BIRS Workshop
Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration
May 22 - 27, 2004

MEALS

Breakfast (Continental): 7:00 - 9:00 am, 2nd floor lounge, Corbett Hall, Sunday - Thursday
*Lunch (Buffet): 11:30 am - 1:30 pm, Donald Cameron Hall, Sunday - Thursday
*Dinner (Buffet): 5:30 - 7:30 pm, Donald Cameron Hall, Saturday - Wednesday
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 lunch and dinner.

MEETING ROOMS

All lectures are held in the main lecture hall, Max Bell 159. *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.*

Sunday, May 23 2004

7:00-9:00	**Continental Breakfast, 2nd floor lounge , Corbett Hall**	
8:45	Andrea Lundquist	Welcome by BIRS
9:00	Bob, Bernd, Torsten	Introduction
9:15	Jack Snoeyink	Graph Coding and Connectivity Compression
9:35	Valerio Pascucci / Timo Bremer	The TOPORRERY: computation and presentation of multi-resolution topology
9:55	Hamish Carr	Local Geometric Measures and Contour Tree Simplification
10:15	**Coffee Break, 2nd floor lounge, Corbett Hall**	
10:45	Ajith Mascarenhas	Time-varying Reeb graphs for Continuous Space-Time Data
11:05	Dominique Attali	About Skeletons and Voronoi diagrams
11:25	Herbert Edelsbrunner	Topological persistence
12:00	**Buffet Lunch, Donald Cameron Hall**	
13:00	Jim Olver[1]	Tour of Banff Centre
13:30	Maria Lantin	Tour of Banff Centre for the Arts
14:45	Gabriel Taubin	Towards Real-Time Massive Geometry Signal Processing
15:05	Ariel Shamir	Feature space analysis and the mean-shift operator on meshes
15:25	Marc Alexa	TBA
15:45	Richard Zhang	Spectral Embedding for Geometry Processing
16:05	**Coffee Break, 2nd floor lounge, Corbett Hall**	
16:35	Konrad Polthier	Geometry and Topology Issues in Mesh Compression
16:55	Julia Ebling	Clifford Fourier Transform on Vector Fields
17:15	Raghu Machiraju	Signal Processing for Features in Large Data
17:30-19:30	**Buffet Dinner, Donald Cameron Hall**	

Monday, May 24 2004

7:00-9:00	**Continental Breakfast, 2nd floor lounge , Corbett Hall**	
9:00	Chris Johnson / Yarden Livnat	Computational Multi-Field Visualization
9:20	Daniel Weiskopf	Flow Visualization, Hierarchical Models, and Large Data Visualization
9:40	David Banks	Using Group Theory to Determine the Complexity of Visualization Algorithms
10:00	**Coffee Break, 2nd floor lounge, Corbett Hall**	
10:30	Leonid Zhukov	Discrete differential operators for tensor filtering and applications to DT-MRI visualization
10:50	Mike Kirby	Computing and Visualization in Spectral/hp Element Methods
11:10	Ross Whitaker	PDEs for Data Analysis
11:30	**Buffet Lunch, Donald Cameron Hall**	
13:00	Greg Nielson	TBA
13:20	Ewald Quak	The new EU AIM@SHAPE network in shape modelling
13:40	Reza Entezari	From Sphere Packing to the Theory of Optimal Regular Sampling
14:00	**Coffee Break, 2nd floor lounge, Corbett Hall**	
14:30	Xavier Tricoche	Vector Field Topology: Basic Notions and Applications in Flow Visualization
14:50	Timo Bremer	Topological Hierarchies with Minimal Error
15:10	Ingrid Hotz	TBA
15:30	Bernd Hamann	Possible directions for multiresolution data approximation
17:30-19:30	**Buffet Dinner, Donald Cameron Hall**	

Tuesday, May 25 2004

7:00-9:00	**Continental Breakfast, 2nd floor lounge , Corbett Hall**	
9:00	Ken Joy	Thinking outside the Visualization Box
9:20	Kwan-Liu Ma	Time-Varying Data Visualization
9:40	Steffen Prohaska	Exploring High-Resolution Medical Image Data
10:00	**Coffee Break, 2nd floor lounge, Corbett Hall**	
10:30	Stephen North	Attacks on Scale in Geo-spatial and Network Visualizaiton
10:50	Jack van Wijk	Model Based Visualization
11:10	Tamara Munzner	Scalable Visual Comparison of Biological Trees and Sequences
11:45	Group Photo[2]	
12:00	**Buffet Lunch, Donald Cameron Hall**	
13:00	BS1	Brainstorming Session 1
14:30	**Coffee Break, 2nd floor lounge, Corbett Hall**	
15:00	BS2	Brainstorming Session 2
17:30-19:30	**Buffet Dinner, Donald Cameron Hall**	

Some of the questions to be addressed during the brainstorming sessions include:

- What are the scientifically challenging problems to be tackled in your topic area?

- What are the driving applications in this field?

- Which journals and conferences exist today that are appropriate venues for publishing mathematically oriented methods in this field?

- Which good online resources exist today supporting research in this sub-field. (e.g. example data sets, commercial and free software libraries, publication databases, benchmarking sites, etc.)

- Which scientific domains and sub-fields are needed to solve successfully and elegantly the identified problems?

Wednesday, May 26 2004

7:00-9:00	**Continental Breakfast, 2nd floor lounge , Corbett Hall**	
9:00	BS3	Brainstorming Session 3
10:30	**Coffee Break, 2nd floor lounge, Corbett Hall**	
11:00	BS4	Brainstorming Session 4
12:30	**Buffet Lunch, Donald Cameron Hall**	
13:30	afternoon free	hiking
17:30-19:30	**Buffet Dinner, Donald Cameron Hall**	

Thursday, May 27 2004

7:00-9:00	**Continental Breakfast, 2nd floor lounge , Corbett Hall**	
8:00	Herbert and Jack	Topology/Discrete methods
8:20	Gabriel and Raghu	Signal + Geometry Processing
8:40	Ross and TBA	PDE's
9:00	Greg and Bernd	Data Approximation
9:20	Ken and Tamara	Massive Data
11:30-13:30	**Buffet Lunch, Donald Cameron Hall**	

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[1]A group photo will be taken on Tuesday at 11:45 am, directly after the last lecture of the morning. Please meet on the front steps of Corbett Hall.

[2]A free guided tour of The Banff Centre is offered to all participants and their guests on Sunday starting at 1:00 pm. The tour takes approximately 1 hour. Please meet in the 2nd floor lounge in Corbett Hall.