



**THE CHINESE UNIVERSITY OF HONG KONG**  
Department of Information Engineering

*Seminar*

**Ultrareliable low-latency wireless communication  
inspired by industrial control over wireless**

by  
**Professor Anant Sahai**  
UC Berkeley  
USA

**Date : 18 May, 2017 (Thur.)**  
**Time : 2:00pm - 3:00pm**  
**Venue : Room 833, Ho Sin Hang Engineering Building**  
**The Chinese University of Hong Kong**

*Abstract*

Control provides a conceptually interesting area for understanding the nature of information beyond traditional communication problems, while also giving rise to interesting practical communication challenges. On the practical side, control is driving the need for high-performance in the Interactive Internet of Things (I<sup>2</sup>oT). This involves a different corner of the performance space than traditional wireless communication. Latency and Reliability take center-stage as opposed to pure spectral efficiency, and performance has to scale well as the number of nodes increases. I will talk about some work we have done recently on a protocol idea that we call "Occupy-CoW" (Control over Wireless) where we can connect to ideas of diversity, cooperative communication, and even a bit of network coding.

Joint work with Vasuki Swamy, Gireeja Ranade, Bora Nikolic and others.

*Biography*

Anant Sahai got his BS degree in EECS from Berkeley in '94 and then got his MS and PhD degrees from MIT in '96 and '01. Before joining Berkeley as a faculty member in '02, he spent a year at the wireless startup Enuvis working on ultrasensitive software-radio algorithms for GPS. His current research interests are in the foundations of information theory for control, low-latency wireless communication protocols to support the high performance Active IoT applications of the future, and wireless spectrum sharing (where his interests span system architectures, game theory, law, and policy). He's also one of the Berkeley PIs (leading the collaborative learning thrust) on a funded team for the DARPA Spectrum Collaboration Challenge. In 2015-2016, he co-taught and scaled-up a radically new "introduction to EECS" course that is required for Berkeley EECS Freshmen and introduces them to circuits and systems concepts while teaching them linear algebra, all while doing interesting labs and application-oriented problems.

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