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Call for Papers

A Special Issue of Nano Communication Networks On “Role of inter-disciplinary research in Nano Communication”

Nanotechnology has gained increased popularity in recent years, due largely to its potential applications (e.g. healthcare, aerospace, communications). A new field of research that has emerged is nano communication networks, which aims to enable communication between nano devices, or communication between nano devices and the macro world. Unlike communication in conventional computing devices, nano scale communication brings on new challenges due largely to their sheer size, capabilities, design constraints, and environment. This has led to highly inter-disciplinary research involving various fields to develop communication capabilities for nano devices. While various fields have applied communication theory/concepts towards nano scale developments, there is still a gap that exists between the different disciplines. The aim of this special issue is to reduce this gap, foster and increase cross-disciplinary research in the growing field of nano communications. In particular, the special issue welcomes experimental and theoretical papers from various disciplines (e.g. bio-physics, bio-chemistry, telecommunications, systems biology, materials science, mathematics) that have investigated communication at nano scale, in order to share best practices, experiences, and enable new research road maps. We invite authors to solicit original and novel contributions to this special issue, based on the following (but not limited to) topics:

Inter-disciplinary approaches for nano sensor development

Network infrastructure for nano sensors (molecular communication and wireless), organic electronics and communication (including spin electronics, organic spin valve, and hybrid system with inorganic interface), interfacing between organic and non-organic network components, device and circuit modeling, optical nano sensors

Emergent behaviour of nano scale communication

Self-assembly, self-organisation of nano communication structures, classical and emerging nano communication paradigms, design for fault tolerance and robustness

Systems biology association to nano communication

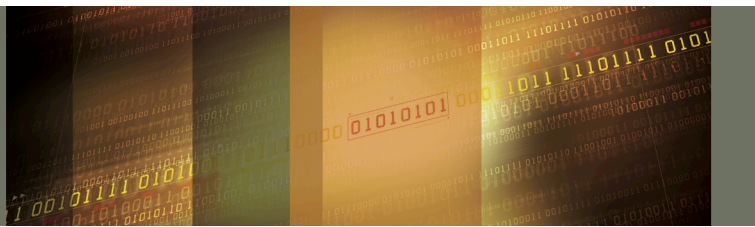
Atomic communication, protein network and cellular communication, modeling of intracellular trafficking

Nanotube networks

Membrane nanotubes, biological cargo transportation using nanotubes (DNA, proteins, drugs), carbon nanotubes (CNT)

For more information

www.elsevier.com/computerscience



Important dates

Paper submission:
01-October-2010

Acceptance notification:
19-December-2010

Final papers:
30-January-2011

Publication Date:
2nd Quarter 2011

Natural Computing in nano communication

Molecular computing, chemical state machines, DNA automaton, quantum cellular automata, membrane computing, amoeba based computing

Theoretical models

Complex networks, queuing theory, channel modelling, quantum mechanics, stochastic pooling networks, information theory, performance evaluation, nonlinear dynamics at nano scale

Network concepts in nano communication

Hybrid and heterogeneous nano network architectures, switching and routing, molecular information encoding/processing, nano scale security (e.g. DNA based encryption), error correction/detection

Nano communication applications

Healthcare (e.g. micro-surgery, drug delivery/target networks), aeronautics, transportation, communication, environmental monitoring, nano communication for pervasive computing (e.g. pervasive sensing)

Submission format

The submitted papers must be written in English and describe original research which is not published nor currently under review by other journals or conferences. Author guidelines for preparation of manuscript can be found at www.elsevier.com/locate/nanocomnet. Submitted papers should be in *pdf* format, single column, double-space with a minimum of 11 point font, and not exceed 25 pages including references. For more information, please contact the Editor-in-Chief: Prof. Ian F. Akyildiz (nanocomnet@ece.gatech.edu).

Submission Guideline

All manuscripts and any supplementary material should be submitted through Elsevier Editorial System (EES). The authors must select “[NanoCom inter-disciplinary research](#)” when they reach the “Article Type” step in the submission process. The EES website is located at: <http://ees.elsevier.com/nanocomnet/>

Guide for Authors

This site will guide you stepwise through the creation and uploading of you article. The guide for Authors can be found on the journal homepage (www.elsevier.com/nanocomnet). Any queries with regards to topic appropriateness to the special issue can be made to the guest editors.