



# Illinois Center for Wireless Systems

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## ICWS Seminar Series



### **On the (Old) Use of Imperfect Feedback in AWGN and Fading Channels**

Professor David Love  
School of Electrical and Computer Eng.  
Purdue University

Monday, April 12, 2010  
Room 141 CSL / 4:00 p.m.

#### **Abstract:**

Perfect channel output feedback in additive noise channels is known to provide dramatic probability of error reductions. In order to make channel output feedback practical, a large number of challenges remain. First, we look at the application of channel output feedback in additive noise channels when there is feedback noise. We develop a linear transmitter and receiver framework for this scenario based on concatenated coding. Second, we look at the application of channel output feedback in fading channels. Channel state information (CSI) feedback has been a major point of focus for these channels over the past decade. We show that channel output feedback can be combined with CSI feedback to provide simple capacity achieving transmission schemes.

#### **Biography:**

David J. Love received the B.S. (with highest honors), M.S.E., and Ph.D. degrees in electrical engineering from the University of Texas at Austin, in 2000, 2002, and 2004, respectively. During the summers of 2000 and 2002, he was with the Texas Instruments DSPS R&D Center, Dallas, TX. Since August 2004, he has been with the School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN, where he is now an Associate Professor. Dr. Love has served as a Guest Editor for the IEEE Journal on Selected Areas in Communications and serves as an Associate Editor for the IEEE Transactions on Communications. His research interests are in the design and analysis of communication systems. Dr. Love is a Senior Member of the IEEE and a member of Tau Beta Pi and Eta Kappa Nu. In 2003, he received the IEEE Vehicular Technology Society Daniel Noble Fellowship.

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