

Simons-DIMACS Workshop:

Lower Bounds and Frontiers in Data Structures

August 8th - 11th, 2022 (New Brunswick, NJ)

The workshop will be held in the CoRE Building on the Busch Campus of Rutgers University in Piscataway, NJ.

- Lectures: Room 301 CoRE
- Breakfast/Lunch/Coffee Breaks: Room 401 CoRE

Program

Monday Aug 8th:

- **Morning session (9:30am - 12:30am, with coffee break)**
 - Tutorial: "*Techniques for Static and Dynamic Cell-Probe Lower Bounds*"
(Huacheng Yu, Princeton)
- **Lunch break (12:30 - 2:30)**
- **Afternoon session (2:30 - 5:30, with coffee break)**
 - * DIMACS Welcome (5-10 minutes)
 - * David Woodruff (CMU): "*Memory Bounds for the Experts Problem*"
 - * Nicole Wein (DIMACS): "*Online List Labeling and History-Independence*"
 - * Pavel Dvorak (TIFR): "*Lower Bounds for Semi-adaptive Data Structures via Corruption*"
- **Welcome dinner at Old Man Rafferty's, New Brunswick (6:30pm)**

Tuesday Aug 9th:

- **Morning session (9:00 - 12:00, with coffee break)**

Tutorial: "*Fine-Grained Lower Bounds in Data Structures*"
(Amir Abboud, Weizmann Institute)

- **Lunch break (12:00 - 2:30)**
- **Afternoon session (2:30 - 5:30, with coffee break)**

* Sepehr Assadi (Rutgers): "*Tight Bounds for Monotone Minimal Perfect Hashing*"

* Kevin Yeo (Columbia): "*Cell Probe Lower Bounds in Cryptography*"

* Omri Weinstein (Hebrew U & Columbia U): "*Dynamic Data Structures in Interior-Point Methods*"

* Open Problem session

Wednesday Aug 10th:

- **Morning session (9:00 - 12:00, with coffee break)**

Tutorial: "*The Multiphase and OMV Conjectures, and Implications to Dynamic LBs*"
(Kasper Green Larsen, Aarhus University)

- **Lunch break (12:00 - 2:30)**
- **Afternoon session (2:30 - 5:30, with coffee break)**

* Martin Farach-Colton (Rutgers): "*How many bits does it take to build a hash table?*"

* Michael Bender (Stony Brook): "*Dynamic Optimality in External Memory*"

* Josh Alman (Columbia): "*Circuit complexity of Kronecker powers*"

Thursday Aug 11th:

- **Morning session (9:00 - 12:00)**

Tutorial: *"Arithmetic Data Structure Lower Bounds: Everything that we can prove (and nothing else)"*

(Sasha Golovnev, Georgetown University)

- **Lunch (12:00 - 1:00)**

- **Open Group Discussion 1:00 - 2:00** (Workshop conclusion)