

Topological Data Analysis and Machine Learning Theory

October 14–19, 2012

MEALS

*Breakfast (Buffet): 7:00–9:30 am, Sally Borden Building, Monday–Friday

*Lunch (Buffet): 11:30 am–1:30 pm, Sally Borden Building, Monday–Friday

*Dinner (Buffet): 5:30–7:30 pm, Sally Borden Building, Sunday–Thursday

Coffee Breaks: As per daily schedule, in the foyer of the TransCanada Pipeline Pavilion (TCPL)

***Please remember to scan your meal card at the host/hostess station in the dining room for each meal.**

MEETING ROOMS

All lectures will be held in the new lecture theater in the TransCanada Pipelines Pavilion (TCPL). LCD projector and blackboards are available for presentations.

5-day workshop participants are welcome to use BIRS facilities (BIRS Coffee Lounge, TCPL and Reading Room) until 3 pm on Friday, although participants are still required to checkout of the guest rooms by 12 noon.

SCHEDULE

Sunday

16:00 Check-in begins (Front Desk - Professional Development Centre - open 24 hours)

17:30–19:30 Buffet Dinner, Sally Borden Building

20:00 Informal gathering in 2nd floor lounge, Corbett Hall (if desired)

Beverages and a small assortment of snacks are available on a cash honor system.

Monday

7:00–8:45 Breakfast

8:45–9:00 Introduction and Welcome by BIRS Station Manager, TCPL

9:00–9:45 GUNNAR CARLSSON, *Opening remarks: State of TDA*

9:45–10:30 VIN DE SILVA, *Persistence Measure and Stability*

10:30–10:45 Coffee break

10:45–11:30 MIKHAIL BELKIN, *Algebraic Geometry for Learning Mixtures of Gaussians and Other Distributions*

11:30–13:00 Lunch

13:00–14:00 Guided Tour of The Banff Centre; meet in the 2nd floor lounge, Corbett Hall

14:00 Group Photo; meet in foyer of TCPL

(photograph will be taken outdoors so a jacket might be required).

14:15–15:00 DIRK SCHUETZ, *Data analysis on pseudomanifolds*

15:00–15:45 MATT KAHLE, *Topological statistical mechanics*

15:45–16:00 Coffee break

16:00–16:45 ANTHONY BAK, *Topological Dimensionality Reduction: Using the Topology of the Feature Space to Select Optimal Features*

16:45–17:30 KONSTANTIN MISCHAIKOW, *Discrete Morse theory as a preprocessor for computing homology*

17:30–19:30 Dinner

Tuesday

- 7:00–9:00 Breakfast
9:00–9:45 JOHN HARER, *Frechet means for persistence diagrams and vineyads*
9:45–10:30 FRED CHAZAL, *Persistence Stability for Geometric complexes*
10:30–10:45 Coffee break
10:45–11:30 FACUNDO MEMOLI, *Persistence Homology and Metric Geometry*
11:30–13:30 Lunch
13:45–14:30 GILAD LERMAN, *Robust PCA*
14:30–15:15 PETER CHIN, *Finding mysterious people in social network graphs*
15:15–15:45 Coffee break
15:45–16:30 PAUL BENDICH, *Formation of Track Clusters via Low-Dimensional Persistence*
16:30–17:15 MONICA NICOLAU, *Combining data transformations and topological methods to address biology-driven problems*
17:30–19:30 Dinner

Wednesday

- 7:00–9:00 Breakfast
9:00–9:45 YUSU WANG, *Understanding the Gaussian-weighted Graph Laplace Operator*
9:45–10:30 AMIT PATEL, *The Étalage of a Map*
10:30–10:45 Coffee break
10:45–11:30 QUENTIN MÉRIGOT, *Upper and lower boounds for distance to measure approximation*
11:30–13:30 Lunch
Free Afternoon
17:30–19:30 Dinner

Thursday

- 7:00–9:00 Breakfast
9:00–9:45 MARTIN RAUSSEN, *Spaces of executions as simplicial complexes*
9:45–10:30 JESSE JOHNSON, *Thin position and topological clustering of large data sets*
10:30–10:45 Coffee break
10:45–11:30 DOMINIQUE ATTALI, *Shape reconstruction in high dimensions with Rips complexes*
11:30–13:30 Lunch
13:45–14:30 PETER BUBENIK, *Inference using a new topological statistic, the persistence landscape*
14:30–15:15 SAYAN MUKHERJEE, *Manifold learning via Lie groups*
15:15–15:45 Coffee break
15:45–16:30 DON SHEEHY, *Topological Data Analysis and Mesh Generation*
16:30–17:15 BRITTANY FASY, *Modes of Gaussian Mixtures*
17:30–19:30 Dinner

Friday

- 7:00–9:00 Breakfast
9:00–9:45 DANIEL MUELLNER, *Consistent scale selection for exploratory visualization and analysis of data sets*
9:45–10:30 TOMASZ KACZYNSKI, *Suspension of a measuring function*
11:30–13:30 Lunch
Checkout by 12 noon.