Department of Electronic Engineering
&
State Key Laboratory of Millimeter Waves (Hong Kong)
&
IEEE AP/MTT HK Joint Chapter

Seminar On
Emerging Wireless Applications in Biomedicine

by
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Date	**:**	**December 22, 2011 (Thursday)**
Time	**:**	**03:30 p.m. – 04:30 p.m.**
Venue	**:**	**Room G 6302, 6/F, Green Zone, Academic 1,** **City University of Hong Kong**

Abstract

In his famous lecture from 1959, "There's plenty of room at the bottom," Richard Feynman presented a wild idea of "swallowable surgeons" where tiny surgical robots are put inside a blood vessel, travel into the heart, look around, and send the information back to an external controller. These robots can even perform operations and might be permanently incorporated in the body for continuous monitoring. The idea seems like a science fiction dream. In recent years, however, researchers have made major progress on implantable systems that support most of the swallowable surgeon functionalities. Nevertheless, these devices remain mostly restricted to research, in part due to limited miniaturization and power supply constraints. In this talk, I will address these limitations and show, both theoretically and experimentally, that higher frequency (GHz-range) RF power transmission leads to dramatic receiver miniaturization. I will describe a prototype implementation in CMOS that realizes the above theoretical results. Once it is feasible to continuously supply power to micro implants safely, this opens up new clinical applications of implantable systems. I will introduce some of these new applications.

Biography

Ada received her B.Eng degree from the EEE department at the University of Hong Kong and her Ph.D. degree from the EECS department at the University of California at Berkeley in 2004. Upon

graduation, she spent one year at Intel as a senior research scientist. Afterwards, she joined her advisor's startup company, SiBeam Inc., architecting 60-GHz radios. After two years in industries, she returned to academic and joined the faculty of the ECE department at the University of Illinois, Urbana-Champaign. In 2008, she moved back to California and joined the faculty of the Department of Electrical Engineering at Stanford University. She is a Terman Fellow at Stanford University.

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

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