Submittee: Theresa Liao
Date Submitted: 2010-09-26 21:39
Title: (final) 10th Canadian Summer School on Quantum Information
Event Type: Summer-School

Location:
Department of Physics & Astronomy, University of British Columbia

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Dates:
July 17-30, 2010

Topic:
Quantum Algorithms # Adiabatic Quantum Computation, Decoherence-Free Subspaces & Noiseless Subsystems, and Dynamical Decoupling # Measurement-based Quantum Computation # Topological Quantum Computation # Quantum error correction # Classical simulation of quantum systems # Graph theory in quantum information # Foundations of quantum mechanics

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Methodology:
36 lectures (75 minutes each) covered both standard and advanced topics of quantum information, a summer school reception, D-wave tours, 2 lunch talks, and the Workshop on Quantum Algorithms, Computations Models, and Foundation of Quantum Mechanics (satellite event, July 23-25). This summer school is special as the workshop is sandwiched between two blocks of summer school lectures. Based on the feedback, many participants welcomed this, saying that the summer school lectures provided a good foundation for students to learn from the workshop. Please note that due to the nature of the QAMF workshop all funding agencies funded both events simultaneously (see sponsorship section). A separate report is submitted for the QAMF workshop.

Objectives Achieved:
The main objective of this summer school was to educate students. We had good lecturers who covered important topics (from basic knowledge to research frontier). We attracted students from all over the world, and they actively participated in the lectures. We also received very good feedback from the participants, and therefore we believe we achieved our objectives.

Scientific Highlights:
This summer school covered advanced topics in quantum information such as Foundations of Quantum Mechanics which were well received not only by students but also those working in the field.

Organizers:
Raussendorf, Robert. Physics & Astronomy, University of British Columbia; Liao, Theresa. Physics

& Astronomy, University of British Columbia; Amin, Mohammad. D-Wave Systems Inc.; Lisonek, Petr. Mathematics, Simon Fraser University; Sanders, Barry. Physics & Astronomy, University of Calgary; Sarvepalli, Pradeep Kiran. Physics & Astronomy, University of British Columbia; Wei, Tzu-Chieh. Physics & Astronomy, University of British Columbia.

Speakers:
*Quantum Algorithms: 1.5 days - Andrew Childs (University of Waterloo, Ontario, Canada), Pawel M. Wocjan (University of Central Florida, Orlando, Florida, USA); *Adiabatic Quantum Computation, Decoherence-free Subspaces & Noicesless Subsystems, and Dynamical Decoupling: 1 day - Mohammad Amin (D-Wave Systems Inc., Canada), Daniel Lidar (University of Southern California, Los Angeles, California, USA); *Measurement-based Quantum Computation: 1 day - Dan Browne (University College London, UK), Robert Raussendorf (University of British Columbia, Vancouver, Canada); *Topological Quantum Computation: 1 day - Nick Bonestell (Florida State University, Tallahassee, Florida, USA); *Quantum Error Correction: 1 day - Daniel Gottesman (Perimeter Institute, Waterloo, Canada); *Classical Simulation of Quantum Systems: 1 day - Maarten van den Nest (Max-Planck Institute for Quantum Optics, Garching, Germany), Frank Verstraete (University of Viena, Austria); *Graph Theory in Quantum Information: 1 day - Chris Godsil (University of Waterloo, Ontario, Canada); *Foundations of Quantum Mechanics: 1 day - Robert Spekkens (Perimeter Institute, Waterloo, Canada).

Links:
http://qi10.ca

File Uploads:
Additional Upload 1: http://www.pims.math.ca/files/final_report/General_Information_FINAL.pdf
Additional Upload 2: http://www.pims.math.ca/files/final_report/QI10_FINAL.pdf
Additional Upload 3: http://www.pims.math.ca/files/final_report/Quantum_Information_Survey.pdf

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