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Journal of Communications (JCM, ISSN 1796-2021)
Special Issue on
“Wireless Gigabit Technologies”

The International Telecommunications Union (ITU) is currently specifying the requirements for the next generation mobile communication systems, the so called IMT-Advanced (IMT-A). The deployment of the latter at mass market level is believed to take place around year 2015 and facilitate what has already been a buzzword for the last decade, namely “4G”. IMT-A systems are expected to provide peak data-rates in the order of 1Gbit/s in local areas and 100Mbit/s in wide areas. Such high data-rates require advances at all the layers of the protocol stack. In the World Radio Congress, WRC 2007, new frequencies are specified for potential future broadband wireless systems, which pave the way for future deployment of high-rate systems that are envisioned under the IMT-A framework.

New techniques together with well-known solutions for high-rate networks need to be combined for realizing such Gigabps systems. Such high data rates require both the usage of advanced Multiple-Input-Multiple-Output (MIMO) techniques to achieve high spectral efficiency (bits/s/Hz) and very high spectrum allocation in the range of 100MHz. Designing systems for this kind of very large bandwidth with reasonable cost is a challenging task. Thus, it is high-time now to concentrate on system design for such high bandwidth. Besides PHY and MAC layers techniques, upper layers also need to adapt to the high bandwidth scenario. Radio resource management need to be improved, where cooperation between users and base stations can be a great source of advantage. Efficient resource allocation algorithms together with adaptive links will be the baseline for obtaining such high spectral efficiency. All the algorithms should take into consideration that multiple antennas at transmitter or receiver or at both locations will be a ubiquitous phenomenon for future devices, thus, the gains of multiple antennas in terms of point-to-point (isolated links), point-to-multipoint (downlink) and multipoint-to-point (uplink) scenarios need to be efficiently exploited to increase the system throughput. One very important feature will be to provide sufficient Quality-of-Service (QoS) in terms of link quality, link security and cost-efficiency.

This special issue aims at publishing high quality research papers related to wireless Gigabit technologies. Researchers working in these areas worldwide are invited to contribute.

Topics of interest include, but are NOT limited to:

General

Future 4G and IMT-Advanced systems
Cognitive Radios
Cooperative Communications
Cross-Layer Design and Optimization
Test-Beds, Experiments, Implementations and Applications

Physical Layer

Smart Antennas
Analog Front-End
Software-Defined Radios
Iterative Techniques, Detection and Decoding
Modulation Techniques (UWB, OFDM, etc.)
Advanced Coding (LDPC, Turbo, Multi-Level Coding, etc.)
Multi-Antenna Techniques (MIMO, etc.)
Channel Estimation, Channel Sounding and Channel Modeling
Synchronization

Medium Access Control Layer

Duplexing Schemes (TDD, FDD, etc.)
Multiple Access Schemes (OFDMA, SC-FDMA, MC-CDMA, etc.)
Interference Management, Cancellation and Avoidance
Radio Resource Management (Power Control, Packet Scheduling, etc.)
Flexible Spectrum Usage

Network Layer

Network Architectures (Centralized, Distributed, etc.)
Self-Organizing and Self-Optimizing Networks
Joint Scheduling and Routing
Network Synchronization

Submission Guidelines:

We invite original research papers, survey and tutorial papers, on both applied and theoretical aspects, which are previously unpublished and not currently submitted for publication elsewhere. Manuscripts should be written in English and not exceed 12 pages in length. Whenever applicable, submissions must include the following elements: title, authors, affiliations, contacts, abstract, index terms, introduction, main text, conclusions, appendixes, acknowledgements, references and biographies. Submissions must be directly sent in PDF format via email to Guest Editors: sf@es.aau.dk, nm@es.aau.dk, or muhammad.imadur.rahman@ericsson.com, with a covering e-mail clearly stating the name, address and affiliation of the corresponding author. Please identify your submission in the email subject line "Submission - JCM Special Issue on GigaTech". Complete guidelines for prospective authors can be found on-line at <http://www.academypublisher.com/forauthors.html>.

Important Dates:

Manuscript Due:	September 1, 2008
Acceptance Notification:	November 1, 2008
Final Manuscript Due:	December 1, 2008
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