

# Special Issue on Distributed Signal Processing Techniques for Wireless Sensor Networks

## Call for Papers

Recent advances in hardware and wireless communications technologies have made possible the design of low-cost, low-power, multifunctional sensor devices. When deployed in a large number across a geographical area, these sensor devices collaborate among themselves to create a network for distributed sensing and automated information gathering, processing, and communication. Wireless sensor networks are a special case of wireless ad hoc networks that assume a multihop communication framework with no infrastructure, where the sensor devices cooperate to convey information from a source to a destination. This revolutionary technology will present a huge impact on a broad range of applications: monitoring the health status of humans, animals, plants, and civil-engineering structures, control and instrumentation of industrial machines and home appliances, energy conservation, security, detection of chemical and biological leaks. The upcoming years will very likely witness a growing demand for intelligent sensor systems that will be networked with wireless local area networks (WLANs) and Internet for increased functionality and performance.

In general, the design of wireless sensor networks is subject to the following requirements:

- low energy consumption, which is manifested in minimal energy expenditure in each sensor node and efficient usage of power-saving sleep/wake-up modes
- scalability with the increase in the number of sensors with the goal to extract information from noisy spatiotemporal measurements collected at the nodes
- broadcast communication paradigm and the increased possibility of packet collisions and congestions
- absence of centralized communication infrastructure
- possibility of frequent node failures and network topology changes

The goal of this special issue is to present the state-of-the-art results and emerging signal processing approaches

for wireless sensor networks that can cope with the above-mentioned challenges. Submitted articles must not have been previously published and must not be currently submitted for publication elsewhere. Topics of interest include the following:

- distributed estimation, detection, inference, and learning algorithms
- clock and carrier synchronization techniques
- design of distributed modulation techniques
- distributed power control algorithms
- performance bounds and statistical analysis


Due to the existence of a concurrent call for proposals, papers dealing with localization and tracking applications will not be accepted.

Authors should follow the EURASIP JASP manuscript format described at <http://www.hindawi.com/journals/asp/>. Prospective authors should submit an electronic copy of their complete manuscript through the EURASIP JASP Manuscript Tracking System at <http://www.hindawi.com/mts/>, according to the following timetable:

Manuscript Due	May 1, 2007
First Review Round	August 1, 2007
Publication Date	November 1, 2007

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