

THE DEVELOPMENT OF A HANDHELD ELECTRONIC DEVICE FOR DIAGNOSING TUBERCULOSIS AT THE POINT-OF-NEED

What is threatening our health? The confluence of communicable and non-communicable diseases. Creating strategies for improved diagnoses of infectious diseases is cutting edge research. Finding solutions to assist with timely diagnoses can be unpredictable but with ongoing research we can make a difference in healthcare delivery.

Monday, January 20, 2014 | Room: MDCL 3022 | 4:30 p.m. – 6:00 p.m.



Dr. Leyla Soleymani, PhD
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Dr. Leyla Soleymani received her Ph.D. Degree in Electrical Engineering from the University of Toronto in 2010, and is currently assistant professor in the Department of Engineering Physics and the School of Biomedical Engineering at McMaster. In October, 2011, Dr. Soleymani was awarded the Douglas R. Colton Medal for Research Excellence. This award is given for research leading to new understanding and novel developments in microsystems and related technologies. In 2012, she received a Rising Stars in Global Health grant from Grand Challenges Canada to develop a handheld system for diagnosing infectious diseases at the point-of-need. Her research group is focused on developing new and advanced nanomaterials for integration into electronic microsystems for cellular processing and biomolecular sensing. Throughout her research career, Soleymani

has taken a multi-disciplinary approach in combining innovations in physics, electrical engineering, materials science, and biochemistry for solving problems in healthcare.

In this talk, Dr. Soleymani will focus on the strategies that can be used to develop ultrasensitive biosensors that do not depend on prior nucleic acid amplification. Different strategies for building nanostructured biosensors – rapid methods available on the laboratory benchtop and methods of the semiconductor industry – will be presented and the relationship between the electrode structure and sensitivity will be discussed. Finally, the fabrication and operation of fully electrical devices for bacterial lysis and electrochemical nucleic acid detection from cell lysates will be presented.

Further Information

<http://fhs.mcmaster.ca/globalhealthoffice/>
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