



THE ELECTRICAL & COMPUTER ENGINEERING PROGRAM PRESENTS

Lattice Coding for Interference Networks

Dr. Sriram Vishwanath

Wednesday, January 13
12–1 p.m. Light lunch will be served
Lecture Hall 144, 1st floor

Lattice coding is emerging as an important transmission strategy for multi-user interference networks. Lattice coding helps align the interference observed at each receivers simultaneously. In this talk, we focus on the benefits of lattice coding on a selected class of interference networks. In the first part of the talk, we show how lattice coding can be used to derive a "very strong" interference regime for the $K(>2)$ user symmetric Gaussian interference channel. Then, we use this "very strong" interference regime to derive a layered lattice coding scheme for K user interference channels. We show that this scheme can achieve more than one degree of freedom for a class of K user Gaussian interference channels. In the final part, we utilize the "very strong" interference result along with dirty paper coding to find the capacity of a class of multiuser cognitive radios.

Dr. Sriram Vishwanath received his B.S. at IIT Madras, M.S. from CalTech and his Ph.D. from Stanford University, all in Electrical Engineering. He is currently at the University of Texas at Austin as an associate professor in the Department of Electrical and Computer Engineering. His research interests are in wireless systems and networks. His industry experience includes work at the National Semiconductor Corporation, CA and at the Lucent Bell labs, NJ. He received the ARO Young Investigator Award in 2007, the National Science Foundation Early CAREER Award in 2005 and the IEEE Communications/Information Theory Societies' Joint Best Paper Award in 2005.



For more information contact:

Noha Ezzat
313E Texas A&M Engineering Building
tel. +974.423.0152 fax +974.423.0064
noha.ezzat@qatar.tamu.edu
ecen.qatar.tamu.edu