

Call for Papers for Selected Areas in Communications Symposium Molecular, Biological, and Multi-Scale Communications Track

Scope and Motivation:

As a result of recent advances in MEMS/NEMS and systems biology, as well as the emergence of synthetic bacteria and lab/process-on-a-chip techniques, it is now possible to design chemical “circuits”, custom organisms, micro/nanoscale swarms of devices, and a host of other new systems at small length scales, and across multiple scales (e.g., micro to macro). This success opens up a new frontier for interdisciplinary signaling techniques using chemistry, biology, novel electron transfer, and other principles not previously examined. This track is devoted to the principles, design, and analysis of signaling and information systems that use physics beyond conventional electromagnetism, particularly for small-scale and multi-scale applications. This includes: molecular, quantum, and other physical, chemical and biological (and biologically-inspired) techniques; as well as new signaling techniques at these scales. As the boundaries between communication, sensing and control are blurred in these novel signaling systems, research contributions in a diversity of disciplines are invited.

Main Topics of Interest:

Original research articles are solicited in, but not limited to, the following areas:

- mathematical modeling of biological, molecular or multi-scale communication
- channel model design and analysis
- molecular computing
- DNA sequencing
- biological, molecular or multi-scale networking
- implementations and laboratory experiments
- systems biology
- data-starved or data-rich statistical analyses of biological systems
- industrial applications
- biological circuits



- biosystems analysis and control
- information/communication theory for analysis of biological systems
- unconventional electromagnetism for small or multi-scale applications
- experiment-based studies on information processes or networks in biology

Sponsoring Technical Committees:

- Emerging Technologies Committee (Subcommittee on Molecular, Nanoscale, and Quantum Communication)

How to Submit a Paper:

The IEEE Globecom 2016 website provides full instructions on how to submit papers. You will select the desired symposium when submitting. **The paper submission deadline is April 1, 2016. Unlike recent ICC's and Globecom's, this is a hard deadline that will not be extended.**

Track Chair:

- Andrew Eckford, York University, Canada aekford@yorku.ca

Biography:



Andrew Eckford is an Associate Professor in the Department of Electrical Engineering and Computer Science, at York University, Toronto, Canada. A graduate of the Royal Military College of Canada and the University of Toronto, his research interests include non-traditional and nanoscale communication systems. He has written numerous papers on the application of information theory to molecular communication, work that has been covered by The Economist and The Wall Street Journal. Andrew is also the Associate Editor-in-Chief of the new IEEE Transactions on Molecular, Biological, and Multi-Scale Communications