

Proceedings

2008 Fourth Workshop on  
Network Coding, Theory, and  
Applications  
NetCod 2008

The Chinese University of Hong Kong  
Hong Kong, China  
January 3 – 4, 2008

<http://NetCod2008.ie.cuhk.edu.hk>

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## Technical Program

### January 3 (Thursday)

- 9:00 – 12:00      Tutorial I: Introduction to Network Coding  
*Ralf Koetter, Munich University of Technology, and Muriel Medard, MIT*
- Tutorial II: Network Coding for Error Correction and Security  
*Raymond Yeung, CUHK*
- 2:00 – 3:00      Poster Session
- Network Coding meets MIMO  
*Elena Fasolo, Francesco Rossetto, and Michele Zorzi*
  - Robust Network Coding Using Diversity through Backup Flows  
*Hossein Bahramgiri and Farshad Lahouti*
  - Joint LDPC Codes for Multi-User Relay Channel  
*Jung-Hyun Kim, Seon-Yeong Park, Ju Young Kim, Young-Joon Kim, and Hong-Yeop Song*
  - Network Spread Coding  
*Chadi Khirallah, Vladimir Stankovic, Lina Stankovic, and Dimitris Poutouris*
  - Optimal Layered Multicast Using Network Coding  
*Si Jingjing, Zhuang Bojin, and Cai Anni*
  - Butterflies in the Mesh: Lightweight Localized Wireless Network Coding  
*Soji Omiwade, Rong Zheng, Cunqing Hua*
  - A Joint Network-Channel Coding Technique for Single-Hop Wireless Networks  
*Tuan Tran, Thinh Nguyen, and Bella Bose*
  - Opportunistic Cooperative Network-Coding Based on Space-Time Coding for Bi-Directional Traffic Flows  
*Ling Lv, Hongyi Yu and Jianzu Yang*
- 3:00 – 6:00      Tutorial III: Applications of Network Coding  
*Muriel Medard, MIT*

### January 4 (Friday)

- 9:00 – 9:40      (Invited Talk) Gossiping in Networks: Towards Understanding the Power of Protocols and Network Coding  
*Bruce Hajek, University of Illinois, Urbana-Champaign*
- 9:40 – 10:00     Dualities Between Entropy Functions and Network Codes  
*Terence Chan and Alex Grant*
- 10:00 – 10:30    Ring-Theoretic Foundation of Convolutional Network Coding  
*Shuo-Yen Robert Li and Siu Ting Ho*

- 11:00 – 11:20      On Locating Byzantine Attackers  
*Mahdi Jafari Siavoshani, Christina Fragouli, and Suhas Diggavi*
- 11:20 – 11:40      Online Broadcasting with Network Coding  
*Lorenzo Keller, Eleni Drinea, and Christina Fragouli*
- 11:40 – 12:00      Basic Entropy Sets  
*Ian Grivell, Alex Grant, and Terence Chan*
- 12:00 – 12:20      "Real" and "Complex" Network Codes: Promises and Challenges  
*S. Shintre, S. Katti, S. Jaggi, B. K. Dey, D. Katabi, and M. Medard*
- 2:20 – 3:00        (Invited Talk) Some Recent Progresses in Network Error Correction Theory  
*Zhen Zhang, University of Southern California*
- 3:00 – 3:20        A Concatenated Network Coding Scheme for Multimedia Transmission  
*John MacLaren Walsh and Steven Weber*
- 3:20 – 3:40        Network-Coded Broadcast: from Canonical Networks to Random Topologies  
*Luis Loyola, Tony De Souza, Jorg Widmer, and Christina Fragouli*
- 3:40 – 4:00        The Capacity Region of Two-Way Collision Networks  
*Kenneth W. Shum and Chi Wan Sung*
- 4:00 – 4:20        Efficient Information Exchange in Wireless Sensor Networks using Network Coding  
*Yu Wang, Ian D. Henning and David K. Hunter*
- 4:50 – 5:10        Rainbow Network Flow with Network Coding  
*Mingkai Shao, Xiaolin Wu and Nima Sarshar*
- 5:10 – 5:30        A Graham-Sloane Type Construction of Constant Dimension Codes  
*Shu-Tao Xia*
- 5:30 – 5:50        Joint Network Coding and Subcarrier Assignment in OFDMA-Based Wireless Networks  
*Xinyu Zhang and Baochun Li*
- 5:50 – 6:10        A Unified Framework for Linear Network Codes  
*Min Tan, Raymond Yeung, and Siu Ting Ho*