



2010 IEEE International Symposium on Network Coding (NetCod 2010)

*The Hart House
University of Toronto
Toronto, Ontario, Canada
June 9 – 11, 2010*

*Financially sponsored by MITACS
Technically co-sponsored by the IEEE Information Theory Society*

<http://www.networkcoding.org>

Final Technical Program

June 9, 2010, Wednesday Great Hall, the Hart House
Continental Breakfast (Great Hall) 8:00 a.m. — 9:00 a.m.
Opening Remarks and Welcome 9:00 a.m. — 9:15 a.m. Baochun Li and Frank Kschischang, University of Toronto, Co-chairs

Keynote Address 1

Professor **Babak Hassibi**, California Institute of Technology

9:15 a.m. — 10:15 a.m.

“Optimal Network Coding for Small Alphabet Sizes”

Chair: Frank Kschischang, University of Toronto

Coffee and Tea Break

10:15 a.m. — 10:45 a.m.

Session 1: Network Code Construction

10:45 a.m. — 12:00 p.m.

Session Chair: Soren Riis, Queen Mary, University of London

“Function Computation over Linear Channels”

Lorenzo Keller, EPFL, Switzerland; Nikhil Karamchandani, University of California, San Diego, United States; and Christina Fragouli, EPFL, Switzerland

“Collecting Coded Coupons over Overlapping Generations”

Yao Li, Rutgers University, United States; Emina Soljanin, Alcatel-Lucent, United States; and Predrag Spasojevic, Rutgers University, United States

Conference Lunch (Great Hall)

12:00 p.m. — 2:00 p.m.

Session 2: Security with Network Coding

2:00 p.m. — 3:30 p.m.

Session Chair: Emina Soljanin, Bell Labs

“Locating Byzantine Attackers in Intra-Session Network Coding using SpaceMac”

Anh Le, UC Irvine, United States; and Athina Markopoulou, UC Irvine, United States

“Efficient Weakly-Secure Network Coding Schemes Against Wiretapping Attacks”

Yawen Wei, Iowa State University, United States; Zhen Yu, Iowa State University, United States; and Yong Guan, Iowa State University, United States

“Network Codes Resilient to Jamming and Eavesdropping”

Hongyi Yao, Tsinghua University, China; Danilo Silva, State University of Campinas, Brazil; Sidharth Jaggi, Chinese University of Hong Kong, Hong Kong; and Michael Langberg, The Open University of Israel, Israel

Coffee and Tea Break

3:30 p.m. — 4:00 p.m.

Session 3: Optimizations with Network Coding

4:00 p.m. — 5:00 p.m.

Session Chair: Thinh Nguyen, Oregon State University

“A Simple Optimization Model for Wireless Opportunistic Routing with Intra-session Network Coding”

Fabio Soldo, University of California, Irvine, United States; Athina Markopoulou, University of California, Irvine, United States; and Alberto Lopez Toledo, Telefonica Research, Spain

“Issues in Peer-to-Peer Networking: a Coding Optimization Approach”

Christopher Chang, California Institute of Technology, United States; Tracey Ho, California Institute of Technology, United States; Michelle Effros, California Institute of Technology, United States; Muriel Médard, MIT, United States; and Ben Leong, National University of Singapore, Singapore

Conference Reception

Great Hall, the Hart House

5:30 p.m. — 7:30 p.m.

June 10, 2010, Thursday

Debates Room, the Hart House

Continental Breakfast (Debates Room)

8:00 a.m. — 9:00 a.m.

Keynote Address 2

Professor [Christina Fragouli](#), EPFL

9:00 a.m. — 10:00 a.m.

“Network Coding: Beyond Throughput Benefits”

Chair: Baochun Li, University of Toronto

Coffee and Tea Break

10:00 a.m. — 10:30 a.m.

Session 4: Throughput and Delay Analysis with Network Coding

10:30 a.m. — 12:00 p.m.

Session Chair: Raymond Yeung, The Chinese University of Hong Kong

“Non-Asymptotic Analysis of Network Coding Delay”

Maricica Nistor, Instituto de Telecomunicações, Portugal; Rui A. Costa, Instituto de Telecomunicações, Portugal; Tiago T.V. Vinhoza, Instituto de Telecomunicações, Portugal; and João Barros, Instituto de Telecomunicações, Portugal

“Throughput-Delay Analysis of Random Linear Network Coding for Wireless Broadcasting”

B. T. Swapna, The Ohio State University, United States; Atilla Eryilmaz, The Ohio State University, United States; and Ness Shroff, The Ohio State University, United States

“An Analytical Study of Network Coding in the Presence of Real-Time Messages”

Marc Aoun, Philips Research, Netherlands; Paul Beekhuizen, Eurandom, Technical University of Eindhoven, Netherlands; and Antonios Argyriou, University of Thessaly, Greece

Conference Lunch

12:00 p.m. — 2:00 p.m.

Music Room, the Hart House

Session 5: Network Coding in Wireless Networks

Debates Room, the Hart House

2:00 p.m. — 3:30 p.m.

Session Chair: Muriel Médard, MIT

“The Role of Feedback in the Choice between Routing and Coding for Wireless Unicast”

Ramakrishna Gummadi, University of Illinois at Urbana-Champaign, United States; Laurent Massoulié, Thomson Technology Paris Laboratory, France; and Ramavarapu Sreenivas, University of Illinois at Urbana-Champaign, United States

“Network Coding-Aware Queue Management for Unicast Flows over Coded Wireless Networks”

Hulya Seferoglu, University of California, Irvine, United States; and Athina Markopoulou, University of California, Irvine, United States

“Prioritized Wireless Transmissions Using Random Linear Codes”

Tuan Tran, Oregon State University, United States; and Thinh Nguyen, Oregon State University, United States

Coffee and Tea Break

3:30 p.m. — 4:00 p.m.

Session 6: Network Coding in Practical Wireless Applications

4:00 p.m. — 5:00 p.m.

Session Chair: Athina Markopoulou, University of California, Irvine

“Practical Wireless Network Coding with Constrained Decoding Buffers”

Yu Wang, University of Science and Technology of China, China; Hancheng Lu, University of Science and Technology of China, China; Peilin Hong, University of Science and Technology of China, China; and Kaiping Xue, University of Science and Technology of China, China

“On the Performance of Network Coding in Multi-Resolution Wireless Video Streaming”

Steluta Gheorghiu, Telefonica Research, Spain; Luísa Lima, Instituto de Telecomunicações, Portugal; Alberto Lopez Toledo, Telefonica Research, Spain; João Barros, Instituto de Telecomunicações, Portugal; and Muriel Médard, MIT, United States

Conference Reception and Banquet

Venue: London and Edinburgh Suites, 2nd Floor, The Sutton Place Hotel, 955 Bay Street, Toronto

6:30 p.m. — 7:00 p.m. Reception 7:00 p.m. — 9:00 p.m. Banquet

June 11, 2010, Friday

Music Room, the Hart House

Continental Breakfast (Music Room)

8:00 a.m. — 9:00 a.m.

Keynote Address 3

Professor [Alex Dimakis](#), University of Southern California

9:00 a.m. — 10:00 a.m.

“Network Coding for Distributed Storage”

Chair: Frank Kschischang, University of Toronto

Coffee and Tea Break

10:00 a.m. — 10:30 a.m.

Session 7: Applications of Network Coding

10:30 a.m. — 12:00 p.m.

Session Chair: Alex Dimakis, University of Southern California

“A Fundamental Trade-off Between The Download Cost And Repair Bandwidth In Distributed Storage Systems”

Soroush Akhlaghi, Shahed University, Iran; Abbas Kiani, Shahed University, Iran; and Mohammad Reza Ghanavati, Shahed University, Iran

“A Practical Network Coding Approach for Peer-to-Peer Distributed Storage”

Marco Martalo, University of Parma, Italy; Marco Picone, University of Parma, Italy; Riccardo Bussandri, Elfo S.r.l., Fiorenzuola D'Arda, Piacenza, Italy; and Michele Amoretti, University of Parma, Italy

“Network Coding in Passive Optical Networks”

Konstantin Miller, Berlin Institute of Technology, Germany; Thorsten Biermann, University of Paderborn, Germany; Hagen Woesner, Berlin Institute of Technology, Germany; and Holger Karl, University of Paderborn, Germany

Conference Lunch

12:00 p.m. — 2:00 p.m.

Debates Room, the Hart House

Session 8: Network Coding in Practical Networks

Music Room, the Hart House

2:00 p.m. — 3:30 p.m.

Session Chair: Zongpeng Li, University of Calgary

“Broadcast Scheduling Based On Network Coding in Time Critical Wireless Networks”

Cheng Zhan, University of Science and Technology of China, China; and Yinlong Xu, University of Science and Technology of China, China

“On the Queueing Behavior of Network Coding”

Yuan Yuan, National University of Defense Technology, China; Kui Wu, University of Victoria, Canada; and Weijia Jia, City University of Hong Kong, Hong Kong

“A Network Coding Approach to IP Traceback”

Pegah Sattari, University of California, Irvine, United States; Minas Gjoka, University of California, Irvine, United States; and Athina Markopoulou, University of California, Irvine, United States

Closing Remarks and Outlook to NetCod 2011

3:30 p.m. — 3:40 p.m.

Baochun Li and Frank Kschischang, University of Toronto, Co-chairs

Coffee and Tea

3:40 p.m. — 5:00 p.m.