Interfacing Engineering, Biology, and Medicine at the Micro and Nano Scale

ABSTRACT
Nanotechnology and BioMEMS can have a significant impact on medicine and biology in a wide range of applications in diagnostics, therapeutics, and tissue engineering. In this talk, we will present an overview of our work in Silicon-Based BioMEMS and Bionanotechnology and discuss the state of the art and the future challenges and opportunities. We will review a range of projects in our group focused towards developing rapid detection of biological entities and developing point of care devices using electrical or mechanical phenomenon at the micro and nano scale. We will present our work on developing silicon-based Petri dishes-on-a-chip, silicon based nano-pores for detection of DNA, point of care biochips or electrical detection of CD4+ cells, and use of mechanical sensors for characterization of living cells.

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