



Banff International Research Station

for Mathematical Innovation and Discovery

Topological insulators and superconductors

February 7-11, 2011

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, 2nd floor lounge, Corbett Hall

*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 Max Bell 159 (Max Bell Building accessible by walkway on 2nd floor of Corbett Hall). LCD projector, overhead projectors and blackboards are available for presentations. Note that the meeting space designated for BIRS is the lower level of Max Bell, Rooms 155-159. Please respect that all other space has been contracted to other Banff Centre guests, including any Food and Beverages in those areas.

SCHEDULE

Sunday

- 16:00 Check-in begins (Front Desk – Professional Development Centre - open 24 hours)
Lecture rooms available after 16:00 (if desired)
- 17:30-19:30 Buffet Dinner
- 20:00 Informal gathering in 2nd floor lounge, Corbett Hall
Beverages and 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, Max Bell 159
- 9:00-9:50 S.-C. Zhang (Stanford) "*Topological insulators and superconductors*"
- 9:50-10:40 M.Z. Hasan (Princeton) "*Topological matter, quantum magnetism and superconductivity: recent discoveries & the new Frontiers*"
- 10:40 Coffee Break, 2nd floor lounge, Corbett Hall
- 11:00-11:50 N.P. Ong (Princeton)
"*Transport Experiments on the topological insulators Bi_2Te_3 and Bi_2Se_3* "
- 12:00-13:00 Lunch
- 13:00-14:00 Guided Tour of The Banff Centre; meet in the 2nd floor lounge, Corbett Hall
- 14:00 Group Photo; meet on the front steps of Corbett Hall

14:20-15:10 J. Moore (UC Berkeley) "*Topological field theory and topological responses in topological insulators*"

15:10-15:30 Coffee Break, 2nd floor lounge, Corbett Hall

15:30-16:20 J. Alicea (UC Irvine) "*The quest for Majorana fermions in solid state systems*"

16:20-17:10 C. Beenakker (Leiden) "*Quantized conductance at the Majorana phase transition in a disordered superconducting wire*"

17:30 Dinner

Tuesday

7:00-9:00 Breakfast

9:00 Roundtable Discussion 1

10:30-11:00 Coffee Break, 2nd floor lounge, Corbett Hall

11:00 Roundtable Discussion 2

12:00-13:30 Lunch

13:30 Free afternoon

17:30-18:30 Dinner

19:00-19:50 A. Ludwig (Santa Barbara) "*Classification of Topological Insulators and Superconductors, Responses and Quantum Anomalies*"

19:50-20:40 F.D.M. Haldane (Princeton) "*Hall viscosity and the origin of (non-Pauli) incompressibility in the FQHE*"

Wednesday

7:00-8:30 Breakfast

9:00-9:50 Y. Chen (Stanford) "*Experimental observation and manipulation of topological surface states*"

9:50-10:40 A. Yazdani (Princeton) "*Visualizing Scattering of topological Surface States using STM Spectroscopic Mapping*"

10:40 Coffee Break, 2nd floor lounge, Corbett Hall

11:00-11:50 Qi-Kun Xue (Tsinghua) "*Novel properties of topological insulator thin films of Bi_2Te_3 and Bi_2Se_3 prepared by molecular beam epitaxy*"

12:00-13:00 Lunch

13:10-14:00 L.W. Molenkamp (Wurzburg) "*Dirac Fermions in HgTe Quantum Wells*"

14:00-14:50 R.-R. Du (Rice) *“Helical Edge Modes in Inverted InAs/GaSb Quantum Wells”*
14:50-15:10 Coffee Break, 2nd floor lounge, Corbett Hall
15:10-16:00 G. Refael (Caltech) *“Environment engineering for inducing topological phases”*
16:00-16:50 Y.-B. Kim (Toronto) *“Prospect of Topological Insulators and Other Novel Phases in Transition Metal Oxides with Strong Spin-Orbit coupling”*
16:50-17:40 G.A. Fiete (UT Austin) *“Interacting Topological Insulators and Quantum Spin Liquids”*
18:00-19:30 Dinner

Thursday

7:00-9:00 Breakfast
9:00-9:50 X.-L. Qi (Stanford) *“Topological response theory of doped topological insulators”*
9:50-10:40 S.-B. Chung (Stanford) *“Detecting and designing topological superconductor”*
10:40 Coffee Break, 2nd floor lounge, Corbett Hall
11:00-11:50 Roundtable Discussion 3
12:00-13:30 Lunch
14:00-15:00 Roundtable Discussion 4
15:00-15:30 Coffee Break, 2nd floor lounge, Corbett Hall
Free time
17:30-19:30 Dinner

Friday

7:00-9:00 Breakfast
9:00 Informal Discussions
10:30-11:00 Coffee Break, 2nd floor lounge, Corbett Hall
11:30-13:30 Lunch

Checkout by 12 noon.

** 5-day workshop participants are welcome to use BIRS facilities (2nd Floor Lounge, Max Bell Meeting Rooms, Reading Room) until 3 pm on Friday, although participants are still required to checkout of the guest rooms by 12 noon. **