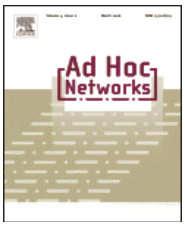


## CALL FOR PAPERS

## AD HOC NETWORKS (ELSEVIER) JOURNAL
**Special Issue on**

# BIO-INSPIRED COMPUTING AND COMMUNICATION IN WIRELESS AD HOC AND SENSOR NETWORKS


A wide spectrum of applications and services is currently being developed and designed to be built on top of various heterogeneous and significantly challenging network architectures such as wireless mesh, mobile ad hoc and wireless sensor/actor networks. These heterogeneous wireless communication architectures are mainly characterized by heterogeneous and resource-constrained nodes, restricted communication channels, highly dynamic environments, lack of any fixed infrastructure, and large scale network deployments that strongly vary in their density. These features and challenges, in turn, mandate intelligent, adaptive, autonomic, coordinated, self-organizing, and efficient processing and communication approaches to handle the complexity of these ambitious wireless systems.

The turn to nature has brought us many unforeseen great concepts. Natural biological systems intrinsically possess and exploit similar features by providing elegant and extremely efficient solutions for the challenges and tasks faced in their natural operation. It is of extreme importance to bridge the communication technologies with biological sciences and capture the analogy between these two distinct disciplines. To this end, solution strategies inspired by the biological systems have been recently proposed to address the challenges of many computing and communication systems.

This special issue is dedicated to capture the state-of-the-art and the recent advances in the area of biologically-inspired computing and communication in heterogeneous wireless architectures such as wireless mesh networks, mobile ad hoc networks, and wireless sensor and actor networks. Papers describing mathematical models, algorithms, protocols, tools, evaluation methods, and experimental studies of computing and communication architectures that are inspired by and derived from biological systems are solicited for this special issue. Topics of interest include (but are not limited to):

- Bio-inspired mathematical models, methods and tools
- Biological and bio-inspired computing, data processing algorithms
- Joint bio-inspired data processing and communication
- Embryonics-based fault-tolerant computing and communication
- Bio-inspired network and communication algorithms and protocols
- Novel applications and services inspired by biological systems
- Experimental studies of bio-inspired computing and communications
- Bio-inspired topology control and network reconfiguration methods
- Bio-inspired localization, synchronization, mobility approaches
- Evolution and self-healing of network architectures and protocols
- Immune and self-healing network defense and information security
- Bio-inspired nano-scale and molecular computing and communication
- Bio-inspired distributed control and sensing of networked wearable and implantable medical devices

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