

# QUANTUM INFORMATION PROCESSING CONFERENCES

## 2017

Diego Ristè, "Fast and Dynamic Quantum Computing in a Five-Transmon Processor," 1st INTRIQ Quantum Industry Day, May 10, 2017 (Invited).

Dmitri Efetov, Yuanda Gao, Ren-Jye Shiue, Evan D. Walsh, Gabriele Grosso, Cheng Peng, Philip Kim, James Hone, Kin Chung Fong, Dirk Englund, "Johnson Noise Thermometry of Optically Excited Hot Electrons In hBN Encapsulated Graphene," APS March Meeting, March 13, 2017 (Invited).

Artem Talanov, Jesse Crossno, Hugo Bartolomei, Kemen Linsuain, Takashi Taniguchi, Kenji Watanabe, Thomas Ohki, Kin Chung Fong, Philip Kim, "Shot and Johnson Noise Measurement in Graphene Using Wide-Bandwidth Measurement Technique," APS March Meeting, March 13, 2017 (Invited).

Jesse Crossno, Gil-Ho Lee, Hugo Bartolomei, Kin Chung Fong, Philip Kim, "Johnson Noise Thermometry in Graphene under Magnetic Fields," APS March Meeting, March 13, 2017 (Invited).

Kin Chung Fong, Evan Walsh, Gil-Ho Lee, Dmitri Efetov, Jesse Crossno, Leonardo Ranzani, Thomas Ohki, Philip Kim, Dirk Englund, "Graphene Josephson Junction Microwave Detector," APS March Meeting, March 13, 2017 (Invited).

Diego Ristè, "Hardware for Dynamic Quantum Computing Experiments (Part II)," APS March Meeting, March 13, 2017 (Contributed Talk).

## 2016

G. E. Rowlands, M. H. Nguyen, S. V. Aradhya, C. A. Ryan, D. C. Ralph, R. A. Buhrman, T. A. Ohki, "Cryogenic Operation of Three-Terminal Spin-Hall Effect Memory Elements," Conference on Magnetism and Magnetic Materials, Oct. 31–Nov. 4, 2016 (Invited Talk).

M. Soltani, "Quest for Integrated Resonator and Waveguiding Platforms in UV and Visible Wavelength Range," IEEE Photonics Conference, Oct. 2–6, 2016 (Invited Talk).

M. Pant, H. Krovi, D. Englund, S. Guha, "Rate-Rate-Distance Tradeoff and Resource Costs for All-Optical Quantum Repeaters," QCrypt 2016, Sept. 12–16, 2016 (Contributed).

M. Soltani, "Emerging III-Nitride Technology for Ultraviolet and Visible Integrated Photonics," IEEE Summer Topical Meeting, July 11–13, 2016 (Invited Talk).

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**Raytheon**

- S. Guha, J. H. Shapiro, R. G. Patron-Sanchez, "Thinning, Photonic Beamsplitting and a New Discrete Entropy Power Inequality," IEEE International Symposium on Information Theory (ISIT), July 10–15, 2016 (Proceedings Paper).
- Hari Krovi, Saikat Guha, Mihir Pant, Dirk Englund, "Quantum Optical Implementation of an Ising Solver," IEEE Summer Topicals, July 10–13, 2016 (Invited).
- M. Soltani, V. Ilchenko, A. Matsko, A. Savchenkov, J. Schlafer, C. Ryan, L. Maleki, "Ultra-High Q Whispering Gallery Mode Electro-Optic Resonators on Silicon Chip," CLEO Conference, June 5–10, 2016 (Contributed).
- Blake Johnson, Dan Ellard, Aaron Helsing, Colm Ryan, Richard Lazarus, "Quantum Gate Language: A Low-Level Language for Quantum Processors," BIRS Workshop on Quantum Computer Science, April 18–22, 2016 (Invited Talk).
- Jesse Crossno, Jing Shi, Ke Wang, Xiaomeng Liu, Achim Harzheim, Andrew Lucas, Subir Sachdev, Philip Kim, Takashi Taniguchi, Kenji Watanabe, Thomas Ohki, Kin Chung Fong, "Johnson Noise Thermometry Reveals the Dirac Fluid in Graphene," APS March Meeting, March 17, 2016 (Invited).
- Dmitri Efetov, Yuanda Gao, Evan Walsh, Ren-Jye Shiue, Gabriele Grosso, Cheng Peng, James Hone, Kin Chun Fong, Dirk Englund, "Highly Sensitive hBN/Graphene Hot Electron Bolometers with a Johnson Noise Readout," APS March Meeting, March 15, 2016 (Invited).
- Diego Ristè, Marcus da Silva, Colm Ryan, Andrew Cross, John Smolin, Jay Gambetta, Jerry Chow, Blake Johnson, "Demonstration of Quantum Superiority in Learning Parity with Noise with Superconducting Qubits," APS March Meeting, March 14–18, 2016 (Contributed Talk).
- Marcus P. da Silva, "Crosstalk Characterization by Eigenvalue Estimation: Theory," APS March Meeting, March 14, 2016 (Contributed Talk).
- Pavithran Iyer, Marcus P. da Silva, David Poulin, "Critical Parameters of a Noise Model that Affect Fault Tolerant Quantum Computation on a Single Qubit," APS March Meeting, March 14, 2016 (Contributed Talk).
- Evan Walsh, Gil-Ho Lee, Dmitri K. Efetov, Jesse Crossno, Takashi Taniguchi, Kenji Watanabe, Thomas A. Ohki, Philip Kim, Dirk Englund, Kin Chung Fong, "Critical Current Statistics of a Graphene-Based Josephson Junction Infrared Single Photon Detector," APS March Meeting, March 14, 2016 (Invited).
- Matthew Ware, Kin Chung Fong, Colm A. Ryan, Brian Hassick, Thomas Ohki, Marcus P. da Silva, "Crosstalk Characterization in Superconducting Qubits by Eigenvalue Estimation: Experiment," APS March Meeting, March 14, 2016 (Invited).
- Evan D. Walsh, Gil-Ho Lee, Dmitri K. Efetov, Mikkel Heuck, Jesse Crossno, Takashi Taniguchi, Kenji Watanabe, Thomas A. Ohki, Philip Kim, Dirk Englund, Kin Chung Fong, "Graphene Josephson Junction Single Photon Detector," APS March Meeting, March 14, 2016 (Invited).
- A. Sheikholeslami, B. A. Bash, D. Towsley, D. Goeckel, S. Guha, "Covert Communication over Classical-Quantum Channels," International Symposium on Information Theory (ISIT), July 10–15, 2016 (Contributed Talk, Proceedings Paper).

## 2015

T. Sobers, B. A. Bash, D. Goeckel, S. Guha, D. Towsley, "Covert Communication with the Help of an Uninformed Jammer Achieves Positive Rate," Asilomar Conference on Signals, Systems, and Computers, Nov. 8–11, 2015 (Contributed Talk, Proceedings Paper).

Hari Krovi, Saikat Guha, Zachary Dutton, Chris Fuchs, Christoph Simon, Joshua Slater, Wolfgang Tittel, "Long Range QKD with Time and Frequency Multiplexing in Broadband Solid State Memories," QCrypt, Oct. 1, 2015 (Contributed).

Blake Johnson, "QSimulator.jl: A tool for Quickly Building Simulations of Quantum Systems," JuliaCon 2015, June 24–27, 2015 (Contributed Talk).

Blake Johnson, "Quantum Gate Language: An "Assembly" Language for Quantum Computers," IQC Quantum Programming and Circuits Workshop, June 8–10, 2015 (Invited Talk).

Saikat Guha, Hari Krovi, Christopher Fuchs, Zachary Dutton, Joshua Slater, Christoph Simon, Wolfgang Tittel, "Rate-Loss Analysis of an Efficient Quantum Repeater Architecture," Theory of Quantum Computation, Communication and Cryptography, May 21, 2015 (Contributed).

Kin Chung Fong, "Graphene Thermal Transport Studies via Radio-Frequency, Cross-Correlated Johnson Noise Thermometry," APS March Meeting, March 2–6, 2015 (Contributed Talk).

Marcus P. da Silva, "Self-Consistent Verification of Quantum Measurements Properties," APS March Meeting, March 2–6, 2015 (Contributed Talk).

H. Paik, L. S. Bishop, D. T. McClure, S. Filipp, J. M. Gambetta, C. B. Lirakis, C. A. Ryan, J. Schlafer, M. P. da Silva, M. Soltani, M. Patel, Z. Dutton, "Novel Quantum Electro-Optic Transducer for Quantum Information Processing Using Superconducting 3D Qubits," APS March Meeting, March 2–6, 2015 (Contributed Talk).

## 2014

Christopher A. Fuchs, Blake C. Stacey, "Some Negative Remarks on Operational Approaches to Quantum Theory," to appear in "Quantum Theory: Informational Foundations and Foils," edited by G. Chiribella and R. W. Spekkens (Springer, Berlin, 2014), Dec. 31, 2014 (Proceedings Paper).

S. Guha, "Bridging the Gap to the Holevo Limit," 12th International Conference on Quantum Communication, Measurement and Computing (QCMC), Nov. 2–6, 2014 (Oral Presentation).

S. Guha, P. Hayden, H. Krovi, S. Lloyd, C. Lupo, J. H. Shapiro, M. Takeoka, M. M. Wilde, A. Winter, "Quantum Data Locking and the Locking Capacity of a Quantum Channel," 4th International Conference on Quantum Cryptography (QCrypt), Sept. 1–5, 2014 (Oral Presentation).

M. Takeoka, M. M. Wilde, S. Guha, "Fundamental Rate-Loss Tradeoff for Optical Quantum Key Distribution," 4th International Conference on Quantum Cryptography (QCrypt), Sept. 1–5, 2014 (Oral Presentation).

R. Namiki, O. Gittsovich, S. Guha, N. Lutkenhaus, "On the Inefficacy of Gaussian Regenerative Amplifiers for Quantum Optical Communication," 4th International Conference on Quantum Cryptography (QCrypt), Sept. 1–5, 2014 (Oral Presentation).



Christopher A. Fuchs, "Introducing QBism," in "New Directions in the Philosophy of Science," edited by M. C. Galavotti, D. Dieks, W. J. Gonzalez, S. Hartmann, T. Uebel, M. Weber (Springer, Berlin, 2014), pp. 385–402, July 30, 2014 (Proceedings Paper).

Christopher A. Fuchs, "Quantum Bayesianism for the Uninoculated," in "The Pauli-Jung Conjecture and Its Impact Today," edited by H. Atmanspacher and C. A. Fuchs (Imprint Academic, Exeter, U.K., 2014), pp. 69–91, July 30, 2014 (Proceedings Paper).

Christopher A. Fuchs, Ruediger Schack, "Quantum Measurement and the Paulian Idea," in "The Pauli-Jung Conjecture and Its Impact Today," edited by H. Atmanspacher and C. A. Fuchs (Imprint Academic, Exeter, U.K., 2014), pp. 93–107, July 30, 2014 (Proceedings Paper).

Christopher A. Fuchs, "Quantum Theory in a QBist Rendition," Research Seminar, Naval Research Laboratory, Washington, D.C., July 22, 2014 (Invited Seminar).

M. Takeoka, S. Guha, M. M. Wilde, "Squashed Entanglement and the Two-Way Assisted Capacities of a Quantum Channel," IEEE International Symposium on Information Theory (ISIT), June 29–July 4, 2014).

H. W. Chung, S. Guha, L. Zheng, "Superadditivity of Quantum Channel Coding Rate with Finite Blocklength Quantum Measurements," IEEE International Symposium on Information Theory (ISIT), June 29–July 4, 2014).

H. Krovi, S. Guha, Z. Dutton, M. P. da Silva, "Optimal Measurements for Symmetric Quantum States with Applications to Optical Quantum Communication," IEEE International Symposium on Information Theory (ISIT), June 29–July 4, 2014).

H. Krovi, Z. Dutton, S. Guha, C. Fuchs, W. Tittel, C. Simon, J. Slater, K. Heshami, M. Hedges, G. S. Kanter, Y. P. Huang, C. Thiel, "Long Range Quantum Key Distribution using Frequency Multiplexing in Broadband Solid State Memories," Conference on Lasers and Electro-Optics (CLEO), June 8–13, 2014 (Oral Presentation).

S. Guha, D. Towsley, C. Capar, A. Swami, P. Basu, "Layered Percolation," NetSci 2014, June 2–6, 2014 (Oral Presentation).

Christopher A. Fuchs, "A Phase Space for Qudits (Up In the Sky)," 2nd Princeton Workshop on Classical, Semi-classical and Quantum Noise, Princeton University, March 22, 2014 (Invited).

Blake Johnson, Marcus da Silva, Colm Ryan, Shelby Kimmel, Brian Donovan, "High-Confidence Quantum Gate Tomography," APS March Meeting, March 3–7, 2014 (Contributed Talk).

M. Ware, B. Johnson, J. Gambetta, C. Ryan, T. Ohki, J. Chow, B. L. T. Plourde, "Cross-Resonance Interactions Between Superconducting Qubits with Variable Detuning," APS Meeting, March 3–7, 2014 (Contributed).

Christopher A. Fuchs, "Quantum Theory from Quantum Information? (What Would Feynman Say?)," Physics Colloquium, City College of New York, New York, Feb. 24, 2014 (Invited).

Christopher A. Fuchs, "Quantum Theory from Quantum Information? (What Would Feynman Say?)," Colloquium, Max Planck Institute for Quantum Optics, Garching, Germany, Feb. 11, 2014 (Invited).

Christopher A. Fuchs, "Schroedinger's Equation Born Again," 44th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, Jan. 6, 2014 (Invited).

Saikat Guha, "On the Quantum Limits of Classical Communication and Secret-Key Generation over a Lossy Optical Channel," Meeting on Quantum Information Processing and Applications (QIPA), Harishchandra Research Institute (HRI), Allahabad, India, Dec. 2–8, 2013 (Invited Talk).

Christopher A. Fuchs, "Quantum Theory from Quantum Information? (What Would Feynman Say?)," International School on Quantum & Nano Computing Systems and Applications, Dayalbagh Educational Institute, Agra, India, Nov. 30, 2013 (Valedictory Talk).

S. Guha, M. Takeoka, H. Krovi, M. M. Wilde, C. Lupo, "Secret Key Generation over a Lossy Optical Channel with a Passive Quantum Eavesdropper," IEEE ICITS 2013, Singapore, Nov. 28–30, 2013 (Contributed Talk).

S. Guha, P. Hayden, H. Krovi, S. Lloyd, C. Lupo, J. H. Shapiro, M. Takeoka, M. M. Wilde, "Quantum Enigma Machines and the Locking Capacity," IEEE ICITS 2013, Singapore, Nov. 28–30, 2013 (Contributed Talk).

R. Uргаonkar, S. Guha, P. Basu, H. Tripp, T. Freeman, R. Hancock, A. Seetharam, S. Heimlicher, J. Kurose, J. Connah, "Self-Optimisation in Future Hybrid Networks," IEEE MILCOM 2013, San Diego, Nov. 18–20, 2013 (Contributed Talk, Proceedings Paper).

Christopher A. Fuchs, "Quantum Theory from Quantum Information? (What Would Feynman Say?)," 7th Workshop on Control of Quantum Correlations in Tailored Matter: Common Perspectives of Mesoscopic Systems and Quantum Gases, Schloss Reisenberg, Guenzburg, Germany, Oct. 28, 2013 (Invited).

Monika Patel, Saikat Guha, Baris I. Erkmen, Jonathan L. Habif, "Low-Low-Light Imaging Using a Pseudo-Thermal Source," Single Photon Workshop 2013, Oak Ridge, TN, Oct. 15–18 2013 (Contributed Talk).

Saikat Guha, "On the Quantum Limit of the Camera," Single Photon Workshop 2013, Oak Ridge, TN, Oct. 12, 2013 (Invited Talk).

H. Krovi, S. Guha, M. Takeoka, Z. Dutton, P. Kumar, Y. Huang, G. Kanter, "High-High-Dimensional Quantum Key Distribution using Quantum Frequency Conversion," Single Photon Workshop 2013, Oak Ridge, TN, Oct. 11, 2013 (Contributed Talk).

Saikat Guha, "Attaining the Quantum Limit of Free-Space Optical Communication Capacity," Frontiers in Optics 2013, Orlando, FL, Oct. 10, 2013 (Invited Talk).

Andrei Lapets, Marcus P. da Silva, Mike Thome, Aaron Adler, Jacob Beal, Martin Rötteler, "QuaFL: A Typed DSL for Quantum Programming," 1st Annual Workshop on Functional Programming Concepts in Domain-Specific Languages, Sept. 25–27, 2013 (Contributed Talk).

Richard Lazarus, Assaf Kfoury (Chairs), "Functional Programming Concepts in Domain Specific Languages," International Conference on Functional Programming, Sept. 22, 2013 (Workshop).

Saikat Guha, "Structured Simulations of Continuous Variable Quantum Dynamics and its Applications to Optical Communications," Quantum Simulations Workshop (QS2013), Indian Institute of Science (IISc), Bangalore, India, Sept. 2–3 2013 (Invited Talk).

S. Guha, M. Takeoka, H. Krovi, M. M. Wilde, C. Lupo, "Secret Key Generation over a Lossy Optical Channel with a Passive Quantum Eavesdropper: Capacity Bounds and New Explicit Protocols," AQIS 2013, Chennai, India, Aug. 25–30, 2013 (Contributed Poster).



## 2013

Saikat Guha, "On Attaining the Quantum Limit of Classical Optical Communication," Institute for Quantum Computing (IQC), Waterloo, Ontario, Aug. 14, 2013 (Invited Talk).

Jonathan L. Habif, Saikat Guha, Regina Hain, Zachary Dutton, "Polar Coded Optical Communications with Weak Coherent States," 2013 Conference on Lasers and Electro-Optics: Laser Science to Photonic Applications, June 9–13, 2013 (Contributed).

J. L. Habif, S. Guha, Z. Dutton, "Polar Coded PPM Communication," CLEO 2013, San Jose, NM, June 9–14, 2013 (Contributed Talk).

P. Basu, C. K. Chau, R. Irwin, S. Guha, R. Gibbens, "Multicasting Under Multi-Domain and Hierarchical Constraints," IEEE WiOpt 2013, Tsukuba, Japan, May 13–17, 2013 (Contributed Talk, Proceedings Paper).

Kin Chung Fong, "Toward Graphene-Based Microwave Photon Counter," APS March Meeting, March 19, 2013 (Invited Talk).

Marcus Silva, Shelby Kimmel, Blake Johnson, Colm Ryan, Thomas Ohki, "Robust Tomography using Randomized Benchmarking," APS March Meeting Baltimore, MD, March 18–22, 2013 (Contributed Talk).

Monika Patel, Jian Chen, Jonathan L. Habif, "Utilization of an Electron Multiplying CCD Camera for Applications in Quantum Information Processing," APS March Meeting, March 18–22, 2013 (Contributed talk).

Colm Ryan, Blake Johnson, Marcus P. da Silva, Shelby Kimmel, Thomas Ohki, "Implementation of a Robust Tomography Toolbox," APS March Meeting Baltimore, MD, March 18–22, 2013 (Contributed Talk).

Saikat Guha, "Optical Receiver Designs to Attain the Quantum-Limited Capacity of Optical Communications," IBM Physical Sciences Seminar, Yorktown Heights, NY, March 15, 2013 (Invited Talk).

Saikat Guha, "Quantum Limits of Optical Communication," iQuise Seminar at MIT, Feb. 12, 2013 (Invited Talk).

Saikat Guha, "Capacity and Structured Receiver Designs for Quantum-Limited Optical Communications," Physics Colloquium at ETH, Feb. 10, 2013 (Invited Talk).

Saikat Guha, "Attaining the Quantum Limit of Optical Communications," The 43rd Winter Colloquium on Physics of Quantum Electronics, Snowbird UT, Jan. 7, 2013 (Invited Talk, Workshop).

## 2012

Saikat Guha, "The Role of Quantum Optics in Realizing Optimal Detection of Laser Light Waveforms Communication at the Holevo Limit," Entangled Coherent States and its applications to Macroscopic Quantum Communications, Tamagawa University, Tokyo, Nov. 28, 2012 (Invited Talk, Workshop).

Saikat Guha, "How Many Bits can a Photon Carry?," Seminar organized by Sriram Ramaswamy, Tata Institute for Fundamental Research, Hyderabad, India, Aug. 13, 2012 (Invited Talk, Seminar).

Marcus P. da Silva, Saikat Guha, Zachary Dutton, "Optimal Discrimination of M Coherent States with a Small Quantum Computer," 11th International Conference on Quantum Communication, Measurement and Computation (QCMC), Aug. 3, 2012 (Contributed Talk).

Saikat Guha, Mark M. Wilde, "Polar Coding to Achieve the Holevo Capacity of a Pure-Loss Optical Channel," International Symposium on Information Theory (ISIT), Cambridge, MA, July 2, 2012 (Contributed Talk, Proceedings Paper).

## 2012

Saikat Guha, Ranjith Nair, Brent J. Yen, Jeffrey H. Shapiro, Stefano Pirandola, "Quantum M-ary Phase Shift Keying," International Symposium on Information Theory (ISIT), Cambridge, MA, July 2, 2012 (Contributed Talk, Proceedings Paper).

Mark M. Wilde, Saikat Guha, Si-Hui Tan, Seth Lloyd, "Explicit Receivers for Optical Communication and Quantum Reading," International Symposium on Information Theory (ISIT), Cambridge, MA, July 2, 2012 (Contributed Talk, Proceedings Paper).

Saikat Guha, "Attaining the Holevo Limit for Optical Communication: Optimal Codes and Joint Detection Receivers," Seminar organized by Prem Kumar, Northwestern University, June 21, 2012 (Invited Talk, Seminar).

Saikat Guha, Jeffrey H. Shapiro, Zachary Dutton, Ranjith Nair, Brent J. Yen, Mark M. Wilde, Si-Hui Tan, "Capacity of Quantum Reading," McGill University CQIL/CS seminar, March 29, 2012 (Invited Talk, Seminar).

Marcus P. da Silva, J. M. Gambetta, "Joint Tomography of State Preparations and Measurements," APS March Meeting, Feb. 27–March 2, 2012 (Contributed Talk).

Saikat Guha, Mark M. Wilde, "Polar Codes for Achieving the Classical Capacity of a Quantum Channel," APS March Meeting, Feb. 27, 2012 (Contributed Talk).

Zachary Dutton, Saikat Guha, Jian Chen, Jonathan Habif, Richard Lazarus, "Improved Coded Optical Communication Error Rates Using Joint Detection Receivers," APS March Meeting, Feb. 27, 2012 (Contributed Talk).

Olivier Landon-Cardinal, Marcus P. da Silva, Steven T. Flammia, Yi-Kai Liu, David Poulin, "Practical Characterization of Quantum Devices Without Tomography," APS March Meeting, Feb. 27–March 2, 2012 (Contributed Talk).

Saikat Guha, "Attaining the Ultimate Limit of Classical Information Transmission Over an Optical Channel," Seminar organized by Warren Grice, Oak Ridge National Laboratory, Feb. 2, 2012 (Invited Talk, Seminar).

## 2011

Olivier Landon-Cardinal, Marcus P. da Silva, Steven T. Flammia, Yi-Kai Liu, David Poulin, "Practical Characterization of Quantum Devices Without Tomography," Quantum Information Processing (QIP) 2012 workshop, Dec. 12–16, 2011 (Contributed Talk).

## 2005

Richard Lazarus, Barry Silverman (Chairs), "Symposium on New Ideas for Human Behavior Model Interchange & Inter-Operation," Conference on Behavior Representation in Modeling and Simulation, May 10, 2005 (Symposium).