

# The Science of Network Coding

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Welcome to **BIRS!** The workshop will start on Fri. Sep. 20 19:30 and continue until Sun. Sep. 22 12:00.

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## SCHEDULE

### Friday:

- 16:00** Check-in (front desk - Professional Development Centre - open 24 hours).  
**17:30-19:30** Dinner (at Vistas Main Dining Room on the 4th floor of Sally Borden Building).  
**19:30-21:00** Welcome gathering on 2nd floor, Corbett Hall.  
Beverages and a small assortment of snacks are available in the lounge on a cash honor system.

### Saturday:

- 7:00-8:00** Early bird hike (sunrise 07:21) .  
**7:00-8:30** Breakfast.  
**8:30-10:15** Session 1: Index coding.
  - Young-Han Kim (University of California at San Diego): On the capacity region for index coding.
  - Michelle Effros (California Institute of Technology): Edge removal and related problems.
  - Michael Langberg (SUNY Buffalo): On the connection between network coding and index coding.
  - Open discussion: Challenges and open problems related to index coding.**10:15-10:45** Coffee break (with BIRS BoD).  
**10:45-12:00** Session 2: Data exchange.
  - Alex Sprintson (Texas A & M University): Distributed data exchange with weak security.
  - Salim El-Rouayheb (Illinois Institute of Technology): Network Coding for Data Exchange.
  - Open discussion: Challenges and open problems in data exchange.**12:00-13:30** Lunch.  
**13:30-15:00** Session 3: Network Coding fundamentals.
  - Zongpeng Li (University of Calgary): Multiple-unicast network coding.
  - Xunrui Yin (University of Calgary): Network Coding and field size.
  - Aditya Ramamoorthy (Iowa State University): Achievability scheme for 3 unicast networks.
  - Open discussion: Challenges and open problems in NC fundamentals.**15:00-15:30** Coffee break.  
**15:30-17:00** Session 4: Error correction and secure communication.
  - Tracey Ho (California Institute of Technology): Network error correction for distributed multi-source codes.
  - Sidharth Jaggi (Chinese University of Hong Kong): Reliable, deniable, and hidable network communication.
  - Joerg Kliever (New Mexico State University): Polar coding for the operator channel.
  - Open discussion: Challenges and open problems in network error correction and secure communication.**17:00-18:30** Evening hike (sunset 19:36, full moon sunrise 20:27).  
**18:30-19:30** Dinner.  
**20:00-21:00** Open problems session.

## Sunday:

**7:00-8:00** Early bird hike.

**7:00-8:30** Breakfast.

**8:30-10:15** Session 5: TBA.

- Di Niu, Majid Khabbazian (University of Alberta) : Network Coding and Gossiping.
- Christina Fragouli (EPFL / UCLA) : TBA.
- Mayank Bakshi (INC Hong Kong (CUNK)): TBA.
- Open discussion.

**10:15-10:45** Coffee break.

**10:45-12:00** Open discussions (special journal issues, future BIRS workshops, and more ...).

## MEALS

Coffee Breaks: As per daily schedule, in the foyer of the TransCanada Pipeline Pavilion (TCPL) (*included in workshop*). There is no coffee break service on Sunday afternoon, but self-serve coffee and tea are always available in the 2nd floor lounge of Corbett Hall.

Meals will be served at Vistas Main Dining Room on the 4th floor of Sally Borden Building (breakfast: 7:00-9:30am; lunch: 11:30am-1:30pm; dinner: 5:30-7:30pm).

## MEETING ROOMS

All lectures will be held in the lecture theater in the TransCanada Pipelines Pavilion (TCPL). An LCD projector, a laptop, a document camera, and blackboards are available for presentations.

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## Sep. 20-22

### ABSTRACTS

*(to be completed at the workshop)*

Speaker: **Name** (Affiliation)

Title: *Title*

Abstract: Abstract text

Speaker: **Name** (Affiliation)

Title: *Title*

Abstract: Abstract text

Speaker: **Name** (Affiliation)

Title: *Title*

Abstract: Abstract text