

Syracuse University  
Department of Electrical Engineering and Computer Science

## Seminar

Dr. Jun Chen  
IBM T. J. Watson

### On the Duality Between Slepian-Wolf Coding and Channel Coding

Date: Thursday, May 24, 2007  
Time: 1:30 p.m.  
Place: 369 Link Hall

#### Abstract

Slepian-Wolf coding, also known as distributed lossless source coding, is of fundamental importance for many emerging applications. In this talk, we will discuss the intimate connections between Slepian-Wolf coding and channel coding. We show that there exist two different dualities between Slepian-Wolf coding and channel coding: type-level duality and linear codebook-level duality. These two dualities together provide a comprehensive picture of Slepian-Wolf coding and clarify many subtle differences between linear block codes, fixed-rate nonlinear codes, and variable-rate codes. The implication of this work on Slepian-Wolf code design will also be discussed.

#### Short Bio

*Jun Chen received the M.S. and Ph.D. degrees in electrical and computer engineering from Cornell University in 2003 and 2005, respectively. He was a Postdoctoral Research Associate in the Coordinated Science Laboratory at the University of Illinois at Urbana-Champaign from 2005 to 2006. He is currently a Josef Raviv Memorial Postdoctoral Fellow at the IBM Thomas J. Watson Research Center.*

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