

Special Issue on
**Service-Oriented Resource Allocation and
Management for 5G/B5G Radio Access
Networks**

CALL FOR PAPERS

The last decade has witnessed an unprecedented increase in mobile data communications, a trend bound to continue in the coming years, with wireless network traffic rising from 12 Exabytes/month recorded in 2017 to a forecasted 77 Exabytes/month in 2022. This growth is largely due to the emergence of new services in key vertical industries (e.g., automotive/transportation, Industry 4.0, and eHealth) derived from the mass adoption of Internet of Things (IoT), or data-hungry applications such as reality augmentation. Recently, 3GPP has defined three 5G service categories, namely machine-type communications (MTC), ultra-reliable low-latency communications (URLLC), and enhanced mobile broadband (eMBB) that cover most of the current applications. However, the path towards beyond 5G (B5G) and 6G networks will be paved with the emergence of new services and applications such as extended reality (XR) and holographic communications that will necessarily imply more stringent requirements in terms of coverage, rate, latency, reliability and ubiquitous availability.

To overcome this challenge, new schemes and methods for the management of resources across the network, including radio spectrum allocation, user scheduling, and computational capacity, can significantly boost the performance offered by current 5G enabling technologies such as massive MIMO, millimeter waves, network slicing, or densification. This is particularly true when the wireless infrastructure has to simultaneously support a wide range of services, with potentially very different communication requirements.

This Special Issue aims to identify and discuss the technical challenges and recent advances in service-oriented resource allocation and management over 5G and B5G networks. We invite researchers to submit their original research and review articles focusing on physical layer aspects, such as spectrum allocation and signal processing algorithms, as well as solutions at higher layers and network/computational topologies.

Potential topics include but are not limited to the following:

- ▶ Radio resource management in advanced network topologies (e.g., HetNets, C-RAN, F-RAN, Cell-free, ultradense networks)
- ▶ Joint radio-computational resource allocation in fog-radio and mobile edge computing
- ▶ Novel opportunistic spectrum use, spectrum sharing, and spectrum management techniques for differentiated services in D2D licensed/unlicensed networks
- ▶ Massive MIMO clustering and pilot allocation
- ▶ Artificial intelligence for radio resource allocation
- ▶ Energy-efficient resource allocation
- ▶ Radio and network slicing and allocation of virtualized resources
- ▶ Signal processing algorithms
- ▶ Radio resource allocation and scheduling URLLC and massive MTC
- ▶ New approaches to 5G multi-service network deployment
- ▶ Business models to exploit multi-service 5G networks
- ▶ Computational aspects of resource allocation in 5G networks
- ▶ Resource allocation and management for V2X networks

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.hindawi.com/submit?specialIssue=306623>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

J. Joaquin Escudero-Garzás,
Universidad Carlos III de Madrid,
Madrid, Spain
jescugar@tsc.uc3m.es

Guest Editors

María Julia Fernández-Getino García,
Universidad Carlos III de Madrid,
Madrid, Spain
mjulia@tsc.uc3m.es

Felip Riera-Palou, Universitat de les Illes
Balears, Palma, Spain
felip.riera@uib.es

M. Carmen Lucas-Estañ, University
Miguel Hernández, Elche, Spain
m.lucas@umh.es

Giuseppe Araniti, University
Mediterranea of Reggio Calabria,
Reggio Calabria, Italy
araniti@unirc.it

Submission Deadline

Friday, 5 March 2021

Publication Date

July 2021