

Special Issue on Advanced Coexistence Technologies for Efficient Radio-Resource Usage

Call for Papers

Given the event of smart phones and other data-intensive wireless devices, as well as a greater proliferation of innovative wireless services and applications, demand for data capacity is dramatically increasing. Coexistence technologies have been identified as a means of accommodating such a rapidly growing range of wireless devices and services in spectrum-limited radio environments. Such technologies might increase spectral efficiency in radio-spectrum usage, or alternatively might improve energy efficiency or assist in striking the delicate balance between the two. Moreover, coexistence technologies might make use of spectrum where it is otherwise not used in order to increase capacity, or might facilitate sharing of deployed infrastructure or better optimization of the infrastructure's behavior, based on enhanced awareness of the configurations of radios as well as traffic demand and profiles currently in the locality. These are among numerous other benefits.

To realize such potential, coexistence technologies such as spectrum and network sharing are being addressed by researchers from many different communities. The goal of this special issue is to give an overview of recent advances in such research and to present innovative results and trends. The topics covered by this special issue include, but are not limited to:

- Novel approaches to interference management, taking into account the particular challenges of coexistence technologies on different layers (e.g. dirty paper, time-slot management, coexistence-aware routing)
- Multihop interference networks including XX, XS, and XZ channels
- Cooperative transmission techniques
- Fundamental performance bounds and limitations for coexisting wireless networks
- Coexistence management (e.g., cooperative, distributed, centralized, and hybrid approaches) and coexistence management for selected groups of devices (e.g., IEEE 802.19 for IEEE systems) and generic wireless frameworks
- Signaling, feedback and control channels for coexistence

- Novel scenarios and applications for coexistence technologies (e.g. privacy and security)
- Acquisition, learning, and management of context information by sensing, probing or exchange of control information
- Regulatory and business challenges in spectral coexistence

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