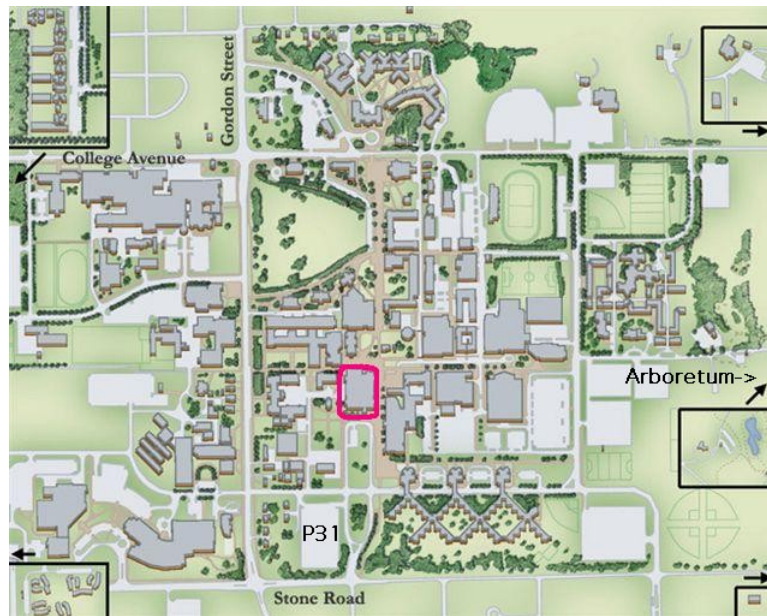


# HPCS 2005 Programme Overview

## Location Information

### The University Centre at the University of Guelph

- Peter Clark Hall (**PCH**) is in the basement of the University of Guelph's University Centre (**UC**).
- All coffee breaks and conference registration periods will be held in the foyer of Peter Clark Hall.
- All rooms that are designated **UC** are located in the University Centre and the first number of the room indicates the floor that it is located on. Upper floors of the UC can be reached by elevators on the north side of the building.
- The Thornborough building (rooms designated by **Thorn**) is located directly **east** of the University Centre.



The conference banquet will be held in the University's **Arboretum Centre**. The 165-hectare Arboretum, which once consisted largely of fields used for test plots for Ontario Agriculture College students and faculty, is now home to 17,947 plant collections, wetlands, nature trails and a memorial forest. It is also a place for the University and local communities to come and walk, run and unwind. Transportation to the Arboretum Centre will be provided.

## Sunday, May 15, 2005

### Morning

10:00 - 12:00	C3 TASP Analysts Meeting - Part A	UC 441
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### Afternoon

12:00 - 14:00	Lunch (TASP only)	UC 441
14:00 - 17:00	C3 TASP Analysts Meeting - Part B	UC 441
	C3 TASP Committee Meeting	UC 442
	OpenMPI on OSCAR Tutorial	PCH
15:30 - 16:00	Coffee Break	PCH Foyer

### Evening

16:00 - 18:00	Conference Registration	PCH Foyer
18:00 - 20:00	Opening Wine and Cheese Reception	PCH
19:30 - 22:00	Entertainment: Guelph Pub Life	in town

### Entertainment Notes

Join us for food and drink at one of Guelph's classic pubs: *The Woolwich Arms and Arrow* in downtown Guelph. Gather in the foyer of PCH at 7:15PM and we will carpool to the Arms. For more information about the Woolie go to <http://www.arrowpubs.com/Wooly.html>.

## Monday, May 16, 2005

### Morning

8:00 - 14:00	Registration	PCH Foyer
8:30 - 9:00	Opening Remarks	PCH
9:00 - 10:00	Opening Keynote (Dr. Jonathan Borwein)	PCH
10:00 - 10:15	Morning Coffee Break	PCH Foyer
10:15 - 10:45	Keynote (Dr. Wang)	PCH
10:45 - 12:15	<b>MM1</b> - Computing Science 1 <b>MM2</b> - Grid 1 <b>MM3</b> - Life Sciences 1 <b>MM4</b> - OSCAR 1	PCH UC 441 UC 442 UC 103

### Afternoon

12:15 - 13:45	Lunch and Industrial Keynote (SGI - Steve Miller)	PCH
13:00 - 17:00	HPCS Programming Contest	Thorn 1319
13:45 - 14:45	Industrial Keynote (HP - Carlos Arevalo)	PCH
14:45 - 15:00	Afternoon Coffee Break	PCH Foyer
15:00 - 16:30	<b>MA1</b> - Computing Science 2 <b>MA2</b> - Grid 2 <b>MA3</b> - Financial Mathematics <b>MA4</b> - OSCAR 2	PCH UC 441 UC 442 UC 103
16:30 - 17:30	Industrial Keynote (IBM - Dr. Joel Tandler)	PCH

### Evening

17:30 - 18:30	Birds of a Feather Meetings (Topics: TBA) C3 BOF	PCH UC 103
18:00 - 19:30	Reception / Posters	PCH
19:00 - 21:00	Entertainment: Wellington Brewery Tour	in town

### Entertainment Notes

When you visit the registration desk at HPCS, sign up for our very own "Ale Trail" - a visit to one of the fine micro-breweries in Guelph (Canada's micro-brewery capital). There will be a limited number of spots (between 20 and 30). Transportation will leave from the UC at 6:45PM. Wellington's offers real ale! The brewery tour will be followed by a tasting. For more information about Wellington's go to <http://www.wellingtonbrewery.ca/>.

## Tuesday, May 17, 2005

### Morning

8:00 - 13:00	CANARIE CIIP SSC Meeting (private)	UC 441
8:30 - 9:30	Keynote (Dr. Robert Moser)	PCH
9:30 - 10:00	Morning Coffee Break	PCH Foyer
10:00 - 11:30	<b>TM1</b> - Computing Science 3 <b>TM2</b> - Physical Sciences <b>TM3</b> - Applications and Modelling 1 <b>TM4</b> - OSCAR 3	PCH UC 430 UC 442 UC 103
11:30 - 12:30	C3 Long Range Plan Presentation (Dr. Jonathan Borwein)	PCH

### Afternoon

12:30 - 14:00	Lunch and Industrial Keynote (HECMS - Tim Little)	PCH
14:00 - 15:00	Industrial Keynote (SUN - Bill Walster)	PCH
15:00 - 15:30	Afternoon Coffee Break	PCH Foyer
15:30 - 17:00	<b>TA1</b> - Computing Science 4 <b>TA2</b> - Life Sciences 2 <b>TA3</b> - Applications and Modelling 2 <b>TA4</b> - OSCAR Developers Forum	UC 442 UC 441 PCH UC 103
17:00 - 18:00	C3 AGM Birds of a Feather Meetings (Topics: TBA)	PCH UC 441 & 442

### Evening

18:30 - 19:00	Drinks	Arboretum
19:00 - 22:00	Banquet Banquet Keynote - Dr. David Bailey	Arboretum Arboretum

### Banquet Notes

For those who enjoy nature walks (and if the weather is nice), the Arboretum is about 15 minutes from the University Centre. Gather in the PCH Foyer at 6:15PM and a Guelph local will lead the walk over to the Arboretum. If you have a car, there is free parking at the Arboretum Centre. There will also be a free shuttle bus to the Arboretum leaving the UC at 6:15PM and 6:30PM. There will be a return shuttle leaving the Arboretum at 9:45PM and 10:00PM.

## Wednesday, May 18, 2005

### Morning

9:00 - 12:00	C3 Board Meeting	UC 441
9:00 - 10:00	Birds of a Feather Meetings (Topics: TBA)	PCH
10:00 - 10:30	Morning Coffee Break	PCH Foyer
10:30 - 11:30	Keynote (Dr. Gilbert Brunet)	PCH
10:30 - 12:00	Gaussian Users Meeting	UC 442
10:30 - 12:00	Birds of a Feather Meetings (Topics: TBA)	UC 103

### Afternoon

12:00 - 13:00	Lunch SHARCNET Site Leaders Meeting BOF to discuss the upcoming CFI and a national Tier 1 system	PCH PCH UC 103
13:00 - 15:00	SHARCNET AGM	PCH
15:00	Close of conference	

## **HPCS Technical Programme**

**Monday, May 16, 2005 - 10:30 to 12:00**

### **MM1 - Computing Science 1**

- [1] A Customizable Component for Low-Level Communication Software (*T. Santos and A. Frohlich*)
- [2] Hpcbench - A Linux-Based Network Benchmark for High Performance Networks (*B. Huang, M. Bauer, and M. Katchabaw*)
- [3] A Replacement Policy to Save Energy for Data Cache (*S. Musalappa, S. Sundaram, and Y. Chu*)
- [4] Applying Fault-Tolerant Solutions of Circulant Graphs to Meshes and Hypercubes (*S. Lou and A. Farrag*)
- [5] B-Rep Based Parallel Machining Simulation (*R. Fleisig and A. Spence*)

### **MM2 - Grid 1**

- [1] An Adaptive Generalized Scheduler for Grid Applications (*A. Aggarwal and R. Kent*)
- [2] Comparison of Advanced Authorisation Infrastructures for Grid Computing (*A. Stell, R. Sinnott, and J. Watt*)
- [3] Computational Science on the Grid: From Testbeds to Production (*G. Mateescu and J.-C. Côté*)
- [4] Genetic Algorithm Based Scheduler for Computational Grids (*M. Aggarwal, R. Kent, and A. Ngom*)

### **MM3 - Life Sciences 1**

- [1] High Performance Derivative-Free Optimization Applied to Biomedical Image Registration (*M. Wachowiak and T. Peters*)
- [2] Recognizing Patterns in High-Dimensional Data: Automated Histogram Filtering for Protein Structure Elucidation (*J. Imada, P. Chapman, and S. Rothstein*)

**Monday, May 16, 2005 - 15:00 to 16:30**

**MA1 - Computing Science 2**

- [1] Exploiting Multithreaded Programming on Cluster Architectures (*O. Cordeiro, D. Peranconi, L. Real, E. Dall'Agnol, and G. Cavalheiro*)
- [2] A Load Balancing Approach Based on a Genetic Machine Learning Algorithm (*M. Dantas and A. Pinto*)
- [3] A Fully Parallel and Scalable Implementation of a Hopfield Neural Network on the SHARCNET Supercomputer (*E. Sykes and A. Mirkovic*)
- [4] The HPCVL Working Template: A Tool for High-Performance Programming (*G. Liu, H. Schmider, and K. Edgecombe*)
- [5] High Performance Constraint Satisfaction Problem Solving: State-Recomputation versus State-Copying (*J. Yang and S. Goodwin*)

**MA2 - Grid 2**

- [1] Grid-Enabling the Global Geodynamics Project: The Introduction of an XML-Based Data Model (*L. Lumb and K. Aldridge*)
- [2] Using Ontology for Description of Grid Resources (*A. Pernas and M. Dantas*)
- [3] Data Agnostic Resource Scheduling in the Grid (*L Lumb and G. Hayward*)

**MA3 - Financial Mathematics**

- [1] Conceptual issues in pricing American-style options on many underlyings (*Matt Davison*)
- [2] Implementation issues in Monte Carlo Pricing on the SHARCNET cluster (*Tyson Whitehead*)
- [3] Parallel Lattice Implementation for Option Pricing under Mixed State-Dependent Volatility Models (*R. Makarov and G. Campolieti*)
- [4] Parallel Algorithm for Pricing American Asian Options with Multi-Dimensional Assets (*Kai Huang and Tulsi Thulasiram*)
- [5] Derivatives Pricing under Generalized Hyperbolic Distributions using QMC Methods (*George Lai*)

**Tuesday, May 17, 2005 - 10:00 to 11:30**

**TM1 - Computing Science 3**

- [1] Exploring Parallel Programming Knowledge in the Novice (*R. Eccles, B. Nonneck, and D. Stacey*)
- [2] Message-Passing and Shared-Data Programming Models - Wish vs. Reality (*A. Sodan*)
- [3] Scheduling Based on the Impact over Process Communication of Parallel Applications (*R. Ishii, Rodrigo F. de Mello, L. Senger, M. Santana and R. Santana*)
- [4] Software Engineering Issues for Small-Scale Parallelism (*R. Eccles and D. Stacey*)
- [5] Topology Reconfiguration Mechanism for Traffic Engineering in WDM Optical Network (*B. Gillani, R. Kent, and A. Aggarwal*)

**TM2 - Physical Sciences**

- [1] The Analysis of Large Order Bessel Functions in Gravitational Wave Signals from Pulsars (*F. Chishtie, S. Valluri, K. Rao, D. Sikorski, and T. Williams*)
- [2] The Effects of Stellar Winds on the Envelope Masses of Cooling Low-Mass Dwarfs (*L. Nelson and E. Dubeau*)
- [3] Advanced Modeling of Quantum Well Semiconductor Lasers Based on Wigner Function Approach (*M. Wartak and P. Weetman*)
- [4] Parallel Implementation of Density Functional Theory within the Real Space Pseudopotential Approach (*E. Kadantsev and M. Scott*)

**TM3 - Applications and Modelling 1**

- [1] Distributed Artificial Neural Network Architectures (*D. Calvert and J. Guan*)
- [2] Benchmarking of a 3D, Unstructured, Finite Volume Code of Incompressible Navier-Stokes equation on a Cluster of Distributed-Memory Computers (*S. Karimian and A. Straatman*)
- [3] Computational Modeling of Coupled Dynamic Phase Transformations in Shape Memory Alloys (*D. Mahapatra and R. Melnik*)
- [4] Netzwerk: Migration of a Packet-Switching Network Simulation Environment from MS Windows PC to Linux PC and to HPC (*A. Lawniczak, A. Gerisch, K. Maxie, and B. Di Stefano*)



**Tuesday, May 17, 2005 - 15:30 to 17:00**

**TA1 - Computing Science 4**

- [1] Combinatorial Generation of Monolithic Eyes in the Game of Go (*Matthew Pratul and Thomas Wolf*)
- [2] Mining Outliers in a Distributed Environment with Load Balancing (*Biplab Sarker*)
- [3] Parallel Computer Algebra Applied to the Solution of Large Algebraic Systems (*Thomas Wolf*)

**TA2 - Life Sciences 2**

- [1] Simulation of Electrical Conduction in Cardiac Tissue on High Performance Computers (*T. Almas, Z. Tesfaye, and I. Donn*)
- [2] A Lightweight, Scalable Grid Computing Framework for Parallel Bioinformatics Applications (*H. De Sterck, R. Markel, and R. Knight*)
- [3] Intrusive Real-Time Imaging in Computational Scanning Tunneling Microscopy (*Barnim Janta-Polczynski*)

**TA3 - Applications and Modelling 2**

- [1] A Meta-Software System for the Discovery of Hadamard Matrices (*I. Kotsireas and G. Pinheiro*)
- [2] The Study and Implementation of the Multigrid Algorithm for the 3-D Transport Difference Equation (*Y. Shulin and S. Weidong*)
- [3] Parallel Computing for Sheet Metal Strain Analysis (*H.-L. Chan, A. Spence and M. Sklad*)
- [4] Quintic Spline Based Computational Scheme for Singularly Perturbed Convection-Diffusion Problems (*R. Bawa and S. Natesan*)
- [5] Supercomputing in Nonlinear Dynamics (*K. Karamanos*)

## OSCAR Technical Programme

**Monday, May 16, 2005 - 10:30 to 12:00**

### MM4 - OSCAR 1

- [1] A SMS Tool for Alerts and Monitoring of a High Availability Cluster Environment (*M.A.R. Dantas and R.K. Baggio*)
- [2] Virtualization of Linux based computers: the Linux-VServer project (*Benoît des Ligneris*)
- [3] OSCAR on Debian: the EDF Experience (*Geoffroy Vallée, Jean-Yves Berthou, Hugues Prisker and Daniel Leprince*)

**Monday, May 16, 2005 - 15:00 to 16:30**

### MA4 - OSCAR 2

- [1] Automated OSCAR testing with Linux-VServers (*Fernando Laudaes Camargos and Benoît des Ligneris*)
- [2] Revamping the OSCAR Database: A Flexible Approach to Cluster Configuration Data Management (*DongInn Kim, Jeffrey M. Squyres and Andrew Lumsdaine*)
- [3] OSCAR Meta-Package System (*John Mugler, Thomas Naughton and Stephen L. Scott*)

**Tuesday, May 17, 2005 - 10:00 to 11:30**

**TM4 - OSCAR 3**

[1] SSI-OSCAR: a Cluster Distribution for High Performance Computing Using a Single System Image (*Geoffroy Vallée, Stephen L. Scott, Christine Morin, Jean-Yves Berthou and Hugues Prisker*)

[2] Grid Aware HA-OSCAR (*Kshitij Limaye, Box Leangsuksun, Venkata K. Munganuru, Zeno Greenwood, Stephen L. Scott, Richard Libby, and Kasidit Chanchio*)

[3] A Wireless Monitoring Approach for a HA-OSCAR Cluster Environment (*M.A.R. Dantas and C. Rista*)

**Tuesday, May 17, 2005 - 15:30 to 17:00**

**TA4 - OSCAR Developers Forum**