

Call for Papers

The 2nd IEEE International Workshop on Molecular and Nanoscale Communications
(IEEE MoNaCom 2012)

To be held in conjunction with IEEE International Conference on Communications 2012
(IEEE ICC 2012)

Ottawa, Canada, June 10-15, 2012

Incredible improvements in nanotechnologies have enabled the realization of nano-scale machines, i.e., nanomachines, that promise new solutions for several applications in biomedical, industry and military fields. Many of these envisioned nanotechnology applications, e.g., intelligent drug delivery system, intra-body multi-modal health monitoring, require a set of nanomachines to collaboratively achieve a common task, which clearly mandates practical realization of *communication and networking at nanoscale*. A number of nanomachines communicating with each other are envisioned to form a network architecture called as *nanonetwork*. Due to size and capabilities of these nanomachines as well as the challenges posed by the physical laws governing this regime, the classical communication paradigms are inapplicable in nanonetworks. Hence, a set of new *molecular and nanoscale communication* paradigms is imperative for the realization of the future collaborative and distributed nanotechnology applications.

The 2nd IEEE International Workshop on Molecular and Nano-scale Communication (MoNaCom) aims to provide a forum to discuss the emerging area of molecular and nanoscale communications. Accordingly, we solicit original and novel contributions that capture the current state-of-the-art. Areas of interest include, but are not limited to, the following:

- ***Design and engineering of nanomachines for nano/molecular communication:*** Protein machines; Artificial cells; Synthetic cells; DNA machines; Nano-bio sensors and actuators
- ***Infrastructures for nano/molecular communication:*** Calcium signaling; Viral transport; Carbon Nano Tubes (CNT); Membrane nanotube; Flagellated Bacteria; Molecular motors over microtubules; Neural networks; Electromagnetic nanonetworks
- ***Network theory:*** Mobility in nano/molecular networks; Energy models for nano machines; Information theory of nano/molecular networks; Protocols and architectures for nano/molecular communication; Network control of nano/molecular communication;

Addressing, switching and routing at nano/molecular scale; Coding in nano/molecular networks; Security of nano/molecular networks

- ***Nano/molecular network design:*** Robust design and architecture; Network design by moleware; Emergent behaviour in nano/molecular networks (e.g. self-assembly, self-organisation); Programming for moleware communication; Planning of nano/molecular networks; Networks of nanocomputers
- ***Natural Computing in nano/molecular communication:*** Molecular computing; DNA computing; membrane computing; Integration of computational and communication capabilities in nano/molecular networks
- ***Tools to support nano/molecular network design:*** Wetware communication by simulation in silico; Network simulators (e.g. ns2, ns3) for nano/molecular networks
- ***Applications of nano/molecular networks:*** Healthcare, e.g., drug delivery, nanomedicine, Telecommunications, Energy, Biotechnology, Environment, Nano robots communication

General Chairs:

- Ozgur B. Akan, Koç University, Turkey
- Josep Solé Pareta, Universitat Politècnica de Catalunya, Spain

Technical Program Committee Co-Chairs:

- Dmitri Botvich, Waterford Institute of Technology, Ireland
- Tadashi Nakano, Osaka University, Japan

Submission guidelines:

Prospective authors are encouraged to submit a 5-page standard IEEE conference style paper via the EDAS submission system.

Important dates:

Submission deadline: November 30th, 2011

Notification: TBD

Camera-ready due: TBD