



# Banff International Research Station

for Mathematical Innovation and Discovery

## Bioinformatics, Genetics and Stochastic Computation: Bridging the Gap

July 1-6 2007

### MEALS

\*Breakfast (Buffet): 7:00–9:00 am, Donald Cameron Hall, Monday–Friday

\*Lunch (Buffet): 11:30 am–1:30 pm, Donald Cameron Hall, Monday–Friday

\*Dinner (Buffet): 5:30–7:30 pm, Donald Cameron Hall, 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 bridge on 2nd floor of Corbett Hall). Hours: 6 am–12 midnight. LCD projector, overhead projectors and blackboards are available for presentations. *Please 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 Beverage in those areas.*

### GENERAL INFORMATION

Remember to bring the following:

1. Warm clothing and a waterproof jacket as the weather in the Rockies is always very unpredictable.
2. Mosquito repellent; there are a lot of mosquitos in Banff during the summer (beware of the west nile virus).
3. Hiking (or good walking) shoes if you plan to go hiking.

### SCHEDULE

#### Sunday

**16:00–17:00** Check-in begins (Front Desk - Professional Development Centre - open 24 hours)  
Lecture rooms available after 16:00 (if desired)

**17:00–18:00** Welcome

**18:00–19:30** Buffet Dinner, Donald Cameron Hall

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

Beverages and small assortment of snacks available on a cash honour-system.

## Monday

- 7:00–8:45** Breakfast  
**8:45–9:00** Introduction and Welcome to BIRS by BIRS Station Manager, Max Bell 159  
**9:00–10:00** Keynote lecture I: David Balding, "ABC methods in population genetics"  
**10:00–10:30** Coffee Break, 2nd floor lounge, Corbett Hall  
**10:30–11:05** Jean-Michel Marin "Adaptive Multiple Importance Sampling"  
**11:05–11:40** Ajay Jasra, "The Time Machine: A Simulation approach for the coalescent"  
**11:40–12:15** Anthony Brockwell, "Universal Residuals: A Multivariate Transformation"  
**12:15–13:15** Lunch  
**13:15–14:15** Guided Tour of The Banff Centre; meet in the 2nd floor lounge, Corbett Hall  
**14:15** Group Photo; meet on the front steps of Corbett Hall (can be scheduled for a different time or date)  
**14:30–15:30** Keynote Lecture II: Chris Holmes, "Nonparametric (distribution free) model-based hierarchical clustering"  
**15:30–16:00** Coffee Break, 2nd floor lounge, Corbett Hall  
**16:00–16:35** Adrian Dobra, "Efficient Stochastic Search Algorithms for Large p Regression with Dependent Covariates"  
**16:35–17:10** Sunduz Keles, "Variable selection and Dimension Reduction in Genomics with Sparse Partial Least Squares"  
**17:10–17:45** Marina Vannucci, "Bayesian Methods for Genomics with Variable Selection"  
**17:45–19:30** Dinner

## Tuesday

- 7:00–8:15** Breakfast  
**8:15–8:50** Dave Stephens, "Genome-wide association in the presence of high linkage disequilibrium"  
**8:50–9:25** Chiara Sabatti, "Sampling contingency tables and linkage disequilibrium"  
**9:25–10:00** Maria De Iorio, "A Bayesian Model for Phylogenetic Footprinting"  
**10:00–10:30** Coffee Break, 2nd floor lounge, Corbett Hall  
**10:30–11:30** Keynote Lecture III: Elizabeth Thompson, "Relationships within and among populations: inference from genetic data"  
**11:30–13:30** Lunch  
**13:30–15:30** Break  
**15:30–16:00** Coffee Break, 2nd floor lounge, Corbett Hall  
**16:00–16:35** Jonathan Keith, "Genome Segmentation with the Generalized Gibbs Sampler"  
**16:35–17:10** Kerrie Mengersen, "Sensitivity of priors in Bayesian analysis of DNA sequence segmentation"  
**17:10–17:45** Mayetri Gupta, "Improving detection of DNA sequence motifs using chromatin structure information"  
**17:45–19:00** Dinner  
**19:00–20:00** Keynote Lecture IV: Paul Fearnhead, "Efficient Bayesian Methods for Segmenting Genetic Sequences"

## Wednesday

- 7:00–8:15** Breakfast  
**8:15–8:50** Kevin Murphy, "Learning causal Bayes nets"  
**8:50–9:25** Francois Caron, "A change point model for detecting novel RNA transcripts"  
**9:25–10:00** Peter Green, "On clustering gene expression profiles using DP models"  
**10:00–10:30** Coffee Break, 2nd floor lounge, Corbett Hall  
**10:30–11:05** Alex Lewin, "Model checks for complex hierarchical models"  
**11:05–11:40** Peter Mueller, "The Optimal Discovery Procedure and Bayesian Decision Rules"  
**11:40–13:30** Lunch  
**13:30–18:00** Rest or Hiking of Mount Rundle led by Christian  
**18:00–19:00** Dinner  
**19:00–20:00** Keynote Lecture V: Matthew Stephens, "Methods and models for Population Genetic Data"

## Thursday

- 7:00–8:15** Breakfast  
**9:00–10:00** Keynote Lecture VI: Mike West, "Bayesian analysis and computation for stochastic models of dy  
**10:00–10:30** Coffee Break, 2nd floor lounge, Corbett Hall  
**10:30–11:05** Darren Wilkinson, "The Chemical Langevin Equation: bridging many gaps"  
**11:05–11:40** Lurdes Inoue, "Functional Network".  
**11:40–12:05** Mark Beaumont, "Inferring selection coefficients and other parameters from temporal and spatial  
**12:05–13:30** Lunch  
**13:30–15:30** Break  
**15:30–16:00** Coffee Break, 2nd floor lounge, Corbett Hall  
**16:00–16:35** Christian Robert, "Non-informative priors for linear and generalised linear models"  
**16:35–17:10** Scott Schmidler, "Stochastic Computation and Molecular Simulation: Theory and Practice"  
**17:10–17:45** Arnaud Doucet, "Particle Markov Chain Monte Carlo"  
**17:45–19:00** Dinner  
**19:00–20:00** Keynote Lecture VII: Sylvia Richardson, "Fully Bayesian variable selection using g-priors"

## Friday

- 7:00–8:15** Breakfast  
**8:15–8:50** Takashi Matsumoto, "On-line and Batch Inference for Bioinformatics Data"  
**8:50–9:25** Luke Bornn, "SMC for prior sensitivity analysis"  
**9:25–10:00** Closing remarks and informal discussion  
**10:00–10:30** Coffee Break, 2nd floor lounge, Corbett Hall  
**10:30–11:30** Checkout  
**11:30–13:30** Lunch

**Checkout by 12 noon.**

\*\* 5-day workshops are welcome to use the 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. \*\*