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THE CHINESE UNIVERSITY OF HONG KONG
Institute of Network Coding
and
Department of Information Engineering
Seminar

Strong Converse Theorems for Classes of Multimessage Multicast Networks: A Rényi Divergence Approach

by

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Date : 21 January 2015 (Wednesday)
Time : 11:00am - 12:00pm
Venue : Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract

This talk discusses a recently established strong converse theorem for some classes of discrete memoryless multimessage multicast networks (DM-MMNs) whose corresponding cut-set bounds are tight, i.e., coincide with the set of achievable rate tuples. The strong converse for these classes of DM-MMNs implies that all sequences of codes with rate tuples belonging to the exterior of the cut-set bound have average error probabilities that necessarily tend to one (and are not simply bounded away from zero). Examples in the classes of DM-MMNs include finite-field linear deterministic networks, wireless erasure networks as well as DM-MMNs consisting of independent discrete memoryless channels (DMCs). Our elementary proof technique leverages the properties of the Rényi divergence. A sketch of the proof will be given during the talk. This is a joint work with Vincent Y. F. Tan at National University of Singapore (NUS).

Biography

Silas L. Fong is currently a research fellow in the Department of Electrical and Computer Engineering at National University of Singapore (NUS). He received his BEng, MPhil and PhD degrees in Information Engineering from the Chinese University of Hong Kong (CUHK) in 2005, 2007 and 2011 respectively. He has worked as postdoctoral fellow in the Department of Electronic Engineering at City University of Hong Kong from 2011 to 2013, and postdoctoral associate in the School of Electrical and Computer Engineering at Cornell University from 2013 to 2014. His research interests are network information theory and network coding.

**** ALL ARE WELCOME ****

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