Sixth International Conference for Young Quantum Information Scientists (YQIS 6)

Monday 12 April 2021 - Friday 16 April 2021

Book of Abstracts
# Contents

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Bayesian Approach for Characterizing and Mitigating Gate and Measurement Errors</td>
<td>1</td>
</tr>
<tr>
<td>A Cryptographic approach to Quantum Metrology</td>
<td>1</td>
</tr>
<tr>
<td>A Hardware-Aware Heuristic for the Qubit Mapping Problem in the NISQ Era</td>
<td>1</td>
</tr>
<tr>
<td>Acoustically Driven Magnetism for Controlling NV Centers</td>
<td>1</td>
</tr>
<tr>
<td>Adaptive Variational Quantum Dynamics Simulations</td>
<td>2</td>
</tr>
<tr>
<td>Adaptive variational quantum simulations of correlated electron models</td>
<td>2</td>
</tr>
<tr>
<td>Adiabatic Evolution on Multi-dimensional Quantum Computers using Optimal Control</td>
<td>3</td>
</tr>
<tr>
<td>Alternative approaches to quantum lattice renormalisation</td>
<td>3</td>
</tr>
<tr>
<td>Application of Quantum Computing to Quantum Cosmology</td>
<td>3</td>
</tr>
<tr>
<td>Approximate Bacon-Shor Code and Holography</td>
<td>3</td>
</tr>
<tr>
<td>Approximate Phase Search and Eigen-Estimation using Modified Grover’s Algorithm</td>
<td>4</td>
</tr>
<tr>
<td>Approximations in transmon simulation</td>
<td>4</td>
</tr>
<tr>
<td>Bayesian parameter estimation using Gaussian states and measurements</td>
<td>4</td>
</tr>
<tr>
<td>Born’s rule in the case of two entangled Bohmian qubits</td>
<td>5</td>
</tr>
<tr>
<td>Capacity of a lossy photon channel with direct detection</td>
<td>5</td>
</tr>
<tr>
<td>Characterization of QUBO reformulations for the maximum k-colorable subgraph problem</td>
<td>5</td>
</tr>
<tr>
<td>Classical Symmetries and QAOA</td>
<td>6</td>
</tr>
<tr>
<td>Classical-quantum network coding: a story about tensors</td>
<td>6</td>
</tr>
<tr>
<td>Control Optimization for Parametric Hamiltonians by Pulse Reconstruction</td>
<td>6</td>
</tr>
<tr>
<td>Creation, verification, and scalability of decoherence-free subspaces and noiseless subsystems on superconducting qubits</td>
<td>7</td>
</tr>
<tr>
<td>Device-independent quantum authorization based on the CHSH game</td>
<td>7</td>
</tr>
<tr>
<td>Digital quantum computing model in probability representation</td>
<td>7</td>
</tr>
</tbody>
</table>
Dilation based quantum algorithms for the time-evolution of open quantum systems

Distributed Quantum Computing and Network Control for Accelerated VQE

Dynamics of quantum correlations of the qutrit-qubit system in a classical dephasing environment: A comparative Study

Effects of magnetic fields on the Datta-Das spin field-effect transistor

Efficient Construction of Quantum Physical Unclonable Functions with Unitary t-designs

Efficient Use of the Quantum Linear System Algorithms in Interior Point Methods for Linear Optimization

Efficient algorithms for synthesizing T-count and T-depth optimal circuits

Elastic and inelastic scattering using ab initio nuclear structure on quantum computers

Entanglement Entropy Bounds in the Higher Spin XXZ Chain

Entanglement Renormalisation of Gapless Quantum Liquids

Everettian relative states in the Heisenberg picture

Experimental demonstration of quantum advantage for NP verification with limited information

Exponential improvement for quantum cooling through finite-memory effects

Extending the functionalities of the quantum extreme value searching algorithm to a constrained quantum searching algorithm

F-flow: determinism in measurement-based quantum computing with qudits

Feedback on the first implementation of a quantum wave equation solver

Fully Device Independent Quantum Private Query

Geometry of Entanglement Produced in Scattering

Gluon Field Digitization via Group Space Decimation for Quantum Computers

How efficiently can we simulate the open system dynamics of Ising models?

Imaginary Time Propagation on a Physical Quantum Chip

Implementation of Measurement Reduction for the Variational Quantum Eigensolver

Implementing a qGAN with Quantum Images

Improving Quantum Metrology with Variational Methods

Indefinite global time

Inflated Graph States Refuting Communication-Assisted LHV Models

Influence of coin symmetry on infinite hitting times in quantum walks
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information leak and incompatibility of physical context: A modified approach</td>
<td>16</td>
</tr>
<tr>
<td>Lattice Renormalization of Quantum Simulations: Analytic Results</td>
<td>17</td>
</tr>
<tr>
<td>Lattice Renormalization of Quantum Simulations: Numerical Results</td>
<td>17</td>
</tr>
<tr>
<td>Layers of classicality in the compatibility of measurements</td>
<td>17</td>
</tr>
<tr>
<td>Local Classical Competitors to QAOA</td>
<td>17</td>
</tr>
<tr>
<td>Magnon-Mediated Quantum Information Processing in Weakly-Coupled Hybrid Magnon-Photon Systems</td>
<td>18</td>
</tr>
<tr>
<td>Measurement Error Mitigation in Quantum Computers Through Classical Bit-Flip Correction</td>
<td>18</td>
</tr>
<tr>
<td>Modeling and mitigation of realistic readout noise with applications to the Quantum Approximate Optimization Algorithm</td>
<td>18</td>
</tr>
<tr>
<td>Morse Potential on a Quantum Computer for Molecules and Supersymmetric Quantum Mechanics</td>
<td>19</td>
</tr>
<tr>
<td>Natural Evolutionary Strategies for Variational Quantum Computation</td>
<td>19</td>
</tr>
<tr>
<td>Non-Boolean Quantum Amplitude Amplification and Quantum Mean Estimation</td>
<td>20</td>
</tr>
<tr>
<td>Optimal controls for state preparation in open quantum systems via most-likely paths</td>
<td>20</td>
</tr>
<tr>
<td>Optimal resource cost for error mitigation</td>
<td>20</td>
</tr>
<tr>
<td>Optimized Single Qubit Gates via Filter Function Design</td>
<td>21</td>
</tr>
<tr>
<td>Partially Coherent Direct Sum Channels &amp; Multilevel Amplitude Damping channels, quantum capacity analysis</td>
<td>21</td>
</tr>
<tr>
<td>Persistence of Topological Phases in Non-Hermitian Quantum Walks</td>
<td>21</td>
</tr>
<tr>
<td>Predicting ground state properties and long-time evolution of many-body systems from short-time evolution on a quantum computer</td>
<td>22</td>
</tr>
<tr>
<td>Probably approximately correct quantum source coding</td>
<td>22</td>
</tr>
<tr>
<td>Protocol Discovery for the Quantum Control of Majoranas by Differentiable Programming and Natural Evolution Strategies</td>
<td>22</td>
</tr>
<tr>
<td>Quantifying the Efficiency of State Preparation via Quantum Variational Eigensolvers</td>
<td>23</td>
</tr>
<tr>
<td>Quantum Approximate Optimization Algorithm with Qudits on Superconducting Radio Frequency Cavity-Transmon System</td>
<td>23</td>
</tr>
<tr>
<td>Quantum Assisted Simulator</td>
<td>23</td>
</tr>
<tr>
<td>Quantum Entanglement in Universal Systems</td>
<td>24</td>
</tr>
<tr>
<td>Quantum Optimal Control of Nuclear Spin for Quantum Logic with Qudits</td>
<td>24</td>
</tr>
<tr>
<td>Quantum Oracle Separations from Complex but Easily Specified States</td>
<td>24</td>
</tr>
</tbody>
</table>
U(1) link dynamics from gauged fermions towards quantum computing . . . . . . . . . . 33
Variational Quantum Cloning: Improving Practicality for Quantum Cryptanalysis . . . 34
Weakly measured while loops: peeking at quantum states . . . . . . . . . . . . . . . . . 34
Witnessing Wigner Negativity . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 34
A Bayesian Approach for Characterizing and Mitigating Gate and Measurement Errors

Muqing Zheng¹ ; Ang Li² ; Tamás Terlaky¹ ; Xiu Yang¹

¹ Department of Industrial and Systems Engineering, Lehigh University
² Advanced Computing, Mathematics and Data Division, Pacific Northwest National Laboratory

Corresponding Author(s): terlaky@lehigh.edu, ang.li@pnnl.gov, xiy518@lehigh.edu, muz219@lehigh.edu

Academic Standing:
Ph.D. Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

A Cryptographic approach to Quantum Metrology

Nathan Shettell¹ ; Elham Kashefi² ; Damian Markham³

¹ LIP6
² University of Edinburgh, CNRS Sorbonne Universite
³ Sorbonne Université, CNRS, LIP6

Corresponding Author(s): ekashefi@exseed.ed.ac.uk, nathan.shettell@lip6.fr, damian.markham@lip6.fr

Academic Standing:
PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

A Hardware-Aware Heuristic for the Qubit Mapping Problem in the NISQ Era

Siyuan NIU¹ ; Adrien SuauNone ; Gabriel StaffelbachNone ; Aida Todri-SanialNone

¹ LIRMM, University of Montpellier

Corresponding Author(s): siyuan.niu@lirmm.fr

Academic Standing:
Graduate Student (PhD student)  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes
Acoustically Driven Magnetism for Controlling NV Centers

Author(s): Joe Kitzman

Co-author(s): Jacob Henshaw; Justin Lane; Heejun Byeon; Niyaz Beysengulov; Reza Loloee; Johannes Pollanen; Jessica Kline; Sarah Roberts; Gabriel Ceriotti Rona; Dantus Marcos; Elias Garratt; Timothy Grotjohn; Shannon Nicely; Andrew Mounce

1 Department of Physics and Astronomy, Michigan State University
2 Sandia National Laboratories
3 Department of Chemistry, Michigan State University
4 Chemical Engineering and Materials Science Department, Michigan State University
5 Department of Electrical and Computer Engineering, Michigan State University

Corresponding Author(s): hbyeon@sandia.gov, klineje6@msu.edu, ceriott2@msu.edu, amounce@sandia.gov, dantus@chemistry.msu.edu, snicley@fraunhofer.org, beysengu@msu.edu, grotjohn@egr.msu.edu, rober964@msu.edu, kitzmanj@msu.edu, lanejustinr2@gmail.com, loloee@msu.edu, garratte@msu.edu

Academic Standing: Graduate Student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Contributed Talk / 72

Adaptive Variational Quantum Dynamics Simulations

Niladri Gomes; Niladri Mukherjee; Feng Zhang; Thomas Iadecola; Cai-Zhuang Wang; Kai-Ming Ho; Peter P. Orth; Yong-Xin Yao

1 Ames Lab
2 Ames Lab, Iowa State University

Academic Standing: Post-doc

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Contributed Talk / 93

Adaptive variational quantum simulations of correlated electron models

Author(s): Anirban Mukherjee

Co-author(s): Yong-Xin Yao; Peter P Orth; Noah F. Berthusen; Niladri Gomes; Feng Zhang; Thomas Iadecola

1 Ames Laboratory
2 Iowa State University

Corresponding Author(s): porth@iastate.edu, ykent@ameslab.gov, iadecola@iastate.edu, anirbanm@iastate.edu, fzhang@ameslab.gov, nfb1@iastate.edu, niladri@ameslab.gov

Academic Standing:
Postdoctoral Scholar  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.:  
Yes

Poster / 98

Adiabatic Evolution on Multi-dimensional Quantum Computers using Optimal Control

Author(s): Joey Bonitati¹
Co-author(s): Sofia Quaglioni ²; Dean Lee ³; Kyle Wendt ²; Tono Coelle Perez ⁴

¹ Michigan State University  
² Lawrence Livermore National Laboratory  
³ Facility for Rare Isotope Beams  
⁴ Lawrence Livermore National Lab

Corresponding Author(s): bonitat1@msu.edu

Academic Standing:  
Graduate Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.:  
Yes

Contributed Talk / 67

Alternative approaches to quantum lattice renormalisation

Darcy MorganNone; Alberto PeruzzoNone; Simon DevittNone

Academic Standing:  
PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.:  
Yes

Poster / 104

Application of Quantum Computing to Quantum Cosmology

Amy Jospeh¹; Michael McGuigan¹; Molly Brown¹; Tristen White¹; Yuan Feng¹

¹ Brookhaven National Laboratory

Corresponding Author(s): twhite1015@hotmail.com, mcguigan@bnl.gov

Academic Standing:  
Recent Graduate  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.:  
Yes

Contributed Talk / 34
Approximate Bacon-Shor Code and Holography

ChunJun Cao¹ ; Brad Lackey²

¹ University of Maryland  
² Microsoft Research

Corresponding Author(s): ccj991@gmail.com

Academic Standing: 
postdoc  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: 
Yes

Poster / 87

Approximate Phase Search and Eigen-Estimation using Modified Grover’s Algorithm

Author(s): Sayantan Pramanik¹
Co-author(s): M Girish Chandra¹ ; Shampa Sarkar¹ ; Manoj Nambiar¹

¹ Tata Consultancy Services

Corresponding Author(s): shampa.sarkar@tcs.com, m.nambiar@tcs.com, m.gchandra@tcs.com, sayantan.pramanik@tcs.com

Academic Standing: 
Completed Bachelor’s Degree in July 2019, presently working as Researcher at TCS Research  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: 
Yes

Poster / 111

Approximations in transmon simulation

Tyler Jones¹ ; Kaiah Steven² ; Xavier Poncini² ; Matthew Rose² ; Arkady Fedorov³

¹ University of Queensland / Max Kelsen  
² Max Kelsen  
³ University of Queensland

Corresponding Author(s): xavier.poncini@maxkelsen.com, matthew.rose@maxkelsen.com, a.fedorov@uq.edu.au, kaiah.steven@maxkelsen.com, tyler.jones@uq.edu.au

Academic Standing: 
PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: 
Yes

Contributed Talk / 80

Bayesian parameter estimation using Gaussian states and measurements
Author(s): Simon Morelli

Co-author(s): Ayaka Usui ; Elizabeth Agudelo ; Nicolai Friis

1 IQOQI Vienna

Corresponding Author(s): simon.morelli@hotmail.com

Academic Standing:
Postgraduate Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 37

Born’s rule in the case of two entangled Bohmian qubits

Athanasios Tzemos

1 Research Center for Astronomy and Applied Mathematics of the Academy of Athens

Corresponding Author(s): atzemos@academyofathens.gr

Academic Standing:
Post-Doc Fellow  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Poster / 126

Capacity of a lossy photon channel with direct detection

Karol Łukanowski ; Marcin Jarzyna

1 Centre of New Technologies (University of Warsaw), The Centre for Quantum Optical Technologies

Corresponding Author(s): m.jarzyna@cent.uw.edu.pl, k.lukanowski@cent.uw.edu.pl

Academic Standing:
Master’s student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Poster / 100

Characterization of QUBO reformulations for the maximum k-colorable subgraph problem

Rodolfo Alexander Quintero Ospina ; Luis F. Zuluaga ; Tamás Terlaky ; David Bernal

1 Lehigh University

2 Carnegie Mellon University
Contributed Talk / 38

Classical Symmetries and QAOA
Ruslan Shaydulin

1 Argonne National Laboratory

Corresponding Author(s): rshaydulin@anl.gov

Academic Standing: Postdoc

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Contributed Talk / 45

Classical-quantum network coding: a story about tensors
Author(s): Clément Meignant

Co-author(s): Frédéric Grosshans; Damian Markham

1 LIP6, Sorbonne Université
2 Sorbonne Université, CNRS, LIP6

Corresponding Author(s): damian.markham@lip6.fr, frедерic.grosshans@lip6.fr, clement.meignant@lip6.fr

Academic Standing: PhD Student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Poster / 29

Control Optimization for Parametric Hamiltonians by Pulse Reconstruction
Piero Luchi

1 University of Trento

Corresponding Author(s): piero.luchi@unitn.it

Academic Standing: PhD student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes
Contributed Talk / 123

Creation, verification, and scalability of decoherence-free subspaces and noiseless subsystems on superconducting qubits

Gregory Quiroz¹; Bibek Pokharel²; Yifan Sun³; Joseph Boen⁴; Lina Tewala⁴; Vinay Tripathi⁵; Matthew Kowalsky⁵; Devon Williams⁴; Jun-Yi Zhang⁶; Paraj Titum³; Lian-Ao Wu⁶; Kevin Schultz¹; Daniel Lidar⁵

¹ Johns Hopkins University Applied Physics Laboratory
² University of Southern California
³ State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, Wuhan, People’s Republic of China
⁴ Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA
⁵ Department of Physics and Astronomy, University of Southern California, Los Angeles, CA
⁶ Department of Theoretical Physics and History of Science, The Basque Country University(EHU/UPV), Spain

Corresponding Author(s): bbk.pokharel@gmail.com

Academic Standing: Graduate Student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Contributed Talk / 68

Device-independent quantum authorization based on the CHSH game

Ricardo Faleiro¹

¹ IST-Lisbon

Corresponding Author(s): faleiro.ric@gmail.com

Academic Standing: PhD Student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Poster / 105

Digital quantum computing model in probability representation

Alena Mastiukova¹

¹ Russian Quantum Center

Corresponding Author(s): a.mastiukova@rqc.ru

Academic Standing: Master student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes
Contributed Talk / 79

**Dilation based quantum algorithms for the time-evolution of open quantum systems**

**Author(s):** Kade Head-Marsden
**Co-author(s):** Prineha Narang

1 *Harvard University*

**Corresponding Author(s):** prineha@seas.harvard.edu, kheadmarsden@seas.harvard.edu

**Academic Standing:**

Postdoc  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 17

**Distributed Quantum Computing and Network Control for Accelerated VQE**

Stephen DiAdamo1; Marco Ghibaudi2; James Cruise2

1 *Technical University of Munich*
2 *Riverlane*

**Corresponding Author(s):** stephen.diadamo@tum.de

**Academic Standing:**

PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Poster / 16

**Dynamics of quantum correlations of the qutrit-qubit system in a classical dephasing environment: A comparative Study**

**Author(s):** Fadwa BENADALLAH
**Co-author(s):** Mohammed DAOU2

1 *Faculty of Sciences, Mohammed V University in Rabat, Morocco*
2 *Department of Physics, Faculty of Sciences, University Ibn Tofail, Kénitra, Morocco*

**Corresponding Author(s):** fadwa_benabdallah@um5.ac.ma

**Academic Standing:**

PhD student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Poster / 88
Effects of magnetic fields on the Datta-Das spin field-effect transistor

Kingshuk Sarkar¹; Amnon Aharony²; Ora Entin-Wohlman²; Robert Shekhter³; Mats Jonson³

¹ Tel Aviv University, Israel
² Tel Aviv University
³ Department of Physics, University of Gothenburg

Corresponding Author(s): withkingshuk@gmail.com

Academic Standing:
Post Doctoral Researcher I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Invited Talk / 73

Efficient Construction of Quantum Physical Unclonable Functions with Unitary t-designs

Niraj Kumar¹; Rawad Mezher¹; Elham Kashefi²

¹ University of Edinburgh
² University of Edinburgh, CNRS Sorbonne Universite

Corresponding Author(s): nkumar@exseed.ed.ac.uk, ekashefi@exseed.ed.ac.uk, rmezher@exseed.ed.ac.uk

Academic Standing:
Postdoctoral researcher I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Contributed Talk / 97

Efficient Use of the Quantum Linear System Algorithms in Interior Point Methods for Linear Optimization

Mohammadhossein Mohammadiahroodi¹; Ramin Fakhimi¹; Tamás Terlaky²

¹ Industrial & System Engineering Department, Lehigh University
² Department of Industrial and Systems Engineering, Lehigh University

Corresponding Author(s): terlaky@lehigh.edu, raf318@lehigh.edu, mom219@lehigh.edu

Academic Standing:
PhD student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Invited Talk / 62
Efficient algorithms for synthesizing T-count and T-depth optimal circuits

Vlad Gheorghiu¹ ; Michele Mosca¹ ; Priyanka Mukhopadhyay¹

¹ University of Waterloo

Corresponding Author(s): vlad.gheorghiu@uwaterloo.ca, michele.mosca@uwaterloo.ca, p3mukhop@uwaterloo.ca

Academic Standing:
Post-doctoral fellow  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Poster / 44

Elastic and inelastic scattering using ab initio nuclear structure on quantum computers

Weijie Du¹ ; James P. Vary² ; Xingbo Zhao¹ ; Wei Zuo¹

¹ Institute of Modern Physics, Chinese Academy of Sciences
² Iowa State University

Corresponding Author(s): zuowei@impcas.ac.cn, xbzhao@impcas.ac.cn, jvary@iastate.edu, duweigy@iastate.edu

Academic Standing:
Ph.D.  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Poster / 103

Entanglement Entropy Bounds in the Higher Spin XXZ Chain

Christoph Fischbacher¹ ; Oluwadara Ogunkoya²

¹ Department of Mathematics, University of California, Irvine, Irvine, CA, 92697, USA
² Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL, 35294, USA

Corresponding Author(s): fischbac@uci.edu, ogunkoya@uab.edu

Academic Standing:
Graduate student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Poster / 99

Entanglement Renormalisation of Gapless Quantum Liquids

Siddhartha Patra¹ ; Anirban Mukherjee² ; Siddhartha Lal³

¹ Department of Mathematics, University of California, Irvine, Irvine, CA, 92697, USA
² Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL, 35294, USA
³ Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL, 35294, USA

Corresponding Author(s): siddhartha.patra@uci.edu, anirban.mukherjee@uab.edu, siddhartha.lal@uab.edu

Academic Standing:
Graduate student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes
Corresponding Author(s): slal@iiserkol.ac.in, mukherjee.anirban.anirban@gmail.com, sp14ip022@iiserkol.ac.in

Academic Standing:
PhD Research Scholar I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 54

Everettian relative states in the Heisenberg picture

Samuel J.H.¹ ; David Deutsch²

¹ University of Oxford
² Wolfson College, Linton Road, Oxford OX2 6UD, UK

Corresponding Author(s): samuel_kuypers@outlook.com

Academic Standing:
DPhil student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 25

Experimental demonstration of quantum advantage for NP verification with limited information

Federico Centrone²; Niraj Kumar¹ ; Eleni Diamanti² ; Iordanis Kerenidis³

¹ University of Edinburgh
² Sorbonne Université
³ Université de Paris

Corresponding Author(s): fe.centrone@gmail.com

Academic Standing:
PhD student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 24

Exponential improvement for quantum cooling through finite-memory effects

Author(s): Philip Taranto¹

Co-author(s): Faraj Bakhshinezhad ² ; Philipp Schuettelkopf ; Fabien Clivaz ¹ ; Marcus Huber ¹
Extending the functionalities of the quantum extreme value search- ing algorithm to a constrained quantum searching algorithm

SARA EL GAILY¹

¹ Department of Networked Systems and Services, Budapest University of Technology and Economics

Contributed Talk / 90

F-flow: determinism in measurement-based quantum computing with qudits

Aleks Kissinger¹ ; Damian Markham² ; Robert Booth³ ; Simon Perdrix¹

¹ University of Oxford
² Sorbonne Université, CNRS, LIP6
³ Sorbonne University

Contributed Talk / 90

Feedback on the first implementation of a quantum wave equation solver

Adrien Suan¹ ; Henri Calandra¹ ; Gabriel Staffelbach²

¹ TOTAL
² CERFACS
**Corresponding Author(s):** gabriel.staffelbach@cerfacs.fr, henri.calandra@total.fr, adrien.suau@lirmm.fr

**Academic Standing:**
PhD student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

**Poster / 56**

**Fully Device Independent Quantum Private Query**

**Author(s):** Jyotirmoy Basak¹

**Co-author(s):** Kaushik Chakraborty ²

¹ Indian Statistical Institute, kolkata
² Qutech, Delft, Netherlands

**Corresponding Author(s):** kaushik.chakraborty9@gmail.com, bjyotirmoy.93@gmail.com

**Academic Standing:**
PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

**Poster / 39**

**Geometry of Entanglement Produced in Scattering**

Roland Farrell¹

¹ University of Washington

**Corresponding Author(s):** rolanf2@uw.edu

**Academic Standing:**
PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

**Contributed Talk / 96**

**Gluon Field Digitization via Group Space Decimation for Quantum Computers**

Yao Ji¹ ; Henry Lamm² ; Shuchen Zhu³

¹ University of Siegen
² Fermi National Accelerator Laboratory
³ Georgetown University
How efficiently can we simulate the open system dynamics of Ising models?

Anupam Mitra¹ ; Tameem Albash¹ ; Miyake Akimasa¹ ; Ivan Deutsch¹

¹ University of New Mexico

Imaginary Time Propagation on a Physical Quantum Chip

Author(s): Francesco Turro¹

Co-author(s): Francesco Pederiva¹ ; Jonathan Dubois² ; Kyle Wendt² ; Piero Luchi¹ ; Sofia Quaglioni² ; Valentina Amitrano¹

¹ University of Trento
² Lawrence Livermore National Laboratory

Implementation of Measurement Reduction for the Variational Quantum Eigensolver

Alexis Ralli¹ ; Peter Love² ; Andrew Tranter³ ; Peter Coveney¹

¹ University College London
² Tufts University
³ Cambridge Quantum Computing
Corresponding Author(s): p.v.coveney@ucl.ac.uk, peter.love@tufts.edu, tufts@atranter.net, alexis.ralli.18@ucl.ac.uk

Academic Standing:
PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Poster / 77

Implementing a qGAN with Quantum Images
Emily Lynn¹ ; Andrea Delgado²

¹ Taylor University
² Oak Ridge National Laboratory

Corresponding Author(s): delgadoa@ornl.gov, lynnemily1@outlook.com

Academic Standing:
Post-Bachelors SULI Intern  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Contributed Talk / 30

Improving Quantum Metrology with Variational Methods
Johannes Jakob Meyer¹ ; Johannes Borregaard² ; Jens Eisert¹

¹ Dahlem Center for Complex Quantum Systems, FU Berlin
² Qutech, TU Delft

Corresponding Author(s): jj.meyer@outlook.com

Academic Standing:
PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Contributed Talk / 22

Indefinite global time
Author(s): Tom Holden-Dye¹
Co-author(s): Sandu Popescu ¹

¹ University of Bristol

Corresponding Author(s): th16022@alumni.bristol.ac.uk

Academic Standing:
See comments  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Contributed Talk / 70

Inflated Graph States Refuting Communication-Assisted LHV Models

Uta Isabella Meyer\(^1\); Frédéric Grosshans\(^2\); Damian Markham\(^2\)

\(^1\) Sorbonne Université, CNRS, LIP6, F-75005 Paris, France
\(^2\) Sorbonne Université, CNRS, LIP6

**Corresponding Author(s):** damian.markham@lip6.fr, frederic.grosshans@lip6.fr, uta-isabella.meyer@lip6.fr

**Academic Standing:**
Graduate Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 102

Influence of coin symmetry on infinite hitting times in quantum walks

**Author(s):** Prithviraj Prabhu\(^1\)

**Co-author(s):** Todd Brun \(^1\)

\(^1\) University of Southern California

**Corresponding Author(s):** tbrun@usc.edu, pprabhu@usc.edu

**Academic Standing:**
Graduate student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Poster / 116

Information leak and incompatibility of physical context: A modified approach

Arindam Mitra\(^1\); Gautam Sharma\(^1\); Sibasish Ghosh\(^2\)

\(^1\) The Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-600113, India
\(^2\) The Institute of Mathematical Sciences, CIT Campus, Taramani, Chennai-600113, India

**Corresponding Author(s):** sibasish@imsc.res.in, amitra@imsc.res.in, gautam.oct@gmail.com

**Academic Standing:**
Ph.D student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes
**Contributed Talk / 114**

**Lattice Renormalization of Quantum Simulations: Analytic Results**

Henry Lamm\(^1\); Marcela Carena\(^2\); Wanqiang Liu\(^3\); Yingying Li\(^4\)

\(^1\) *Fermi National Accelerator Laboratory*
\(^2\) *Fermi National Accelerator Laboratory, Enrico Fermi Institute, Kavli Institute for Cosmological Physics, University of Chicago*
\(^3\) *University of Chicago*
\(^4\) *Fermilab*

**Corresponding Author(s):** carena@fnal.gov, wanqiangl@uchicago.edu, yingying@fnal.gov, hlamm@fnal.gov

**Academic Standing:**

Ph.D Candidate I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

**Contributed Talk / 115**

**Lattice Renormalization of Quantum Simulations: Numerical Results**

Marcela Carena\(^1\); Henry Lamm\(^1\); Ying-Ying Li\(^1\); Wanqiang Liu\(^2\)

\(^1\) *Fermilab*
\(^2\) *University of Chicago*

**Corresponding Author(s):** hlamm@fnal.gov, yingying@fnal.gov, carena@fnal.gov, wanqiangl@uchicago.edu

**Academic Standing:**

Postdoc I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

**Poster / 13**

**Layers of classicality in the compatibility of measurements**

**ARINDAM MITRA\(^1\)**

\(^1\) *THE INSTITUTE OF MATHEMATICAL SCIENCES*

**Corresponding Author(s):** amitra@imsc.res.in

**Academic Standing:**

Ph.D student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes
Local Classical Competitors to QAOA

Kunal Marwaha¹

¹ BQIC (UC Berkeley)

Corresponding Author(s): marwahaha@berkeley.edu

Academic Standing:

independent researcher (will enter a Ph.D program in fall 2021)  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Poster / 124

Magnon-Mediated Quantum Information Processing in Weakly-Coupled Hybrid Magnon-Photon Systems

Author(s): Cody Trevillian¹

Co-author(s): Vasyl Tyberkevych ¹

¹ Physics, Oakland University, Rochester, MI 48309, USA

Corresponding Author(s): trevillian@oakland.edu, tyberkev@oakland.edu

Academic Standing:

Graduate Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Contributed Talk / 66

Measurement Error Mitigation in Quantum Computers Through Classical Bit-Flip Correction

Lena Funcke¹ ; Tobias Hartung² ; Karl Jansen³ ; Stefan Kuhn⁴ ; Paolo Stornati⁵ ; Xiaoyang Wang⁶

¹ Perimeter Institute for Theoretical Physics, 31 Caroline Street North, Waterloo, ON N2L 2Y5, Canada
² Department of Mathematics, King’s College London, Strand, London WC2R 2LS, United Kingdom
³ NIC, DESY Zeuthen, Platanenallee 6, 15738 Zeuthen, Germany
⁴ Computation-based Science and Technology Research Center, The Cyprus Institute, 20 Kavafi Street, 2121 Nicosia, Cyprus
⁵ NIC, DESY Zeuthen, Platanenallee 6, 15738 Zeuthen, Germany and Institut für Physik, Humboldt-Universität zu Berlin, Zum Großen Windkanal 6, D-12489 Berlin, Germany
⁶ School of Physics, Peking University, 5 Yiheyuan Rd, Haidian District, Beijing 100871, China

Academic Standing:

Postdoctoral Researcher  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes
Modeling and mitigation of realistic readout noise with applications to the Quantum Approximate Optimization Algorithm

Filip Maciejewski¹ ; Flavio Baccari² ; Zoltan Zimboras³ ; Michał Oszmaniec¹

¹ Polish Academy of Sciences
² Max-Planck-Institut fur Quantenoptik
³ Wigner Research Centre for Physics

Corresponding Author(s): michal.oszmaniec@gmail.com, filip.b.maciejewski@gmail.com, zimboras@gmail.com, flavio.baccari@mpq.mpg.de

Academic Standing:
PhD student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Morse Potential on a Quantum Computer for Molecules and Supersymmetric Quantum Mechanics

Author(s): Josh Apanavicius¹ ; Michael McGuigan²
Co-author(s): Mohammad Hassan³ ; Yasmin Flores⁴ ; Yuan Feng⁵

¹ Indiana University
² Brookhaven National Laboratory
³ The City College of New York
⁴ St. Joseph’s College
⁵ Pasadena City College

Corresponding Author(s): moh.hassan2469@gmail.com, mcguigan@bnl.gov

Academic Standing:
Undergraduate Student (Graduated Jan. 2021) I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Contributed Talk / 15

Natural Evolutionary Strategies for Variational Quantum Computation

Author(s): Abhinav Anand¹
Co-author(s): Matthias Degroote¹ ; Alan Aspuru-Guzik³

¹ University of Toronto
Corresponding Author(s): abhinav.anand@mail.utoronto.ca

Academic Standing:
Graduate student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 63

Non-Boolean Quantum Amplitude Amplification and Quantum Mean Estimation

Prasanth Shyamsundar1

1 Fermi National Accelerator Laboratory

Corresponding Author(s): prasanth@fnal.gov

Academic Standing:
Postdoctoral research associate  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Poster / 41

Optimal controls for state preparation in open quantum systems via most-likely paths

Wirawat Kokaew1 ; Thiparat Chotibut1 ; Areeya Chantasri2

1 Chulalongkorn University
2 Mahidol University

Corresponding Author(s): areeya.chn@mahidol.ac.th, thiparat.c@chula.ac.th, wirawatkokaew@gmail.com

Academic Standing:
Undergraduate Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 119

Optimal resource cost for error mitigation

Ryuji Takagi1

1 Nanyang Technological University

Corresponding Author(s): ryuji.takagi@ntu.edu.sg

Academic Standing:
Postdoc  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.:
Yes

Contributed Talk / 74

**Optimized Single Qubit Gates via Filter Function Design**

Yasuo Oda¹ ; Dennis Lucarelli² ; Kevin Schultz³ ; Dave Clader³ ; Gregory Quiroz³

¹ *Johns Hopkins University*
² *American University*
³ *Johns Hopkins University Applied Physics Laboratory*

**Corresponding Author(s):** yoda2@jhu.edu

**Academic Standing:**
Graduate Student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Contributed Talk / 58

**Partially Coherent Direct Sum Channels & Multilevel Amplitude Damping channels, quantum capacity analysis.**

Stefano Chessa¹ ; Vittorio Giovannetti¹

¹ *Scuola Normale Superiore, Pisa, Italy*

**Corresponding Author(s):** vittorio.giovannetti@sns.it, stefano.chessa@sns.it

**Academic Standing:**
Graduate Student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Poster / 11

**Persistence of Topological Phases in Non-Hermitian Quantum Walks**

Vikash Mittal¹ ; Aswathy Raj² ; Sanjib Dey³ ; Sandeep Goyal³

¹ *IISER Mohali*
² *Department of Physics, Indian Institute of Science Education & Research (IISER) Bhopal, Bhopal Bypass Road, Bhauri, Bhopal 462066, India*
³ *Department of Physical Sciences, Indian Institute of Science Education & Research (IISER) Mohali, Sector 81 SAS Nagar, Manauli PO 140306 Punjab, India*

**Corresponding Author(s):** vikashmittal.iiser@gmail.com, skgoyal@iisermohali.ac.in

**Academic Standing:**
Graduate Student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Predicting ground state properties and long-time evolution of many-body systems from short-time evolution on a quantum computer

Edgar Andres Ruiz Guzman¹ ; Denis Lacroix²

¹ IJCLab/CNRS
² IJCLab/CRNS

Corresponding Author(s): lacroix@ijclab.in2p3.fr, ruiz-guzman@ijclab.in2p3.fr

Academic Standing:
Doctoral student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Contribution Type: Poster / 42

Protocol Discovery for the Quantum Control of Majoranas by Differentiable Programming and Natural Evolution Strategies

Luuk Coopmans¹ ; Di Luo² ; Graham Kells³ ; Bryan K. Clark² ; Juan Carrasquilla⁴

¹ Dublin Institute for Advanced Studies & Trinity College Dublin
² Department of Physics and IQIUST and Institute for Condensed Matter Theory, University of Illinois at Urbana-Champaign, IL 61801, USA
³ Dublin Institute for Advanced Studies
⁴ Vector Institute for Artificial Intelligence, MaRS Centre, Toronto, Ontario, Canada & Department of Physics and Astronomy, University of Waterloo, Ontario, N2L 3G1, Canada
Contributed Talk / 18

Quantifying the Efficiency of State Preparation via Quantum Variational Eigensolvers

Author(s): Gabriel Matos
Co-author(s): Sonika Johri ; Zlatko Papić

1 University of Leeds
2 IonQ Inc.

Corresponding Author(s): z.papic@leeds.ac.uk, johri@ionq.co, pygdfm@leeds.ac.uk

Academic Standing:
PhD Student (2nd Year) I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Poster / 121

Quantum Approximate Optimization Algorithm with Qudits on Superconducting Radio Frequency Cavity-Transmon System

A. Baris Ozguler ; Davide Venturelli ; Matt Reagor

1 Fermilab
2 NASA Ames
3 Rigetti Computing

Corresponding Author(s): aozguler@fnal.gov

Academic Standing:
Postdoc I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Contributed Talk / 28

Quantum Assisted Simulator

Kishor Bharti ; Tobias Haug

1 CQT, Singapore
2 Centre for Quantum Technologies, National University of Singapore 117543, Singapore
Corresponding Author(s): kishor.bharti1@gmail.com

Academic Standing:
PhD Student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Poster / 69

Quantum Entanglement in Universal Systems

Fabian Hildenbrand 1 ; Hans-Werner Hammer

1 Technische Universität Darmstadt

Corresponding Author(s): hildenbrand@theorie.ikp.physik.tu-darmstadt.de

Academic Standing:
Post-Doc I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Contributed Talk / 33

Quantum Optimal Control of Nuclear Spin for Quantum Logic with Qudits

Sivaprasad Omanakuttan 1 ; Anupam Mitra 1 ; Ivan Deutsch 1

1 CQuIC, University of New Mexico

Corresponding Author(s): somanakuttan@unm.edu

Academic Standing:
Graduate student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Contributed Talk / 82

Quantum Oracle Separations from Complex but Easily Specified States

Nicholas LaRacuente 1

1 University of Chicago

Corresponding Author(s): nlaracuente@uchicago.edu

Academic Standing:
Postdoc I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes
Contributed Talk / 95

Quantum Simulation of Quantum Field Theory in the Front Form

Michael Kreshchuk\textsuperscript{1} ; William Kirby\textsuperscript{1} ; Hugo Beauchemin\textsuperscript{1} ; Gary Goldstein\textsuperscript{1} ; Peter Love\textsuperscript{1} ; Shaoyang Jia\textsuperscript{2} ; James Vary\textsuperscript{3}

\textsuperscript{1} Tufts University
\textsuperscript{2} Argonne National Lab
\textsuperscript{3} Iowa State University

Corresponding Author(s): syjia@anl.gov, mazvolej@gmail.com, william.kirby@tufts.edu, gary.goldstein@tufts.edu, peter.love@tufts.edu, jvary@iastate.edu, hugo.beauchemin@tufts.edu

Academic Standing:
Graduate Student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.:
Yes

Poster / 57

Quantum State Classification by Statistical Analysis

Author(s): Spencer King\textsuperscript{1}
Co-author(s): Pierre Decoodt\textsuperscript{2}

\textsuperscript{1} Washington University in St. Louis
\textsuperscript{2} Brussels Free University (ULB)

Corresponding Author(s): spencer.king@wustl.edu

Academic Standing:
Graduate Student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.:
Yes

Poster / 81

Quantum machine learning on the entanglement detecting frontier

Alena Mastiukova\textsuperscript{1}

\textsuperscript{1} Russian Quantum Center

Corresponding Author(s): a.mastiukova@rqc.ru

Academic Standing:
Master Student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.:
Yes
Poster / 120

Quantum walks, Feynman Propagators and graph topology

Yuan Feng\textsuperscript{None} ; Michael McGuigan\textsuperscript{None} ; Raffael Miceli\textsuperscript{None}

\textbf{Corresponding Author(s):} raffaele.miceli.32@gmail.com, mcguigan@bnl.gov, dinii0607@gmail.com

\textbf{Academic Standing:}
Undergraduate Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 40

Qubit-efficient entanglement spectroscopy using qubit resets

Justin Yirka\textsuperscript{1} ; Yigit Subasi\textsuperscript{2}

\textsuperscript{1} The University of Texas at Austin
\textsuperscript{2} Los Alamos National Laboratory

\textbf{Corresponding Author(s):} ysubasi@lanl.gov, yirka@utexas.edu

\textbf{Academic Standing:}
Ph.D. Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 10

Random-Receiver Quantum Communication

Some Sankar Bhattacharya\textsuperscript{1} ; Ananda G. Maity\textsuperscript{2} ; Tamal Guha\textsuperscript{3} ; Giulio Chiribella\textsuperscript{1} ; Manik Banik\textsuperscript{4}

\textsuperscript{1} The University of Hong Kong
\textsuperscript{2} S. N. Bose National Center for Basic Science
\textsuperscript{3} Indian Statistical Institute, Kolkata
\textsuperscript{4} IISER Thiruvananthapuram

\textbf{Corresponding Author(s):} g.tamal91@gmail.com, somesankar@gmail.com, anandamaity289@gmail.com, manik11ju@gmail.com

\textbf{Academic Standing:}
Postdoc Fellow  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 65

Randomized Benchmarking with Stabilizer Verification and Gate Synthesis

Ellen Derbyshire\textsuperscript{1} ; Rawad Mezher\textsuperscript{3} ; Theodoros Kapourniotis\textsuperscript{2} ; Elham Kashefi\textsuperscript{3}

\textsuperscript{1} The University of Hong Kong
\textsuperscript{2} S. N. Bose National Center for Basic Science
\textsuperscript{3} Indian Statistical Institute, Kolkata

Reducing the CNOT count for Clifford+T circuits on NISQ architectures

Gheorghiu Vlad\textsuperscript{1}; Li Sarah (Meng)\textsuperscript{2}; Mosca Michele\textsuperscript{1}; Mukhopadhyay Priyanka\textsuperscript{1}

\textsuperscript{1}Institute for Quantum Computing, University of Waterloo
\textsuperscript{2}Dalhousie University

Contributed Talk / 61

Reinforcement learning with quantum neural networks

Andrea Skolik\textsuperscript{1}; Vedran Dunjko\textsuperscript{1}

\textsuperscript{1}Leiden University

Contributed Talk / 35

Rodeo Algorithm for Quantum Computation

Author(s): Jacob Watkins\textsuperscript{1}; Zhengrong Qian\textsuperscript{1}
Co-author(s): Dean Lee \textsuperscript{2}; Kenneth Choi \textsuperscript{1}; Joey Bonitati \textsuperscript{1}

\textsuperscript{1}Michigan State University
Contributed Talk / 59

Sector length distributions of graph states

Author(s): Daniel Miller 1
Co-author(s): Nikolai Wyderka 2; Panagiotis Barkoutsos 3; Matthias Miller 4; Hermann Kampermann 2; Dagmar Bruß 2; Ivano Tavernelli 1

1 University of Basel, IBM Quantum, IBM Research
2 Heinrich-Heine University, Düsseldorf
3 IBM Quantum, IBM Research
4 University of Constance

Corresponding Author(s): hermann.kampermann@hhu.de, dmi@zurich.ibm.com, dagmar.bruss@hhu.de, nikolai.wyderka@hhu.de, ita@zurich.ibm.com, matthias.miller@uni-konstanz.de

Academic Standing:
Graduate Student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Poster / 125

Semi-Device-Independent Quantum Random Number Generator Based on Energy Bound

Hamid Hamid Tebyanian None

Corresponding Author(s): hamid.tebyanian@studenti.unipd.it

Academic Standing:
PhD. I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

Poster / 89

Semi-device-independent QKD based on a Coherence Equality

Author(s): Mário Silva 1
Co-author(s): Paulo Mateus 2; Ricardo Faleiro 3

1 Departamento de Matemática, Instituto Superior Técnico, Universidade de Lisboa
Contributed Talk / 20

Semi-device-independent framework based on restricted distrust in prepare-and-measure experiments

Armin Tavakoli

1 IQOQI Vienna

Corresponding Author(s): armin.tavakoli@oeaw.ac.at

Academic Standing:
First-year postdoc

Contributed Talk / 113

Shear Viscosity on a Quantum Computer

Yukari Yamauchi; Thomas Cohen; Scott Lawrence; Henry Lamm

1 University of Maryland
2 University of Maryland - College Park
3 University of Colorado - Boulder
4 Fermi National Accelerator Laboratory

Corresponding Author(s): yyukari@umd.edu, cohen@umd.edu, scott.lawrence-1@colorado.edu, hlam@fnal.gov

Academic Standing:
Graduate Student

Poster / 94

Simulating Extend Hubbard Models in a Digital Quantum Computing Environment

Kaelyn Ferris; Sergio Ulloa
Poster / 85

Solving Nuclear Pairing Models with Quantum Variational Algorithms

Benjamin Hall¹ ; Morten Hjorth-Jensen²

¹ Facility for Rare Isotope Beams
² Michigan State University

Poster / 60

Solving the BCS Hamiltonian gap in Near-Term Quantum Computers

Nahum Rosa Cruz Sá¹ ; Ivan Santos Oliveira¹ ; Itzhak Roditi¹

¹ Centro Brasileiro de Pesquisas Físicas

Poster / 83

Some Remarks on The Entanglement Number

Ryan Mcgaha¹ ; George Androulakis¹

¹ University of South Carolina

Page 30
Contributed Talk / 108

State Preparation via Lattice Schwinger-Keldysh

Henry Lamm¹ ; Scott Lawrence² ; Erik Gustafson³ ; Siddhartha Harmalkar⁴

¹ Fermilab
² University of Colorado, Boulder
³ University of Iowa
⁴ University of Maryland

Corresponding Author(s): hlamm@fnal.gov

Academic Standing:
Postdoc I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Poster / 117

Storage properties of a quantum perceptron

Aikaterini Gratsea¹ ; Kasper Valentin¹ ; Maciej Lewenstein¹

¹ ICFO

Corresponding Author(s): gratsea.katerina@gmail.com

Academic Standing:
PhD student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes

Contributed Talk / 78

Strict hierarchy between parallel, sequential, and indefinite-causal-order strategies for channel discrimination

Jessica Bavaresco¹ ; Mio Murao² ; Marco Tulio Quintino³

¹ Institute for Quantum Optics and Quantum Information (IQOQI) Vienna
² The University of Tokyo
³ University of Vienna

Corresponding Author(s): marco.quintino@univie.ac.at, murao@phys.s.u-tokyo.ac.jp, jessica.bavaresco@oeaw.ac.at

Academic Standing:
PhD student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.
Yes
Contributed Talk / 64

Telecom-heralded entanglement distribution between remote, solid-state multimode quantum memories

Samuele Grandi\(^1\); Dario Lago-Rivera\(^1\); Jelena V. Rakonjac\(^1\); Alessandro Seri\(^1\); Hugues de Riedmatten\(^2\)

\(^1\) ICFO
\(^2\) ICFO; ICREA

Corresponding Author(s): samuele.grandi@icfo.eu

Academic Standing:
Post-doc  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Poster / 109

The controlled SWAP test for determining quantum entanglement

Steph Foulds\(^1\); Viv Kendon\(^1\); Tim Spiller\(^2\)

\(^1\) Durham University
\(^2\) University of York

Corresponding Author(s): timothy.spiller@york.ac.uk, viv.kendon@durham.ac.uk, stephanie.c.foulds@durham.ac.uk

Academic Standing:
PhD student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Poster / 32

Thermodynamics of Statistical Anyons

Nathan Myers\(^1\); Sebastian Deffner\(^1\)

\(^1\) University of Maryland, Baltimore County

Corresponding Author(s): deffner@umbc.edu, myersn1@umbc.edu

Academic Standing:
PhD student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 50

Toward simulating the 1+1 Abelian Higgs model on qudit based architectures
Erik Gustafson

1 University of Iowa

**Corresponding Author(s):** erik-j-gustafson@uiowa.edu

**Academic Standing:**
Graduate Student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

**Contributed Talk / 106**

**Towards coherent control of electrons on liquid helium**

Niyaz Beysengulov\(^1\) ; J.R. Lane\(^2\) ; J.M. Kitzman\(^2\) ; C. Mikolas\(^3\) \; D.G. Rees\(^3\) ; Ø.S. Schøyen\(^1\) ; H.E. Kristiansen\(^5\) ; M. Hjorth-Jensen\(^6\) ; J. Pollanen\(^2\)

\(^1\) Michigan State University
\(^2\) Department of Physics and Astronomy, Michigan State University
\(^3\) EeroQ Corporation
\(^4\) Department of Physics and Center of Mathematics for Applications, University of Oslo
\(^5\) Hylleraas Centre for Quantum Molecular Sciences, Department of Chemistry, University of Oslo
\(^6\) Department of Physics and Astronomy, Michigan State University; Department of Physics and Center of Mathematics for Applications, University of Oslo; Facility for Rare Isotope Beams, Michigan State University

**Corresponding Author(s):** beysengu@msu.edu

**Academic Standing:**
Postdoc

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

**Contributed Talk / 101**

**Transcending the Circuit Model with the ZX-calculus**

Lia Yeh\(^1\)

\(^1\) University of Oxford

**Corresponding Author(s):** lia.yeh@cs.ox.ac.uk

**Academic Standing:**
PhD Student

I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes

**Poster / 84**

**U(1) link dynamics from gauged fermions towards quantum computing**

David Berenstein\(^1\) ; Hiroki Kawai\(^2\) ; Richard Brower\(^2\)
Contributed Talk / 107

Variational Quantum Cloning: Improving Practicality for Quantum Cryptanalysis

Author(s): Brian Coyle

Co-author(s): Mina Doosti; Elham Kashefi; Niraj Kumar

1 University of Edinburgh
2 University of Edinburgh, CNRS Sorbonne Université

Corresponding Author(s): nkumar@exseed.ed.ac.uk, ekashefi@exseed.ed.ac.uk, brian.coyle@ed.ac.uk

Academic Standing:
PhD Student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 43

Weakly measured while loops: peeking at quantum states

Pablo Andres-Martinez; Chris Heunen

1 University of Edinburgh

Corresponding Author(s): chris.heunen@ed.ac.uk, p.andres-martinez@ed.ac.uk

Academic Standing:
PhD student  I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.: Yes

Contributed Talk / 86

Witnessing Wigner Negativity

Pierre-Emmanuel Emeriau; Ulysse Chabaud; Frédéric Grosshans

1 Sorbonne CRNS - LIP6
2 Institute for Quantum Information and Matter, Caltech
3 Sorbonne Université, CNRS, LIP6
Corresponding Author(s): frederic.grosshans@lip6.fr, uchabaud@caltech.edu, pierre-emmanuel.emerieu@lip6.fr

Academic Standing:

PhD student I have attached a PDF of my abstract using the provided Overleaf (LaTeX) template.

Yes