

# Seminar

## Flexible Neural Probes and Biomimetic Platforms

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*Chair Professor*

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**Date:** 16 February 2017 (Thursday)  
**Time:** 12:00 nn – 1:30 pm (Reception with light lunch starts at 11:45 am. To facilitate the order of lunch, please register through email [yyfung2222@cityu.edu.hk](mailto:yyfung2222@cityu.edu.hk).)  
**Venue:** B6605, Academic 1, City University of Hong Kong  
**Language:** English

### Abstract

Two research areas in flexible neural probes and three dimensional (3D) biomimetic platforms will be presented. High precision, densely packed, and low impedance recording/stimulation sites on neural probes with integrated temperature sensors were developed to monitor and stimulate neural activities in brain and retina. By controlling the dimension, distribution, and morphology of the electrode sites on the probes, neural signals with high signal to noise ratio were obtained. With the integrated temperature sensors, position of the implanted neural probe could be monitored, as well as the temperature rise during neural stimulation at different current levels. Dynamic control of the neural probe flexibility for insertion and chronic applications will also be reviewed.

Understanding and controlling cell movement and positioning are crucial for biosystems. Cells migrate in different ways depending on cell types, degree of differentiations, and the microenvironment they encounter. Nanoimprint technology was used to form 3D microstructured polydimethylsiloxane (PDMS) platforms with sealed channels. By introducing guiding features in the channels, these 3D platforms could be used to sort adherent cells to predesigned locations or to screen cells without applying chemical gradient or fluidic flow, and hence could serve as a novel *in vitro* tool for invasiveness assessment.

### Biography



Stella W. Pang joined the City University of Hong Kong as Chair Professor in the department of Electronic Engineering (EE) in 2012. She is the department head of EE and the director of Center for Biosystems, Neuroscience, and Nanotechnology. Previously, she was Professor of Electrical Engineering and Computer Science at the University of Michigan from 1990 to 2011. She served as the Associate Dean for Graduate Education and International Programs in the College of Engineering from 2002 to 2007. From 1981 to 1989, she was with Lincoln Laboratory, Massachusetts Institute of Technology.

Prof. Pang's research interests include nanofabrication technology for biomedical, microelectromechanical, microelectronic, and optical devices. She has over 400 technical papers, book chapters, and invited presentations and is the editor and author of 16 books, journals and conference proceedings. Prof. Pang has 9 patents granted in nanotechnology and microsystems. She is a Fellow of IEEE, ECS, and AVS.

**\*\* ALL ARE WELCOME \*\***