International Journal of Antennas and Propagation

Special Issue on

Beamforming Techniques for Wireless MIMO Relay Networks

Call for Papers

The continuous increase in mobile data traffic creates the need for radical innovations in the mobile broadband system design. The demand for high-speed and interference-free transmission and reception is inevitable and one *sine qua non* condition is the efficient spatial reuse. However, increasing traffic within a fixed limited bandwidth creates more interference in the system and degrades the signal quality.

Multiple-input multiple-output (MIMO) techniques offer many benefits in practical wireless systems including capacity and spectral efficiency increment, fading mitigation, and improved resistance to interference. Beamforming is a multi-antenna technique that significantly reduces interference and improves system capacity.

An emerging research trend considers relays in terrestrial and satellite networks, as the most promising proposal for achieving significant performance gains. Enhanced reliability and extended cell coverage are two of the advantages the relay networks offer. Although beamforming techniques at the source and/or the destination in a relay network have been examined, their use in MIMO relay networks has been recently proposed and is expected to overcome crucial obstacles in terms of capacity and interference.

The purpose of this special issue is to present high-quality unpublished research papers on advances in the area of wireless MIMO and relay techniques by experts from industry, academia, or agencies. Topics should be related to beamforming in the context of wireless MIMO and/or relay networks. Potential topics include, but are not limited to:

- Full-duplex and/or half-duplex beamforming techniques for terrestrial and/or land mobile satellite networks
- Performance evaluation of beamforming techniques in fading channels
- Interference modeling and mitigation
- Beamforming channel modeling
- Channel estimation and feedback
- Time and frequency synchronization
- Antenna design for beamforming relay systems
- RF issues for low cost, complexity, and power consumption
- Propagation issues in terrestrial/cellular/femto systems
- Optimal relay selection techniques
- Cooperative and opportunistic systems
- Adaptive beamforming for multiuser relaying
- Degrees of freedom and diversity issues
- Spectral efficiency and cognitive propagation issues

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