



Western University
Department of Physics and Astronomy

PHYSICS & ASTRONOMY COLLOQUIUM

Date: **Thursday, 21st September 2017**
Time: **1:30 p.m.**
Location: **Physics & Astronomy Seminar Room 100**

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Department of Engineering Physics
McMaster University

“Materials innovations towards developing miniaturized diagnostics platforms”

ABSTRACT

In this talk, I will discuss a new class of benchtop fabrication method for developing materials that are structurally and functionally tunable for addressing the needs of the field of biosensing. In biosensing, it is often required to develop materials that are optimized over multiple length scales: nanoscale features are required for optimal display of nanoscale biorecognition agents, whereas, microscale sensing elements ensure that a sufficient number of target analyte interact with the biosensor surface in clinically-relevant times. The benchtop method developed here is based on a combination of self-assembly, substrate-induced thin film wrinkling, and pattern transfer for creating tunable hierarchical structures on flexible substrates. Throughout this talk, I will present multiple examples to demonstrate how these materials enhance the performance of biosensors that detect nucleic acids, proteins, and small molecules. Finally, I will present an example of a clinical diagnostic system that is developed based on these innovative materials.

COFFEE + light snacks will be available in the Atrium, 2nd floor, at 1:15 p.m.