

Special Issue on Cooperative MIMO Multicell Networks

Call for Papers

Recently, the pressing desire to provide cost-effective solutions aimed at supporting high-throughput broadband wireless access with large-scale coverage has significantly changed the notion of the traditional cellular systems. Physical (PHY) layer cooperation serves as an enabling technology for such a change. In latest cellular networks, neighboring infrastructure stations, such as base stations (BSs) or relay stations (RSs), share their communication resources to create virtual multiple-input multiple-output (MIMO) systems by means of distributed transmission and signal processing. Cooperative processing at the BSs promises to exceed the limits on spectral efficiency imposed by inter-cell interference, thereby allowing ever more aggressive frequency reuse patterns. On the other hand, cooperation between BSs and RSs, as well as among RSs, is expected to extend coverage and capacity of point-to-multipoint links between BSs and mobile stations in a highly economical fashion. However, to achieve such benefits in practice, numerous research challenges have to be tackled, such as quantifying the achievable gains under realistic propagation and operational conditions, incorporating relay stations in the cellular architecture, planning fair and efficient resource allocation procedures, comparing the performance of different relaying protocols, designing cooperative transceivers, mitigating interference between BSs and RSs, coupling the PHY operations with the activities of higher layers of the protocol stack, developing decentralized space-time coding algorithms, investigating security issues from a PHY layer perspective.

We invite authors to present original and unpublished articles that will report cutting-edge research achievements in cooperative MIMO multicell systems. Potential topics include but are not limited to:

- Modeling of distributed MIMO channels in multicell systems;
- Architectures for cooperative multicell networks;
- Precoding and decoding designs for MIMO multicell systems;
- Distributed space-time coding for cooperative multicell applications;
- Channel training, pilot design, feedback and synchronization for cooperative MIMO cellular networks;
- Relaying strategies for multicell systems;
- Cross-layer PHY/medium access control (MAC) designs for multicell networks;
- Cooperative inter-cell interference coordination and mitigation;
- Scheduling policies in cooperative cellular systems;
- Information-theoretic security approaches in cooperative multicell networks;
- Simulation tools, benchmarks and testbeds for cooperative MIMO systems;
- Latest international standardization developments for IEEE 802.16m and Long Term Evolution (LTE) – Advanced MIMO cooperative radio interfaces.

Authors should follow the EURASIP Journal on Advances in Signal Processing manuscript format described at the journal site <http://www.hindawi.com/journals/asp/>. Prospective authors should submit an electronic copy of their complete manuscript through the Manuscript Tracking System located at <http://mts.hindawi.com/>, according to the following timetable:

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First Round of Reviews	September 1, 2010
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