



THE CHINESE UNIVERSITY OF HONG KONG
Institute of Network Coding
and
Department of Information Engineering
Seminar



Wireless Network Coding: Algorithms, Analysis, and Applications

by

Prof. Alex Sprintson
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Date : 12 November 2014 (Wednesday)

Time : 2:30 - 5:15 pm

**Venue: Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong**

Abstract

Wireless network coding has recently attracted a growing interest due to its potential to improve the performance of wireless networks by taking advantage of the broadcast properties of wireless medium. The talk will focus on two basic wireless network coding problems, index coding and direct data exchange. First, we show a deep connection between the index coding problem, the more general network coding problem, interference alignment as well as the problem of finding a linear representation of a matroid. Next, we focus on secure direct data exchange between mobile clients in the presence of an eavesdropper. We show that this problem has many interesting reformulations, such as designing constrained generator matrices of MDS codes, and leads to interesting conjectures in algebraic geometry and abstract algebra. Finally, we discuss the game-theoretical perspective of these problems as well as implementation of the network coding technique at the physical layer.

Biography

Dr. Sprintson is an Associate Professor with the Department of Electrical and Computer Engineering, Texas A&M University, College Station. From 2003 to 2005, he was a Postdoctoral Research Fellow with the California Institute of Technology, Pasadena. His research interests lie in the general area of communication networks with a focus on network coding and software defined networks. Dr. Sprintson received the Wolf Award for Distinguished Ph.D. students, the Viterbi Postdoctoral Fellowship, and the NSF CAREER award. Currently, he serves as an associate editor of the IEEE Transactions on Wireless Communications. He has been a member of the Technical Program Committee for the IEEE Infocom [2006--2015](#).

**** All ARE WELCOME ****

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