QIP 2018 Accepted Talks

Plenary talk. Sergey Bravyi, David Gosset and Robert Koenig. Quantum advantage with shallow circuits. arXiv:1704.00690

Plenary talk. William Slofstra and Thomas Vidick. Entanglement requirements for non-local games

Plenary talk. Alex Neville, Chris Sparrow, Raphael Clifford, Eric Johnston, Patrick

Birchall, Ashley Montanaro and Anthony Laing; and Peter Clifford and

Raphael Clifford. Classical boson sampling algorithms and the outlook for experimental boson sampling. arXiv:1705.00686 and arXiv:1706.01260.

Plenary talk. Mark Bun, Robin Kothari and Justin Thaler. The Polynomial Method Strikes Back: Tight Quantum Query Bounds via Dual Polynomials arXiv:1710.09079

Plenary talk and best student paper prize. Geoffrey Penington and Patrick Hayden. Approximate Quantum Error Correction Revisited: Introducing the Alphabit. arXiv:1706.09434

Ciaran Lee and John Selby. A no-go theorem for theories that decohere to quantum mechanics

Ryan Babbush, Nathan Wiebe, Jarrod McClean, James McClain, Hartmut Neven and Garnet Chan. Low Depth Quantum Simulation of Electronic Structure. arXiv:1706.00023.

Costin Bădescu, Ryan O'Donnell and John Wright. Quantum state certification

Yuxiang Yang, Ge Bai, Giulio Chiribella and Masahito Hayashi. Compression for identically prepared qudit states. arXiv:1701.03372

Earl Campbell. Shorter gate sequences for quantum computing by mixing unitaries

Christoph Hirche and David Reeb. Bounds on Information Combining With Quantum Side Information. arXiv:1706.09752

Tobias Osborne and Deniz Stiegemann. Dynamics for holographic codes. arXiv:1706.08823

Henrik Wilming and Rodrigo Gallego. The third law of thermodynamics as a single inequality. arXiv:1701.07478

Andrea Coladangelo, Alex Bredariol Grilo, Stacey Jeffery and Thomas Vidick. Verifier-on-a-Leash: new schemes for verifiable delegated quantum computation, with quasilinear resources. arXiv:170807359

Miriam Backens. Quantum computing and Holant problems. arXiv:1702.00767 and arXiv:1704.05798

Paul Boes, Henrik Wilming, Jens Eisert and Rodrigo Gallego. Statistical ensembles without typicality. arXiv:1707.08218

Sergey Bravyi and David Gosset. Polynomial-time classical simulation of quantum ferromagnets

Ken Dykema, Vern I. Paulsen and Jitendra Prakash. Non-closure of the set of quantum correlations via graphs. arXiv:1709.05032

Matthias Christandl, Péter Vrana and Jeroen Zuiddam. Universal points in the asymptotic spectrum of tensors. arXiv:1709.07851

Christopher Cedzich, Tobias Geib, F. Alberto Grünbaum, Christoph Stahl, Luis Velázquez, Albert H. Werner and Reinhard F. Werner. The topological classification of one-dimensional symmetric quantum walks

Yimin Ge, Jordi Tura Brugués and J. Ignacio Cirac. Faster ground state preparation and high-precision ground energy estimation on a quantum computer

Michael Kastoryano and Isaac Kim. Entanglement renormalization, quantum error correction, and bulk causality. arXiv:1701.00050

Rui Chao and Ben Reichardt. Fault-tolerant quantum computation with few qubits. arXiv:1705.02329 and arXiv:1705.05365

Mark Van Raamsdonk, Samuel Leutheusser, Jim Bryan and Zinovy Reichstein. Locally Maximally Entangled States of Multipart Quantum Systems

Mario Berta, Runyao Duan, Kun Fang, Xin Wang and Mark M. Wilde. Efficiently computable upper bounds for quantum communication. arXiv:1709.00200 and arXiv:1709.04907

Andrew M. Childs, Dmitri Maslov, Yunseong Nam, Neil J. Ross and Yuan Su. Toward the first quantum simulation with quantum speedup

Michal Studzinski, Sergii Strelchuk, Marek Mozrzymas and Michal Horodecki. Optimal Port-based Teleportation in Arbitrary Dimension

Markus P. Mueller, Matteo Lostaglio, Michele Pastena and Jakob Scharlau. Majorization, correlating catalysts, and the single-shot interpretation of entropic quantities. arXiv:1707.03451, arXiv:1605.06092 and arXiv:1409.3258

Sisi Zhou, Mengzhen Zhang, John Preskill and Liang Jiang. Achieving the Heisenberg limit in quantum metrology using quantum error correction. arXiv1706.02445

Ramis Movassagh. Generic Local Hamiltonians are Gapless

Jutho Haegeman, Brian Swingle, Michael Walter, Jordan Cotler, Glen Evenbly and Volkher Scholz. Rigorous free fermion entanglement renormalization from wavelet theory. arXiv:1707.06243

Shalev Ben-David, [Adam Bouland](), Ankit Garg and [Robin Kothari](). Classical lower bounds from quantum upper bounds

Jayadev Acharya, Ibrahim Issa, Nirmal Shende and Aaron Wagner. Measuring Quantum Entropy. arXiv:1711.00814

[Philippe Faist]() and [Renato Renner](). Fundamental work cost of quantum processes. arXiv:1709.00506

[Joseph M. Renes](). Duality of channels and codes. arXiv:1701.05583

Andris Ambainis and Martins Kokainis. Quantum algorithm for tree size estimation, with applications to backtracking and 2-player games. Arxiv: 1704.06774.

Daniel Grier and Luke Schaeffer. The Classification of Clifford Gates over Qubits. arXiv:1603.03999

[Xin Wang](), [Kun Fang]() and [Marco Tomamichel](). On converse bounds for classical communication over quantum channels. arXiv:1709.05258

[Gorjan Alagic](), Yfke Dulek, Florian Speelman and [Christian Schaffner](). Quantum Fully Homomorphic Encryption With Verification. arXiv:1708.09156

Tomas Jochym-O'Connor, Aleksander Kubica and Theodore Yoder. The disjointness of stabilizer codes and limitations on fault-tolerant logical gates

Debbie Leung, Ashwin Nayak, Ala Shayeghi, Dave Touchette, Penghui Yao and Nengkun Yu. Capacity Approaching Codes for Low Noise Interactive Quantum Communication

Aleksander Kubica, Nicolas Delfosse, Michael Beverland, Fernando Brandao, John Preskill and Krysta Svore. Local efficient decoders and optimal thresholds of topological toric and color codes beyond two dimensions. arXiv:1708.07131

Jordan Cotler, [Patrick Hayden](), [Grant Salton](), Brian Swingle and [Michael Walter](). Approximate Operator Algebra Quantum Error Correction (Decoding the Hologram in AdS/CFT) arXiv:1704.05839

Anurag Anshu, Shalev Ben-David, Ankit Garg, [Rahul Jain](), [Robin Kothari]() and [Troy Lee](). Separating quantum communication and approximate rank arXiv:1611.05754

Sergey Bravyi, Matthias Englbrecht, [Robert Koenig]() and Nolan Peard. Correcting coherent errors with surface codes

Ludovico Lami, Christoph Hirche, [Gerardo Adesso]() and Andreas Winter. From log-determinant inequalities to Gaussian entanglement via recoverability theory

Jalex Stark and Andrea Coladangelo. Robust self-testing for linear constraint system games. arxiv:1709.09267

Anand Natarajan and Thomas Vidick. Low-degree testing for quantum states

Andrea Coladangelo, Koon Tong Goh and Valerio Scarani. All pure bipartite entangled states can be self-tested. arxiv:1611.08062

Sepehr Nezami, David Gross and Michael Walter. Schur-Weyl Duality for the Clifford Group, Quantum Property Testing, and a Robust Hudson Theorem

Daniel Ranard and Xiao-Liang Qi. Determining a local Hamiltonian from a ground state or excited state

Antoine Grospellier, Anthony Leverrier and Omar Fawzi. Efficient decoding algorithm for constant rate quantum LDPC codes

Nicolas Delfosse and Naomi Nickerson. Almost-linear time decoding algorithm for topological codes. arXiv:1709.06218

Merge of

Anurag Anshu, Rahul Jain and Naqueeb Warsi. Building blocks for communication over noisy quantum networks. arXiv:1702.01940 and arXiv:1706.08286.

with

Anurag Anshu, Rahul Jain and Naqueeb Warsi. Quantum compression protocols over quantum networks. arXiv:1702.02396, arXiv:1703.02342 and arXiv:1703.09961.

Merge of

Anurag Anshu, Min-Hsiu Hsieh and Rahul Jain. Quantifying resources in general resource theory with catalysts.arXiv:1708.00381

with

Mario Berta and Christian Majenz. Disentanglement Cost of Quantum States. arXiv:1708.00360

Merge of

Christopher Chubb, Vincent Tan and Marco Tomamichel. Moderate deviation analysis for classical communication over quantum channels. arXiv:1701.03114

with

Hao-Chung Cheng, Min-Hsiu Hsieh and Marco Tomamichel. Moderate Deviation Analysis and Sphere-Packing Bounds for Classical-Quantum Channels

Merge of

Ivan Bardet and Cambyse Rouze. The logarithmic Sobolev Inequality for non-primitive quantum Markov semigroups and estimation of decoherence rates.

with

Ivan Bardet. Estimating the decoherence time using non-commutative Functional Inequalities