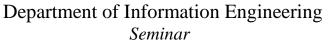


### THE CHINESE UNIVERSITY OF HONG KONG

Institute of Network Coding and





## Wireless MIMO Switching

by

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Time: 11:30 am - 12:30 pm

Venue: Room 833, Ho Sin Hang Engineering Building

The Chinese University of Hong Kong

### <u>Abstract</u>

In this talk we will consider a network with a multi-antenna relay operating as a switch, to switch data among multiple end stations. In a generic switching problem, a switching pattern consists of a one-to-one mapping from a set of inputs to a set of outputs (i.e., a permutation). We introduce a framework of wireless switching among the end stations with the use of a multi-antenna relay. We refer to such a relay as a MIMO switch. With beamforming and linear detection, the MIMO switch controls which end stations are connected to which other end stations. Each beamforming matrix, referred to as a "switching matrix", corresponds to a permutation pattern among the end stations. With a set of different switching matrices, each end station is able to send an equal amount of independent data to every other end station. We will introduce how to choose such a set. Finally, a MIMO switching scheme with network coding is proposed to improve system throughput of the scheme with permutation transmission pattern.

#### **Biography**

Fanggang Wang is a postdoctoral fellow with the Institute of Network Coding at CUHK. He received the B.S. degree in Communication Engineering and Ph.D. degree in Signal and Information Processing in 2005 and 2010 from Beijing University of Posts and Telecommunications (BUPT) respectively. From Sept. 2008 to Apr. 2010 he worked as a visiting Ph.D. student in the Electrical Engineering Dept., Columbia University. His research interests include network coding, relay networks, statistical signal processing.

\*\*ALL ARE WELCOME \*\*