

# **ELECTRICAL & COMPUTER ENGINEERING SEMINAR**

## **“Optimum signaling methods for multi- antenna links at low SNR”**

by

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### **Abstract**

Finding the capacity of a multi-antenna or MIMO wireless link and the associated signaling method when there is no channel state information at the receiver or the transmitter is one of the key open problems in communication theory. Many, but partial, results have been obtained by prominent researchers in the field since the publication of a seminal paper on this subject in 1999. This talk will discuss some of those partial results and present some exciting new ones--made possible by results in non-convex optimization theory--that give decisive answers in the low signal-to-noise ratio (SNR) regime, where the study of such a model finds most justification. The impact of the new results will potentially be in wideband and ultra-wideband (UWB) communications.

### **Biography**

Mahesh K. Varanasi is a Professor of Electrical and Computer Engineering at the University of Colorado at Boulder since 2001. He was an Assistant Professor in the same department during 1989-1996 and an Associate Professor during 1996-2001. His research interests are in communication and information theory including wireless communication and coding. He has published on a variety of topics in these fields and is a Highly Cited Researcher according to the ISI-Web of Science. His research has been mainly funded by the National Science Foundation. He is currently serving as an Editor for the IEEE Transactions on Wireless Communications.

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