

Centre de recherches mathématiques  
Université de Montréal

Conférence Théorie CANADA 4  
Du 4 au 7 juin 2008

*Theory CANADA 4 Conference*  
*June 4-7, 2008*

## **HORAIRE / PROGRAM**

Conférences : salle 1360 (Pavillon Aisenstadt)  
Pauses-café : salle 1221 (Pavillon Aisenstadt)

*Lectures: Room 1360 (Aisenstadt Building)*  
*Coffee Breaks: Room 1221(Aisenstadt Building)*

**Le mercredi 4 juin 2008 / *Wednesday, June 4, 2008***

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**18:00**      Cocktail de bienvenue & inscription / *Opening Reception & Registration*  
(Salle / *Room* 6245)

## Le jeudi 5 juin 2008 / *Thursday, June 5, 2008*

**08:30 - 09:00** Inscription et café croissants (1221) / *Registration and Coffee & Croissants (1221)*

**08:45 - 09:00** Introduction (1360) / *Opening remarks (1360)*

### Session - Informatique Quantique / *Quantum Information* Organisateurs / *Organizer* : J. Emerson (University of Waterloo)

**09:00 - 09:30** **Patrick Hayden** (McGill University)

*“Privacy, Acceleration and the Unruh Effect”*

**09:30 - 10:00** **Stephen Bartlett** (University of Sydney)

*“Identifying Phases of Matter that are Universal for Quantum Computation”*

**10:00 - 10:20** Pause-café / *Coffee break*

(Salle / *Room* 1221)

**10:20 - 10:40** **Robin Blume-Kohout** (Perimeter Institute for Theoretical Physics)

*“What is the Use of Tomography?”*

**10:40 - 11:00** **Marcus Silva** (University of Waterloo)

*“Searching for Noiseless Subsystems via Scalable Experiments”*

**11:00 - 11:20** **Barry Sanders** (University of Calgary)

*“Time-ordered Decompositions of Exponential Operators Generated by Time-dependent Hamiltonians”*

**11:20 - 11:40** **Jay Gambetta** (University of Waterloo)

*“Superconducting Qubits Coupled to Resonant Cavities: Quantum Optics on a Chip”*

**11:40 - 12:00** **André Allan Méthot** (University of Waterloo)

*“Entanglement Simulation and Channels”*

**12:00 - 13:30** Pause déjeuner / *Lunch break*

**Session - Relativité et Gravitation / *Relativity and Gravitation***  
**Organisateurs / *Organizer* : A. Dasgupta (University of New Brunswick)**

- 13:30 - 14:00 Frans Pretorius** (Princeton University)  
*“High Speed Black Hole and Soliton Collisions”*
- 14:00 - 14:30 Rafael D. Sorkin** (Perimeter Institute for Theoretical Physics / Syracuse University)  
*“Direct Transmission of Light Along Causal Links”*
- 14:30 - 14:50** Pause-café / *Coffee break*  
(Salle / *Room* 1221)
- 14:50 - 15:20 Fotini Markopoulou** (Perimeter Institute for Theoretical Physics)  
*“Quantum Graphity: A Model of Emergent Locality”*
- 15:20 - 15:40 Andrew DeBenedictis** (Simon Fraser University / P.I.M.S)  
*“On the Singularity Issue in Loop Quantum Gravity”*
- 15:40 - 16:00 Ariel Edery** (Bishop’s University)  
*“Spontaneous Symmetry Breaking Via Gravitation”*
- 16:00 - 16:20 Sanjeev Seahra** (University of New Brunswick)  
*“Braneworld Cosmological Perturbations”*
- 16:20 - 16:40 Catherine Meusburger** (Perimeter Institute for Theoretical Physics)  
*“Quantum Double and Kappa Poincaré Symmetries in 3d Gravity and Chern-Simons Theory”*

Le vendredi 6 juin 2008 / *Friday, June 6, 2008*

08:30 - 09:00 Café croissants (1221) / *Coffee & Croissants (1221)*

**Session - Physique Mathématique / *Mathematical Physics***  
**Organisateurs / *Organizer* :** R. MacKenzie (Université de Montréal)

09:00 - 09:30 **Niky Kamran** (McGill University)

*“Wave equations in Kerr geometry”*

09:30 - 10:00 **Pierre Mathieu** (Université Laval)

*“Quasi-particles in Conformal Field Theory”*

10:00 - 10:20 Pause-café / *Coffee break*

(Salle / *Room* 1221)

10:20 - 10:40 **Vardarajan Suneeta** (University of Alberta)

*“Investigating Off-shell Stability of String Vacua”*

10:40 - 11:00 **Marco Bertola** (Concordia University)

*“Random Matrix Models and Isomonodromic Tau Functions”*

11:00 - 11:20 **Robert Mann** (University of Waterloo)

*“Negative Energy, Instability, and AdS/CFT”*

11:20 - 11:40 **Johan Brannlund** (Dalhousie University)

*“Holonomy, Decomposability and Relativity”*

11:40 - 12:00 **Saurya Das** (University of Lethbridge)

*“Effects of the Generalized Uncertainty Principle on Quantum Mechanics”*

12:00 - 13:30 Pause déjeuner / *Lunch break*

**Session - Cosmologie / *Cosmology***

**Organisateurs / *Organizer*** : R. Brandenberger (McGill University)

**13:30 - 14:00 Ue-Lin Pen** (University of Toronto)

*"21cm Cosmology"*

**14:00 - 14:20 Olivier Doré** (University of Toronto)

*"Detection of Gravitational Lensing in the CMB"*

**14:20 - 14:40 Latham Boyle** (University of Toronto)

*"Binary Black Hole Merger: Symmetry and the Spin Expansion"*

**14:40 - 15:00** Pause-café / *Coffee break*

(Salle / *Room* 1221)

**15:00 - 15:30 Justin Khoury** (Perimeter Institute for Theoretical Physics)

*"Degravitation and Cosmic Acceleration"*

**15:30 - 15:50 Claudia de Rham** (Perimeter Institute for Theoretical Physics)

*"Cascading Gravity and Degravitation"*

**15:50 - 16:10 Masahide Yamaguchi** (Stanford University and Aoyama Gakuin University)

*"D-term chaotic inflation in supergravity and leptogenesis"*

**16:10 - 16:30 Neil Barnaby** (University of Toronto)

*"Nonlocal Inflation"*

**19:00** *Banquet - Restaurant Rodos Bay (5583 avenue du Parc)*

**Le samedi 7 juin 2008 / *Saturday, June 7, 2008***

**08:30 - 09:00** Café croissants (1221) / *Coffee & Croissants (1221)*

**Session - Cordes et Gravité Quantique / *Strings and Quantum Gravity***  
**Organisateurs / *Organizer*** : A. Maloney (McGill University)

**09:00 - 09:30** **Mark Van Raamsdonk** (University of British Columbia)  
*"Black Hole Dynamics From Atmospheric Science"*

**09:30 - 10:00** **Moshe Rozali** (University of British Columbia)  
*"Cold Nuclear Matter In Holographic QCD"*

**10:00 - 10:20** Pause-café / *Coffee break*  
 (Salle / *Room* 1221)

**10:20 - 10:40** **Omid Saremi** (McGill University)  
*"Heat Kernels and Quantum Gravity in 3-dimensional Anti de Sitter Space"*

**10:40 - 11:00** **Robert McNees** (Perimeter Institute for Theoretical Physics)  
*"On Quark Masses in Holographic QCD"*

**11:00 - 11:20** **Gaetano Bertoldi** (University of Toronto)  
*"Large N Double Scaling Limits in 4d Supersymmetric Gauge Theories and Matrix Models"*

**11:20 - 11:40** **Joanna Karczmarek** (University of British Columbia)  
*"Time Dependence and Holography in  $c=1$  the Matrix Model"*

**11:40 - 12:00** **Keshav Dasgupta** (McGill University)  
*"On Warped Heterotic Axion"*