数学与系统科学研究院学术报告

报告题目：An Upper Bound on Relaying over Capacity Based on Channel Simulation

报 告 人：Feng Xue, Intel labs

时间地点：9:30-10:30AM, April 22, 2013, Room 712, Siyuan Building

摘要：

The talk presents a fundamentally new upper-bounding technique on the capacity of the relay channel. In this classical 3-node discrete memoryless channel, a source X wants to send information to destination Y with the help of a relay Z. The link from Z to Y is assumed to be lossless with rate R0. In several cases, when the rate is beyond both the XY and XZ links, our technique yields strictly and explicitly better bound than the well-known cut-set bound. One particular case is when the channel is statistically degraded, i.e., either Y is a statistically degraded version of Z with respect to X, or Z is a statistically degraded version of Y with respect to X. The main idea is based on generalizing channel simulation and the universal bound on decoding when rate is beyond channel capacity. To our best knowledge, this is the first time channel simulation theory being applied for bounding capacity.

报告人简介：

Feng Xue is a senior research scientist with Intel Labs. His research area focuses on future wireless communication systems, especially 3GPP Long Term Revolution (LTE) and beyond such as 5th-Generation cellular systems. He is also interested in understanding the fundamental limits of communication and complex networks. Feng obtained his PhD degree from the University of Illinois, MS degree from the Institute of Systems Science, AMSS/CAS, and BS degree from Shandong University. After graduation from the University of Illinois, he has been with Intel Labs since 2006, except a short stint in Southern California with Qualcomm Research. Feng has filed more than 10 patents, written one book and published more than 20 research papers.