NUS Nanoscience & Nanotechnology Initiative

Seminar Announcement

Speaker

Professor Rashid Bashir

Bliss Professor, Department of Electrical and Computer Engineering & Bioengineering,
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Date	Time	Venue
03 August 2009 (Monday)	3.00pm to 4.00pm	EA-06-03 Seminar Room Faculty of Engineering

Interfacing Silicon and Biology at the Micro and Nanoscale: Opportunities and Prospects

Abstract

Nanotechnology and BioMEMS will have a significant impact on medicine and biology in the areas of single cell detection, diagnosis and combating disease, providing specificity of drug delivery for therapy, and avoiding time consuming steps to provide faster results and solutions to the patient. Integration of biology and silicon at the micro and nano scale offers tremendous opportunities for solving important problems in biology and medicine and to enable 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 integrating micro-systems engineering with biology, 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. Towards this end, we will present our work on developing silicon-based petri dishes-on-a-chip, silicon based nano-pores for detection of DNA, silicon field-effect sensors for detection of DNA and proteins, and use of mechanical sensors for characterization of living cells.

Biography

Rashid Bashir completed his BSEE from Texas Tech University as the highest ranking graduate in the College of Engineering in Dec 1987. He completed his MSEE from Purdue University in 1989 and Ph.D. from Purdue University in 1992. From Oct 1992 to Oct 1998, he worked at National Semiconductor in the Analog/Mixed Signal Process Technology Development Group where he was promoted to Sr. Engineering Manager in the Process Technology Group. He joined Purdue University in Oct 1998 as Assistant Professor and was Professor of Electrical and Computer Engineering and a Courtesy Professor of Biomedical Engineering and Mechanical Engineering. Since Oct 2007, he is the Abel Bliss Professor of Electrical and Computer Engineering & Bioengineering and Director of the Micro and Nano Technology Laboratory at the University of Illinois, Urbana-Champaign. He has authored or co-authored over 140 journal and conference papers, over 50 invited talks, and has been granted 30 patents. His research interests include BioMEMS, Lab on a chip, nano-biotechnology, interfacing biology and engineering from molecular to tissue scale, and applications of semiconductor fabrication to biomedical engineering, all applied to solve biomedical problems.

~~ All are welcome ~~

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