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

# On Multi-source Multi-sink Hyperedge Networks: Enumeration, Rate Region Computation, and Hierarchy

**by**


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**Date : 15 June 2016 (Wednesday)**
**Time : 2:30 - 3:30pm**
**Venue : Room 833, Ho Sin Hang Engineering Building**
**The Chinese University of Hong Kong**


*Abstract*

This work utilizes computation tools to solve an important open problem in information theory and network coding, that is, to calculate the rate regions of multi-source multi-sink networks. For enumeration purposes, notions of minimal networks and network equivalence are defined. Then, efficient enumeration algorithms, based on the Leiterspiel algorithm, are developed. With the enumeration tools, millions of non-isomorphic networks are enumerated and solved by our computation software. To analyze the huge repository of rate regions, operators that relate networks of different sizes are defined so that more large networks can be solved, and forbidden network minors regarding some classes of linear codes can be obtained.


*Biography*

Congduan Li is currently a postdoctoral fellow in the Institute of Network Coding at CUHK. He received his Ph.D. degree in Electrical Engineering from Drexel University in September 2015. His research interests lie in distributed systems, network security, region of entropic vectors, etc.

**** ALL ARE WELCOME ****

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