

## Telecommunication Systems (2012 IF: 1.027)

Special Issue on

### Energy Efficient 5G Wireless Technologies

The vast proliferation of the mobile devices along with the increasing data demands pave the way for the fifth generation (5G) wireless communication systems, which are envisaged to support significantly higher connection speeds, such as 10 Gb/s peak data rates. Heterogeneous networks (HetNets), cloud computing, pervasive networking, Internet of Things (IoT), Machine-to-Machine (M2M) communications, user cooperation and cognitive radio are only some indicative topics that are expected to attract notable research attention in the context of 5G technologies. However, all these concepts should be studied under a common framework defined by the European Union and the Information and Communications Technology (ICT) industry: energy awareness.

In particular, the development of novel technologies implies higher energy consumption both at the operator's and the end user's side. On the other hand, mobile operators seek the least possible energy consumption to reduce their costs and provide "green" services, while the end users set as high priority the maximization of the battery autonomy. To meet these demands, the energy efficiency should be explicitly considered in the design of new 5G systems, something that will potentially bring changes to the default protocol stack.

#### Scope and Topics

The present special issue is focused on the energy efficiency issues that arise in the 5G wireless systems design. It aims at providing a holistic view of research challenges and opportunities in the future "green" wireless networks, highlighting the tradeoffs between energy efficiency and network performance in the emerging area of 5G technology. To that end, submissions of comprehensive overviews and surveys for future networks are encouraged, as well as original papers with proposals of disruptive novel "green" techniques. Suggested topics include (but are not limited) to the following:

- Novel features in 5G systems with an emphasis in energy efficiency
- Network architecture and protocols used for 5G mobile and wireless communications, including network virtualization and cloud Radio Access Network (Cloud-RAN) towards energy efficiency
- Energy efficient network management, including infrastructure sharing and Base Stations switching off
- Energy efficient HetNet design, including indoor and outdoor small cells, wireless backhaul technologies and traffic offloading
- "Green" cognitive radio for efficient spectrum utilization
- Energy efficient self-\* techniques for 5G systems
- "Green" M2M communications
- Energy efficient Medium Access Control (MAC) protocols and resource management
- Energy-aware vertical handover mechanisms
- Lightweight energy efficient security mechanisms
- Interference coordination and mitigation for 5G wireless systems
- Energy efficient physical (PHY) layer design for 5G
- Smart grids and metering in 5G wireless communication technologies
- Network economics for energy efficient 5G wireless networks

## Submissions

- The manuscripts should be written in English, strictly following the guidelines of Telecommunication Systems Journal. The Instructions for Authors can be found here: <http://www.springer.com/business+%26+management/business+information+systems/journal/11235>
- To be considered for the special issue, a paper has to be 26 to 45 pages in length using 12pt roman fonts and 1.5 line spacing (the Springer's LaTeX macro package can be found in the journal's website, Word files are also accepted).
- The papers (pdf and source files) for this special issue should be directly sent to [green5g.si@gmail.com](mailto:green5g.si@gmail.com) (please use SI-green5g as email subject), and **NOT** to the journal office.
- All submissions should include a **cover letter** that contains a statement of novelty and full name, affiliation, address, country and email of each author.
- All papers will be rigorously reviewed based on the quality: originality, high scientific quality, organization and clarity of writing.

## Schedule

Submission Deadline: **1 April 2014**

First Notification: **1 July 2014**

Revised Paper Due: **1 August 2014**

Second Notification: **1 September 2014**

Final Manuscript Due: **1 October 2014**

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