introduce this Special Issue of the International Journal of Wireless Information Networks. The SI includes extended versions of the best papers presented at the IEEE International Symposium on Personal, Indoor and Mobile Radio Communications held in Sept. 2018 in Bologna, Italy (PIMRC 2018). The Editors of this SI were General and TPC Chairman of PIMRC 2018.

Out of about 400 papers presented in Bologna, those who received the best assessment after the peer anonymous review process were selected. Authors were invited to elaborate further their works, to originate a submission for this SI. The extended papers were submitted again to a thorough peer review process. So, the final outcome is a series of high-quality works that cover multiple aspects of radio communications.

In particular, aspects related to channel propagation in massive MIMO systems for indoor scenarios are investigated by G. Ghiaasi et al. in “*Effective Channel Hardening in an Indoor Multiband Scenario*”, starting from measurements in real scenarios carried out over different bands with the purpose to analyze the metrics for channel hardening.

The paper “*On Oversampling-Based Signal Detection*” by A. Mariani, focuses on wideband spectrum sensing where signal detection must take into account the front-end impairments of low-cost devices and oversampling. Authors propose a new energy detector scheme which is immune to noise uncertainty.

Selinis et al. in their paper “*Damysus; A Practical IEEE 802.11ax BSS Color Aware Rate Control Algorithm*”, present an overview of the latest developments introduced in the IEEE 802.11ax for spatial reuse, and propose a rate control

algorithm developed to exploit the Basic Service Set Color scheme of the standard capable of offering good performance in dense environments.

IoT networks are investigated in the paper “*Time-Power Multiplexing for LoRa-Based IoT Networks*” by M. Centenaro et al.; how it is possible to boost the number of users that a LoRa network can support with respect to the default operational mode is shown. The proposed novel operational mode at the gateways side, which fully exploits the degrees of freedom of the unlicensed bands regulations, is considered.

Finally, the paper “*Dynamic In-band Self-Backhauling for 5G Systems with Inter-cell Resource Coordination*”, by A. M. Lukowa et al., investigates the performance of self-backhauling with flexible reuse of the resources for access and backhaul (BH) in a real-life street canyon scenario with dynamic blockages. Authors propose a relaying concept capable of mitigating interference and which is robust to the offloading of users from donor cells to the relay cells.

The Guest Editors would like to thank all the Authors for their valuable papers and all the reviewers that contributed to the success of this Special Issue. Special thanks go to the Editorial Staff and the Editor in Chief.

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Roberto Verdone Roberto Verdone is Full Professor of Telecommunications at the University of Bologna. He got his Master and PhD degrees from the University of Bologna in 1991 and 1995, respectively. On April 1st, 1996, he joined CNR (the National Research Council) as a researcher. In 1999 he became Senior researcher of CNR. Then, in 2001, he got his position as Full Professor at the University of Bologna, where he founded a research group named Radio Networks, affiliated to

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