



Discrete Mathematics and Computer Science Seminars
Department of Mathematical Sciences, Sharif University of Technology

Efficient Communication Protocols for Wireless Nanoscale Sensor Networks

Eisa Zarepour

AICT Innovation Center
Sharif University of Technology
e.zarepour@unsw.edu.au

Eisa Zarepour is a post-doctoral research fellow at AICT Innovation Center Sharif University of Technology. He previously worked as a post-doctoral research associate, at Networked Systems and Security Group, School of Computer Science and Engineering, UNSW, Sydney, Australia. He completed his Ph.D. at Network Research Lab, School of Computer Science and Engineering, University of New South Wales (UNSW), Sydney, Australia.



Abstract

Advances in nanotechnology are paving the way for wireless nanoscale sensor networks (WNSNs), promising radically new applications in medical, biological and industrial fields. However, the small scale poses formidable challenges for communication. First, the power budget of the nanosensors are very limited. Second, nanoantennas communicate in the terahertz band, which extremely attenuates the signal and coincides with the natural resonance frequencies of many types of molecules causing severe molecular absorption and noise in the channel. New communication protocols for WNSNs therefore are needed to address these challenges. In this talk, few new efficient communication protocols for WNSNs would be presented. We employ Markov Decision Processes and Hidden Markov Models to mathematically model and evaluate the performance of the propose protocols.

Monday, **12 Aban 1395** (2 November 2016), **12:45-14:00**
Room **317**, Department of Mathematical Sciences

<http://mehr.sharif.ir/combinatorics>
combinatorics@mehr.sharif.ir