

Wednesday 14th June

09:30 Quantum advantage with shallow circuits

David Gosset [INVITED]

[Q Algorithms]

10:15 Architectures for quantum simulation showing quantum supremacy

Juan Bermejo-Vega, Dominik Hangleiter, Martin Schwarz, Robert Raussendorf and Jens Eisert

10:40 COFFEE

11:05 Improved reversible and quantum circuits for Karatsuba-based integer multiplication

Alex Parent, Martin Roetteler and Michele Mosca

11:30 A new Holant dichotomy inspired by quantum computation

Miriam Backens

11:55 LUNCH

14:00 Universal Quantum Hamiltonians

Stephen Piddock [INVITED]

[Q Learning]

14:45 Reinforcement Learning Using Quantum Boltzmann Machines

Anna Levit, Daniel Crawford, Jaspreet Oberoi, Pooya Ronagh and Navid Ghadermarzy

15:10 Extended Learning Graphs for Triangle Finding

Titouan Carette, Frederic Magniez and Mathieu Lauriere

15:35 COFFEE

[Quantum Cryptography]

16:00 All Pure Bipartite Entangled States can be Self-Tested

Andrea Coladangelo, Koon Tong Goh and Valerio Scarani

16:25 A single entangled system is an unbounded source of nonlocal correlations and of certified random numbers

Florian John Curchod, Markus Johansson, Remigiusz Augusiak, Matty Hoban, Peter Wittek and Antonio Acín

16:50 Semi-device-independent framework based on natural physical assumptions

Thomas Van Himbeeck, Erik Woodhead, Nicolas Cerf, Raul Garcia-Patron and Stefano Pironio

Thursday 15th June

- 09:30 BQP-completeness of Scattering in Scalar Quantum Field Theory
Stephen Jordan [INVITED]

[COMPLEXITY]

- 10:15 The Complexity of Estimating Local Physical Quantities
Sevag Gharibian and Justin Yirka

10: 40 COFFEE

- 11:05 Multiparty Quantum Communication Complexity of Triangle Finding
Francois Le Gall and Shogo Nakajima

- 11:30 Quantum hedging in two-round prover-verifier interactions
Srinivasan Arunachalam, Abel Molina and Vincent Russo

11:55 LUNCH

[Quantum Shannon]

- 14:00 Moderate Deviation Analysis for Classical-Quantum Channels and Quantum Hypothesis Testing

Hao-Chung Cheng and Min-Hsiu Hsieh

Merged with

Moderate deviation analysis for classical communication over quantum channels
Christopher Chubb, Vincent Tan and Marco Tomamichel

- 14:25 Gaussian states minimize the output entropy of one-mode quantum Gaussian channels
Giacomo De Palma, Dario Trevisan and Vittorio Giovannetti

[Quantum Thermodynamics and Mixing Processes]

- 14:50 The third law as a single inequality

Henrik Wilming and Rodrigo Gallego

- 15:15 Mixing properties of stochastic quantum Hamiltonians

Emilio Onorati, Oliver Buerschaper, Martin Kliesch, Winton Brown, Albert H. Werner and Jens Eisert

15:40 COFFEE

[Theoretical Foundations]

- 16:05 Simulating positive-operator-valued measures with projective measurements
Michał Oszmaniec, Leonardo Guerini, Peter Wittek and Anotnio Acín

- 16:30 Efficient unitary designs with nearly time-independent Hamiltonian dynamics

Yoshifumi Nakata, Christoph Hirche, Masato Koashi and Andreas Winter

[Quantum Error Correction and Entanglement]

- 16:55 Code properties from holographic geometries
Fernando Pastawski and John Preskill

- 17:20 Entanglement renormalization, quantum error correction, and bulk causality
Michael Kastoryano and Isaac Kim

18:00 POSTER SESSION

Friday 16th June

- 09:30 Hyperbolic and Semi-Hyperbolic Surface Codes for Quantum Storage
Barbara Terhal

[Quantum Error Correction and Entanglement 2]

- 10:15 Limits on the storage of quantum information in a volume of space
Steve Flammia, Jeongwan Haah, Michael Kastoryano and Isaac Kim

10:40 COFFEE

- 11:05 Approximate symmetries of Hamiltonians
Christopher Chubb and Steve Flammia

- 11:30 Entanglement and Nonlocality in Infinite 1D Systems
Zizhu Wang, Sukhwinder Singh and Miguel Navascués

11:55 LUNCH

[Quantum Cryptography]

- 14:00 Device-independent randomness generation with sublinear shared quantum resources
Cédric Bamps, Serge Massar and Stefano Pironio

- 14:25 Quantum-Secure Symmetric-Key Cryptography Based on Hidden Shifts
Gorjan Alagic and Alexander Russell

- 14:50 Provably secure key establishment against quantum adversaries
Alexandrs Belovs, Gilles Brassard, Peter Høyer, Marc Kaplan, Sophie Laplante and Louis Salvail

15:15 COFFEE

[Q Tomography]

- 15:40 Guaranteed recovery of quantum processes from few measurements
Martin Kliesch, Richard Kueng, Jens Eisert and David Gross

- 16:05 Multi-qubit Randomized Benchmarking Using Few Samples
Jonas Helsen, Joel J. Wallman, Steven T. Flammia and Stephanie Wehner
- 16:30 Superfast maximum likelihood reconstruction for quantum tomography
Jiangwei Shang, Zhengyun Zhang and Hui Khoon Ng