

# Silicon-based sensors for Biology and Medicine

## **GUEST SPEAKER**

**Prof Rashid Bashir**

University of Illinois at Urbana-Champaign, USA

When: **4<sup>th</sup> August 2010, 9.30 a.m. to 10.30 a.m.**

Where: **Institute of Microelectronics, Singapore**

11 Science Park Road Singapore Science Park II Singapore 117685

## **Abstract**

Nanotechnology and BioMEMS can have a significant impact on medicine and biology in the areas of single cell detection, diagnosis and combating disease, and avoiding time consuming steps to provide faster results and solutions to the patient. Integration of biology and fabrication methods 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 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, silicon field-effect sensors for detection of DNA and proteins, and use of mechanical sensors for characterization of living cells.

## **Speaker Biography**



Prof. 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.

Prof. Bashir 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.

## **Registration**

Pre-registration is required. Closing date is 2<sup>nd</sup> August 2010. To register, please log on:

[http://easstar.eventshub.sg/ems\\_wb\\_Details.aspx?CalID=28&EventID=126554](http://easstar.eventshub.sg/ems_wb_Details.aspx?CalID=28&EventID=126554)

## Location Map

