



# Banff International Research Station

for Mathematical Innovation and Discovery

**13w5135: Selective transport through biological and bio-mimetic nano-channels:  
mathematical modeling  
20 – 25 January, 2013**

## 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, 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 main lecture room (201) in the TransCanada Pipelines Pavilion (TCPL). LCD projector, laptop and blackboards are available for presentations.

### Sunday

**16:00** Check-in begins (Front Desk – Professional Development Centre right at the Air Shuttle stop - open 24 hours)

**17:30-19:30 Buffet Dinner**

**20:00** Social time 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**

**Morning Session. Chair: Tijana Jovanovic-Talisman**

**8:45-9:00** Introduction and Welcome by BIRS Station Manager

**9:00-9:10** Overview of the meeting by the organizers

**9:10-9:55** Murray Stewart *"Function of the TREX-2 complex and Nab2 in mRNA export"*

**9:55-10:40** Roderick Lim *"Selective Transport: A Conundrum?"*

**10:40-11:00** Coffee

**11:00-11:45** Yitzhak Rabin *"Effect of charge, hydrophobicity and Nup sequence on translocation through the NPC"*

**11:45-13:00 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 (will be taken outdoors so bring a jacket).

**Afternoon Session. Chair: Anton Zilman**

**14:20-15:00** Rebecca Adams *"Cytoplasmic FG domains function in terminal steps of mRNA export"*

**15:00-15:30** Coffee

**15:30-16:15** Sigfried Musser *"Efficient Nuclear Transport of Large Cargos Requires Multiple Transport Receptors"*

**16:15-17:00** Gnana Gnanakaran *"Conformational characterization of intrinsically disordered proteins"*

**17:30-19:30** Dinner

**19:30-** Social time and recap of the day.

## Tuesday

**7:00-9:30** Breakfast

**Morning Session. Chair: Roderick Lim**

**9:40-10:25** Steffen Frey *"In vitro and in situ dissection of the NPC permeability barrier"*

**10:30-10:50** Coffee

**10:50-11:35** Ulrich Keyser *"Optimizing Diffusive Transport Through a Synthetic Membrane Channel"*

**11:35-13:30** Lunch

**Afternoon Session. Chair: Steffen Frey**

**13:30-14:15** Rick Wozniak *"Sculpting the chromatin landscape: a role for the nuclear pore complexes in gene silencing"*

**14:15-15:00** Roderick Lim *"Selective Transport: A Conundrum?"*

**15:00-15:30** Coffee

**15:30-16:15** Ralph Richter *"Cohesiveness tunes assembly kinetics and morphology of FG nucleoporin domain meshworks - implications for the functionality of the nuclear pore permeability barrier"*

**16:15-17:00** Discussion time

**17:30-19:30** Dinner

**19:30-** Social time and recap

## Wednesday

**7:00-9:00** Breakfast

**Free morning**

**11:30-13:30** Lunch

**Free afternoon and discussions in groups.**

**17:30-19:30** Dinner

**Evening Session. Chair: Gnana Gnanakaran**

**19:30-20:15** Michael Elbaum *"Simple experiments and minimal models for transport"*

**20:15-21:00** Ajay Gopinathan *"Emergent Structure and Function in the NPC"*

**20:15-** social time

## Thursday

**7:00-9:00** Breakfast

**Morning Session. Chair: Sig Musser**

**9:00-9:45** Weidong Yang *"Nucleocytoplasmic Transport Studied by SPEED Microscopy"*

**9:45-10:30** Ayse Asatekin *"Polymeric Nanopore Membranes for Hydrophobicity-Based Separations by Conformal Initiated Chemical Vapor Deposition"*

**10:30-11:00** Coffee

**11:00-11:45** Tim Albrecht *"The current distribution in multi-electrode/nanopore devices"*

**11:45-13:30** Lunch

**Afternoon Session. Chair: Michael Elbaum**

**13:30-14:15** Fabien Montel *"DNA transport in functionalized nanopores"*

**14:15-15:00** Barak Raveh *"Integrative Multiscale Simulation of Transport through the Nuclear Pore Complex"*

**15:00-15:30** Coffee

**15:30-16:15** Anton Zilman *"Control of FG nup conformations by kaps: theory vs experiment"*

**16:15-17:00** Recap and future plans

**17:30-19:30** Dinner

**19:30-** Social time

## Friday

**7:00-9:00** Breakfast

Free morning. Participants are welcome to use the facilities till 3 p.m.  
Checkout from the residence should be completed by 12 p.m.