

THEORY CANADA 9

Schedule of Events

Note: Except for Thursday, all talks take place in Peters Building P1025/P1027.

Thursday June 12, 2014

6:00 - 9:00 **Reception, Registration** - Paul Martin Centre

Poster Session

Matthew Beach (U Guelph): The self-force in five-dimensions

Robert Jonsson (University of Waterloo): Quantum Collect-Calling

Marius Oltean (McGill University): Cosmological perturbations in antigravity

Sanjay Prabhakar (WLU): Spin control in graphene quantum dots and graphene nanoribbon Superlattices

Christopher Sutherland (University of Waterloo): Quantum control via relativistic probe atoms

Fabio Grazioso (Université de Montréal): An introduction to Information Theory and some of its applications: Black Hole Information Paradox and Renormalization Group Information Flow

Aida Ahmadzadegan (UWO): Relativistic enhancement of quantum optical metrology

Satyen Baidur (Canadian Nuclear Society): Dark Forces and Two Dark Matter Models: DDM and DDDM

Friday June 13, 2014

8:40 - 9:00 **Opening Remarks** (DTP Chair, VP Research, Dean of Science)

Quantum Information

Chair: S. Ghose

9:00 - 9:30 **Invited Talk** - Christoph Simon (U Calgary): Extending the quantum domain with quantum optical systems

9:30 - 9:50 Katja Ried (PI): Causal Models for the Quantum World

9:50 - 10:10 Aharon Brodutch (U Waterloo): Weak Measurements with Operational Constraints

10:10 - 10:40 Coffee Break

10:40 - 11:10 **Invited Talk** - Anne Broadbent (U Ottawa): Delegating Private Quantum Computations

11:10 - 11:30 Shima Bab Hadiashar (IQC): Communication Complexity of One-shot Remote State Preparation

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Particles and Fields

Chair: S. Barkanova

- 1:10 - 1:40 **Invited Talk** - Natalia Toro (PI): Spin and Long-Range Forces: The unfinished Tale of the last Massless Particle
- 1:40 - 2:00 Muhammed Ahmady (Mount Allison U): The Application of Light Front Holographic QCD to B physics
- 2:00 - 2:20 Robin Kleiv (Fraser Valley): Exploring the Spectrum of Heavy Quarkonium Hybrids with QCD sum rules
- 2:20 - 2:50 **Invited Talk** - Philip Schuster (PI): Dark Forces, Dark Matter, and the GeV-Scale Discovery Frontier
- 2:50 - 3:10 Cohl Furey (PI): Charge Quantization from a number operator
- 3:10 - 3:40 Coffee Break

Theoretical Condensed Matter and Computational Physics

Chair: M. Wartak

- 3:30 - 4:00 **Invited Talk** - Pawel Hawrylak (NRC): Semiconductor and Graphene Quantum Dots
- 4:00 - 4:30 **Invited Talk** - Michel Gingras (U Waterloo) Classical and Quantum Spin State in Frustrated Magnetic Materials
- 4:30 - 4:40 Brief Break
- 4:40 - 5:10 **Invited Talk** - Tapash Chakraborty (U Manitoba): Chasing Magnetic Butterflies in Nanoscale Fields
- 5:10 - 5:30 Sanjay Prabhakar (WLU): Geometric Spin manipulation in semiconductor dots
- 5:30 - 5:50 Gregory Morozov (U of West Scotland): Floquet-Bloch Waves Photonic Crystals with Absorption
- 5:50 - 6:10 Shyam Badu (WLU): Density Functional Theory Study of Sr₂Si₄ Crystal Doped with Rare-Earth Elements
- 6:30 **Banquet** - Senate and Board Chambers

Saturday June 14, 2014

Gravitation and Cosmology

Chair: A. Dasgupta

- 9:00 - 9:30 **Invited Talk** - Tim Koslowski (UNB): Shape Dynamics
- 9:30 - 10:00 **Invited Talk** - Latham Boyle (PI): Non-commutative Geometry, Non-associative Geometry and the standard model of Particle Physics
- 10:00 - 10:30 Coffee Break

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10:30 - 10:50 Valerio Faraoni (U Bishops): Horizon Thermodynamics and space-time mappings
10:50 - 11:10 Manu Paranjape (Université de Montréal): Negative Mass Configurations in de-Sitter space
11:10 - 11:30 Eduardo Martin-Martinez (IQC and PI): The Echo of the Early Universe

11:30 - 11:40 Group Picture

11:40 - 1:10 **Lunch**

Mathematical Physics

Chair: Rob Myers

1:10 - 1:40 **Invited Talk** - Lisa Jeffrey (U Toronto): Chern Simons Gauge Theory And Symplectic Quantum Mechanics

1:40 - 2:00 Gang Liu (HPCVL, Queen's University): Dynamical Equations Of Periodic Systems Under Constant External Stress

2:00 - 2:20 Oliver Blondeau-Fournier (U Laval): The supersymmetric Ruijsenaars-schneider model and its integrability

2:20 - 2:50 **Invited Talk** - Luc Vinet (Université de Montréal): The rotation group Bivariate Krawtchouk polynomials and state transfer on a 2-d lattice

2:50 - 3:10 Connor Behan (UBC): Large Parameter Limit of Conformal Blocks

3:10 - 3:40 Coffee Break

String Theory, Quantum Gravity

Chair: Valerio Faraoni

3:40 - 4:10 **Invited Talk** - Astrid Eichorn (PI): Matter matters in asymptotically safe quantum gravity

4:10 - 4:40 **Invited Talk** - Rob Myers (PI): On Space-time Entanglement

4:40 - 5:00 Sean Stotyn (UBC): Near Horizon Geometries and Black Hole Thermodynamics: A lesson in Limits

5:00 - 5:20 David Kubiznak (PI): Black Hole Chemistry

5:20 - 5:50 **Invited Talk** - Rafael Sorkin (PI/Syracuse): Gravity from Order and Number: Causal Sets

5:50 - 6:00 **Concluding Remarks**

Sunday June 15, 2014

9:00 Bus transfer to Sudbury for annual CAP Congress