

## Mark M. Wilde

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Associate Professor  
School of Electrical and Computer Engineering  
Rhodes Hall  
Cornell University  
Ithaca, New York, USA 14850

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### Education

**University of Southern California,**  
Ph.D., Electrical Engineering,  
Los Angeles, California, August 2008.

**Tulane University,**  
M.S., Electrical Engineering,  
New Orleans, Louisiana, August 2004.

**Texas A&M University,**  
B.S., Computer Engineering,  
College Station, Texas, May 2002.

### Academic and Research Experience

Associate Professor  
Cornell University  
Teaching courses on quantum information theory and quantum computation. Working with students and postdocs on research topics in quantum information theory and quantum computation. Fields member of the Cornell School of Applied and Engineering Physics and the Cornell School of Computer Science.

July 2022—present

Ithaca, New York

Visiting Scholar  
Pembroke College, University of Cambridge  
Collaborated with Prof. Nilanjana Datta and her group members on research topics in quantum information theory. Delivered lecture entitled “Postselected quantum hypothesis testing” at the workshop “Mathematics of Quantum Information Theory and Many-body Systems.”

October 2022

Cambridge, UK

Visiting Associate Professor  
Cornell University

July 2021—July 2022

Ithaca, New York

Associate Professor  
Louisiana State University  
Taught courses on quantum information theory and quantum computation. Worked with students and postdocs on research topics in quantum information theory and quantum computation.

August 2018—June 2022

Baton Rouge, Louisiana

Visiting Professor (Sabbatical Leave)  
Patrick Hayden, Stanford University  
Collaborated with group members of Patrick Hayden’s research group within the Stanford Institute for Theoretical Physics at Stanford University.

January 2020—December 2020

Stanford, California

Assistant Professor  
Louisiana State University

August 2013—August 2018

Baton Rouge, Louisiana

Visiting Professor  
Seth Lloyd and Jeffrey Shapiro, MIT  
Developed the notion of the “locking capacity” of a quantum channel and proved several properties of it for certain channels. Proved that a strong converse theorem holds for the classical capacity of the pure-loss bosonic channel when imposing a maximum photon number constraint. Identified a second-order coding rate for the pure-loss bosonic channel.

June 2013—August 2013

Boston, Massachusetts

Visiting Professor  
Andreas Winter, Autonomous Univ. of Barcelona  
Proved that it is possible to violate the no-cloning theorem of quantum mechanics if one is allowed access to a closed timelike curve behaving according to the model of David Deutsch. Proved that a strong converse theorem holds for the classical capacity of entanglement-breaking and Hadamard channels.

April 2013—May 2013

Barcelona, Spain

Postdoctoral Fellow  
Patrick Hayden, McGill University  
Completed a 670-page textbook on quantum information theory (published by Cambridge University Press). Constructed polar codes for transmitting classical, private, and quantum data. Furthered the theory of quantum rate distortion (lossy quantum data compression). Advanced network quantum information theory with the discovery of a quantum simultaneous decoder. Determined channels for which two full triple trade-off regions are tractable, implying that we have a complete understanding of the communication abilities of these channels for classical communication, quantum communication, and entanglement consumption/generation and for public classical communication, private classical communication, and secret key consumption/generation. Determined a relation between the correlations available in Leggett-Garg tests of macrorealism and the cut vectors from the cut polytope in polyhedral combinatorics. Showed how postselected closed timelike curves enable enhanced information processing abilities. Determined achievable rates for the discrete memoryless and bosonic quantum interference channel. Developed a theory of entanglement-assisted quantum turbo codes and simulated their performance.

October 2009—April 2013

Montreal, Quebec

Visitor  
Andreas Winter, Centre for Quantum  
Technology, National University of Singapore  
Proved trade-off capacity theorems for the transmission of classical and quantum information over an entanglement-assisted quantum channel.

October 2008—December 2008

Singapore

Visitor  
Martin Rötteler, NEC Laboratories America  
Investigated the simulation of entanglement-assisted quantum codes under the assumption that entanglement may not be ideal. Investigated improving performance of the algorithm for encoding general quantum convolutional codes.

September 2008

Princeton, New Jersey

Research Assistant  
Todd A. Brun, University of Southern California  
Developed several methods for error correction of quantum information including entanglement-assisted quantum convolutional coding, convolutional entanglement distillation, and entanglement-assisted operator error correction for continuous-variable systems. Derived several formulae that determine the number of entangled qubits that several variations of an entanglement-assisted quantum code require. Developed the continuous-variable coherent channel.

September 2006—August 2008

Los Angeles, California

Research Assistant  
Jonathan P. Dowling, Louisiana State University  
Developed a linear-optical implementation of a controlled-phase gate. Discovered a method to implement the coherent channel experimentally in a linear-optical system.

Summer 2006, 2007

Baton Rouge, Louisiana

Research Assistant  
Bart Kosko, University of Southern California  
September 2005–September 2006  
Los Angeles, California  
Developed a model for stochastic resonance in a quantum-optical system. Highlighted the applications of this model in quantum key distribution. Also constructed models for stochastic resonance in quantum teleportation and continuous-variable superdense coding.

## Industry Experience

Quantum Information Scientist  
Science Applications International Corporation  
January–October 2009  
Arlington, Virginia  
Developed the theory of a quantum shift register. Such a device may be useful in the implementation of a quantum error correction code for quantum communication. Proved the ultimate capability of a noisy quantum channel for consuming or generating noiseless quantum communication, noiseless classical communication, and noiseless entanglement. Proved the ultimate capability of a noisy quantum channel and a secret key to generate noiseless public communication and noiseless private communication. Developed a Leggett-Garg test for “quantumness” in a biomolecule.

Summer Intern  
Jet Propulsion Laboratory  
Summer 2005  
Pasadena, California  
Developed a low complexity, lossless image software in the C language that compresses hyperspectral images obtained from the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS). Wrote a specialized tool to select specific regions of a hyperspectral image for output to a new image.

## Current Research Grants

3. “Quantum Programs for Simulating Open Systems,” Air Force Office of Scientific Research FA2386-24-1-4069, \$600K, September 2024–September 2027.
2. “Quantum Algorithms and Entanglement Verification Methods for Communication and Networking,” Air Force Research Laboratory FA8750-23-2-0031, \$826K, September 2023–September 2026.
1. “Frontiers of Quantum Shannon Theory,” National Science Foundation #2329662, \$600K, December 2023–November 2026.

## Past Research Grants

13. International Collaboration Increment for “Quantifying and Optimizing the Performance of Continuous-Variable Quantum Logic Operations,” National Science Foundation #2304816, \$30K, July 2020–June 2024.
12. “Quantifying and Optimizing the Performance of Continuous-Variable Quantum Logic Operations,” National Science Foundation #2304816, \$300K, July 2020–June 2024.
11. “Device-Independent Quantum Information,” Air Force Office of Scientific Research, \$257K, July 2020–July 2023.
10. International Collaboration Increment for “Resource Theories of Quantum Channels,” National Science Foundation #1907615, \$30K, July 2020–October 2023.
9. “Resource Theories of Quantum Channels,” National Science Foundation #1907615, \$456K, October 2019–February 2024.
8. “Recoverability and Markovianity in Quantum Information,” National Science Foundation #1714215, \$400K, September 2017–September 2021.
7. “Quantum Security for Communication,” LSU Economic Development Assistantship, \$100K, July 2016–July 2020.

6. “Communications and Networking with Quantum operationally-Secure Technology for Maritime Deployment,” Office of Naval Research #N00014-16-C2069, \$300K, September 2016–September 2019, Joint with Jeffrey H. Shapiro (MIT), and Saikat Guha (Raytheon BBN Technologies, University of Arizona).
5. “Covert Communication using Quantum Mechanical Effects,” Louisiana State University Board of Regents, \$7K, May 2016–October 2016.
4. “Short Course on Quantum Information Theory,” APS-IUSSTF Professorship Award in Physics, \$4K, June 2014.
3. “Closed Timelike Curves and Quantum Information Processing,” Foundational Questions Institute, \$5K, January 2014–December 2014.
2. “CAREER: Theoretical and Practical Aspects of Quantum Communication,” National Science Foundation, \$500K, May 2014–May 2019 (NSF Career Grant).
1. “Quantum Secured Communications,” Defense Advanced Research Projects Agency under the Macroscopic Quantum Communications (Quiness) program #W31P4Q-12-1-0019, \$150K, September 2012–September 2015, Joint with Jeffrey H. Shapiro (MIT), Seth Lloyd (MIT), Saikat Guha (Raytheon BBN Technologies).

## Books

2. Mark M. Wilde, “Quantum Information Theory,” Published by *Cambridge University Press* in June 2013. Second edition published in February 2017. Book preprint “From Classical to Quantum Shannon Theory,” available at <http://markwilde.com/qit-notes.pdf> and arXiv:1106.1445, 774 pages, 301 exercises, 81 figures. This book has been used in graduate courses on quantum information theory at Caltech, University of Cambridge, McGill University, University of Southern California, University of Bristol, University of California, Davis, University of Washington, Leibniz Universitat Hannover, and Louisiana State University.
1. Sumeet Khatri and Mark M. Wilde, “Principles of Quantum Communication Theory: A Modern Approach.” Book preprint available at <https://arxiv.org/abs/2011.04672v2>. 1240 pages, 60 figures.

## Journal Articles

arXiv identifier: [http://arxiv.org/a/wilde\\_m\\_1](http://arxiv.org/a/wilde_m_1)

Google Scholar profile: <http://scholar.google.com/citations?user=vANLRiYAAAAJ&hl>

194. Vishal Singh, Mark M. Wilde, “Unextendible entanglement of quantum channels,” *IEEE Transactions on Information Theory*, vol. 71, no. 8, pages 6002-6040, August 2025. arXiv:2407.15944
193. Jingxuan Chen, Hanna Westerheim, Zoë Holmes, Ivy Luo, Theshani Nuradha, Dhruvil Patel, Soorya Rethinasamy, Kathie Wang, Mark M. Wilde, “QSlack: A slack-variable approach for variational quantum semi-definite programming,” *Physical Review A*, vol. 112, no. 2, page 022607, August 2025. arXiv:2312.03830
192. Vishal Singh, Mark M. Wilde, “Extendibility limits quantum-secured communication and key distillation,” *Reports on Progress in Physics*, vol. 88, no. 6, page 067601, June 2025. arXiv:2410.21393
191. Nana Liu, Qisheng Wang, Mark M. Wilde, Zhicheng Zhang, “Quantum algorithms for matrix geometric means,” *npj Quantum Information*, vol. 11, no. 101, June 2025. arXiv:2405.00673
190. Hao-Chung Cheng, Nilanjana Datta, Nana Liu, Theshani Nuradha, Robert Salzmann, Mark M. Wilde, “An invitation to the sample complexity of quantum hypothesis testing,” *npj Quantum Information*, volume 11, Article number 94, June 2025. arXiv:2403.17868

189. Theshani Nuradha, Hemant K. Mishra, Felix Leditzky, Mark M. Wilde “Multivariate Fidelities,” *Journal of Physics A*, vol. 58, no. 16, page 165304, April 2025. arXiv:2404.16101
188. Aby Philip, Mark M. Wilde, “Device-Independent Certification of Multipartite Distillable Entanglement,” *Physical Review A*, vol. 111, no. 1, page 012436, January 2025. arXiv:2408.01357.
187. Aliza U. Siddiqui and Mark M. Wilde, “Quantifying the performance of bidirectional quantum teleportation,” *Canadian Journal of Physics*, vol. 103, no. 2, pages 174–214, February 2025. arXiv:2010.07905
186. Soorya Rethinasamy, Margarite L. LaBorde, Mark M. Wilde, “Quantum Computational Complexity and Symmetry,” *Canadian Journal of Physics*, vol. 103, no. 2, pages 215–239, February 2025. arXiv:2309.10081
185. Theshani Nuradha, Mark M. Wilde, “Contraction of Private Quantum Channels and Private Quantum Hypothesis Testing,” *IEEE Transactions on Information Theory*, vol. 71, no. 3, pages 1851–1873, March 2025. arXiv:2406.18651
184. Soorya Rethinasamy, Margarite L. LaBorde, Mark M. Wilde, “Logarithmic-Depth Quantum Circuits for Hamming Weight Projections,” *Physical Review A* vol. 110, no. 5, page 052401, November 2024. arXiv:2404.07151
183. Gilad Gour, Mark M. Wilde, Sarah Brandsen, Isabelle Jianing Geng, “Inevitability of knowing less than nothing,” *Quantum* vol. 8, page 1529, November 2024. arXiv:2208.14424
182. Kaiyuan Ji, Bartosz Regula, Mark M. Wilde, “Postselected communication over quantum channels,” *International Journal of Quantum Information*, vol. 22, no. 05, page 2440012, August 2024 (invited special issue celebrating the 80th birthday of Alexander Holevo). arXiv:2308.02583
181. Theshani Nuradha, Ziv Goldfeld, Mark M. Wilde, “Quantum Pufferfish Privacy: A Flexible Privacy Framework for Quantum Systems,” *IEEE Transactions on Information Theory*, vol. 70, no. 8, pages 5731–5762, August 2024. arXiv:2306.13054
180. Zixin Huang, Ludovico Lami, Mark M. Wilde, “Exact quantum sensing limits for bosonic dephasing channels,” *PRX Quantum*, vol. 5, no. 2, page 020354, June 2024. arXiv:2402.05793
179. Hemant K. Mishra, Michael Nussbaum, Mark M. Wilde, “On the optimal error exponents for classical and quantum antidistinguishability,” *Letters in Mathematical Physics*, vol. 114, page 76, June 2024. arXiv:2309.03723
178. Theshani Nuradha, Mark M. Wilde, “Fidelity-Based Smooth Min-Relative Entropy: Properties and Applications,” *IEEE Transactions on Information Theory*, vol. 70, no. 6, pages 4170–4196, June 2024. arXiv:2305.05859
177. Aby Philip, Soorya Rethinasamy, Vincent Russo, Mark M. Wilde, “Schrödinger as a Quantum Programmer: Estimating Entanglement via Steering,” *Quantum* vol. 8, page 1366, June 2024. arXiv:2303.07911
176. Dhruvil Patel, Patrick J. Coles, Mark M. Wilde, “Variational Quantum Algorithms for Semidefinite Programming,” *Quantum*, vol. 8, pages 1374, June 2024. arXiv:2112.08859
175. Bartosz Regula, Ludovico Lami, Mark M. Wilde, “Postselected quantum hypothesis testing,” *IEEE Transactions on Information Theory*, vol. 70, no. 5, pages 3453–3469, May 2024. arXiv:2209.10550
174. Zixin Huang, Ben Q. Baragiola, Nicolas C. Menicucci, Mark M. Wilde, “Limited quantum advantage for stellar interferometry via continuous-variable teleportation,” *Physical Review A*, vol. 109, no. 5, page 052434, May 2024. arXiv:2311.05159
173. Hemant K. Mishra, Ludovico Lami, Prabha Mandayam, Mark M. Wilde, “Pretty good measurement for bosonic Gaussian ensembles,” *International Journal of Quantum Information*, special issue dedicated to Alexander S. Holevo on the occasion of his 80th birthday, May 2024. arXiv:2303.04949
172. Bjarne Bergh, Nilanjana Datta, Robert Salzmann, Mark M. Wilde, “Parallelization of Sequential Quantum Channel Discrimination in the Non-Asymptotic Regime,” *IEEE Transactions on Information Theory*, vol. 70, no. 4, pages 2617–2636, April 2024. arXiv:2206.08350

171. Kun Wang, Xin Wang, Mark M. Wilde “Quantifying the unextendibility of entanglement,” *New Journal of Physics*, vol. 26, page 033013, March 2024. arXiv:1911.07433
170. Ziv Goldfeld, Dhruvil Patel, Sreejith Sreekumar, Mark M. Wilde, “Quantum Neural Estimation of Entropies,” *Physical Review A*, vol. 109, no. 3, page 032431, March 2024. arXiv:2307.01171
169. Yihui Quek, Eneet Kaur, Mark M. Wilde, “Multivariate trace estimation in constant quantum depth,” *Quantum*, vol. 8, page 1220, January 2024. arXiv:2206.15405
168. Dhruvil Patel, Mark M. Wilde, “Wave Matrix Lindbladization II: General Lindbladians, Linear Combinations, and Polynomials,” *Open Systems & Information Dynamics*, vol. 30, no. 03, page 2350014, September 2023. arXiv:2309.14453
167. Rahul Bandyopadhyay, Alex H. Rubin, Marina Radulaski, Mark M. Wilde, “Efficient quantum algorithms for testing symmetries of open quantum systems,” *Open Systems & Information Dynamics*, vol. 30, no. 03, page 2350017, September 2023. arXiv:2309.02515
166. Margarite L. LaBorde, Mark M. Wilde, “Testing symmetry on quantum computers,” *Quantum*, vol. 7, page 1120, September 2023. arXiv:2105.12758
165. Rochisha Agarwal, Soorya Rethinasamy, Kunal Sharma, Mark M. Wilde, “Estimating distinguishability measures on quantum computers,” *Physical Review A*, vol. 108, no. 1, page 012409, July 2023. arXiv:2108.08406
164. Hemant K. Mishra, Samad Khabbazi Oskouei, Mark M. Wilde, “Optimal input states for quantifying the performance of continuous-variable unidirectional and bidirectional teleportation,” *Physical Review A*, vol. 107, no. 6, page 062603, June 2023. arXiv:2210.05007
163. Dhruvil Patel, Mark M. Wilde, “Wave Matrix Lindbladization I: Quantum Programs for Simulating Markovian Dynamics,” *Open Systems & Information Dynamics*, vol. 30, no. 02, page 2350010, June 2023. arXiv:2307.14932
162. Zachary P. Bradshaw, Margarite L. LaBorde, Mark M. Wilde, “Cycle Index Polynomials and Generalized Quantum Separability Tests,” *Proceedings of the Royal Society A*, vol. 479, no. 2274, page 20220733, June 2023. arXiv:2208.14596
161. Ludovico Lami, Mark M. Wilde, “Exact solution for the quantum and private capacities of bosonic dephasing channels,” *Nature Photonics*, vol. 17, pages 525–530, June 2023. arXiv:2205.05736
160. Dawei Ding, Sumeet Khatri, Yihui Quek, Peter W. Shor, Xin Wang, and Mark M. Wilde, “Bounding the forward classical capacity of bipartite quantum channels,” *IEEE Transactions on Information Theory*, vol. 69, no. 5, pages 3034–3061, May 2023. arXiv:2010.01058
159. Bartosz Regula, Ludovico Lami, Mark M. Wilde, “Overcoming entropic limitations on asymptotic state transformations through probabilistic protocols,” *Physical Review A*, vol. 107, no. 4, page 042401, April 2023. arXiv:2209.03362
158. Nic Ezzell, Elliott M. Ball, Aliza U. Siddiqui, Mark M. Wilde, Andrew T. Sornborger, Patrick J. Coles, Zoë Holmes, “Quantum Mixed State Compiling,” *Quantum Science and Technology*, vol. 8, page 035001, April 2023. arXiv:2209.00528
157. Aliza U. Siddiqui, Mark M. Wilde, “The SWAP Imposter: Bidirectional Quantum Teleportation and its Performance,” *AVS Quantum Science*, vol. 5, no. 1, page 011407, March 2023. arXiv:2210.10882
156. Tharon Holdsworth, Vishal Singh, Mark M. Wilde, “Quantifying the performance of approximate teleportation and quantum error correction via symmetric two-PPT-extendibility,” *Physical Review A*, vol. 107, no. 1, page 012428, January 2023. arXiv:2207.06931
155. Xin Wang, Mark M. Wilde, “Exact entanglement cost of quantum states and channels under PPT-preserving operations,” *Physical Review A*, vol. 107, no. 1, page 012429, January 2023. arXiv:1809.09592
154. Aby Philip, Eneet Kaur, Peter Bierhorst, Mark M. Wilde, “Multipartite Intrinsic Non-Locality and Device-Independent Conference Key Agreement,” *Quantum*, vol. 7, page 898, January 2023. arXiv:2111.02596

153. Mark M. Wilde, “On distinguishability distillation and dilution exponents,” *Quantum Information Processing*, vol. 21, no. 12, Article number 392, December 2022. arXiv:2202.12433
152. Margarite L. LaBorde, Mark M. Wilde, “Quantum Algorithms for Testing Hamiltonian Symmetry,” *Physical Review Letters*, vol. 129, no. 16, page 160503, October 2022. arXiv:2203.10017
151. András Gilyén, Seth Lloyd, Iman Marvian, Yihui Quek, Mark M. Wilde, “Quantum algorithm for Petz recovery channels and pretty good measurements,” *Physical Review Letters*, vol. 128, no. 22, page 220502, June 2022. arXiv:2006.16924
150. Christopher Vairogs, Vishal Katariya, Mark M. Wilde, “Quantum State Discrimination Circuits Inspired by Deutschian Closed Timelike Curves,” *Physical Review A*, vol. 105, no. 5, page 052434, May 2022. arXiv:2109.11549
149. Kunal Sharma, Barry C. Sanders, Mark M. Wilde, “Optimal tests for continuous-variable quantum teleportation and photodetectors,” *Physical Review Research*, vol. 4, no. 2, page 023066, April 2022. arXiv:2012.02754
148. Arshag Danageozian, Mark M. Wilde, Francesco Buscemi, “Thermodynamic Constraints on Quantum Information Gain and Error Correction: A Triple Trade-Off,” *PRX Quantum*, vol. 3, no. 2, page 020318, April 2022. arXiv:2112.05100
147. Lior Cohen, Mark M. Wilde, “Towards Optimal Quantum Ranging – Hypothesis Testing for an Unknown Return Signal,” *Physical Review Applied*, vol. 17, no. 4, page 044053, April 2022. arXiv:2109.01601
146. Ryuji Takagi, Bartosz Regula, Mark M. Wilde, “One-shot yield-cost relations in general quantum resource theories,” *PRX Quantum*, vol. 3, no. 1, page 010348, March 2022. arXiv:2110.02212
145. Eric P. Hanson, Vishal Katariya, Nilanjana Datta, Mark M. Wilde, “Guesswork with quantum side information,” *IEEE Transactions on Information Theory*, vol. 68, no. 1, pages 322–338, January 2022. arXiv:2001.03598
144. Vishal Katariya, Mark M. Wilde, “Evaluating the advantage of adaptive strategies for quantum channel distinguishability,” *Physical Review A*, vol. 104, no. 5, page 052406, November 2021. arXiv:2001.05376
143. Li Gao and Mark M. Wilde, “Recoverability for optimized quantum f-divergences,” *Journal of Physics A: Mathematical and Theoretical*, vol. 54, no. 38, page 385302, September 2021. arXiv:2008.01668
142. Robert Salzmann, Nilanjana Datta, Gilad Gour, Xin Wang, Mark M. Wilde, “Symmetric distinguishability as a quantum resource,” *New Journal of Physics*, vol. 23, Article No. 083016, August 2021. arXiv:2102.12512
141. Eneet Kaur, Siddhartha Das, Mark M. Wilde, Andreas Winter, “Resource theory of unextendibility and non-asymptotic quantum capacity,” *Physical Review A*, vol. 104, no. 2, page 022401, August 2021. arXiv:1803.10710
140. Vishal Katariya and Mark M. Wilde, “RLD Fisher information bound for multiparameter estimation of quantum channels,” *New Journal of Physics*, vol. 23, page 073040, July 2021. arXiv:2008.11178
139. Gilad Gour, Mark M. Wilde, “Entropy of a quantum channel,” *Physical Review Research*, vol. 3, no. 2, page 023096, May 2021. arXiv:1808.06980
138. Vishal Katariya, Mark M. Wilde, “Geometric distinguishability measures limit quantum channel estimation and discrimination,” *Quantum Information Processing*, vol. 20, Article no. 78, February 2021. arXiv:2004.10708
137. Eneet Kaur, Saikat Guha, Mark M. Wilde, “Asymptotic security of discrete-modulation protocols for continuous-variable quantum key distribution,” *Physical Review A*, vol. 103, no. 1, page 012412, January 2021. arXiv:1901.10099
136. Xin Wang, Mark M. Wilde, “ $\alpha$ -Logarithmic negativity,” *Physical Review A*, vol. 102, no. 3, page 032416, September 2020. arXiv:1904.10437
135. Soorya Rethinasamy, Mark M. Wilde, “Relative Entropy and Catalytic Relative Majorization,” *Physical Review Research*, vol. 2, no. 3, page 033455, September 2020. arXiv:1912.04254

134. Xin Wang and Mark M. Wilde, “Cost of quantum entanglement simplified,” *Physical Review Letters*, vol. 125, no. 4, page 040502, July 2020. arXiv:2007.14270
133. Sumeet Khatri, Kunal Sharma, Mark M. Wilde, “Information-theoretic aspects of the generalized amplitude damping channel,” *Physical Review A*, vol. 102, no. 1, page 012401, July 2020. arXiv:1903.07747
132. Mark M. Wilde, Mario Berta, Christoph Hirche, Eneet Kaur, “Amortized channel divergence for asymptotic quantum channel discrimination,” *Letters in Mathematical Physics*, vol. 100, pages 2277–2336, August 2020. arXiv:1808.01498
131. Xin Wang, Mark M. Wilde, Yuan Su, “Efficiently computable bounds for magic state distillation,” *Physical Review Letters*, vol. 124, no. 9, page 090505, March 2020. arXiv:1812.10145
130. Kunal Sharma, Mark M. Wilde, “Characterizing the performance of continuous-variable Gaussian quantum gates,” *Physical Review Research*, vol. 2, no. 1, page 013126, February 2020. arXiv:1810.12335
129. Kunal Sharma, Eyuri Wakakuwa, Mark M. Wilde, “Conditional quantum one-time pad,” *Physical Review Letters*, vol. 124, no. 5, page 050503, February 2020. arXiv:1703.02903
128. Eneet Kaur, Mark M. Wilde, Andreas Winter “Fundamental limits on key rates in device-independent quantum key distribution,” *New Journal of Physics*, vol. 22, page 023039, February 2020. arXiv:1810.05627
127. Mark M. Wilde “Optimal uniform continuity bound for conditional entropy of classical–quantum states,” *Quantum Information Processing*, vol. 19, Article number 61, January 2020. arXiv:1909.01755
126. Siddhartha Das, Stefan Bäuml, Mark M. Wilde, “Entanglement and secret-key-agreement capacities of bipartite quantum interactions and read-only memory devices,” *Physical Review A*, vol. 101, no. 1, page 012344, January 2020. arXiv:1712.00827
125. Xin Wang, Mark M. Wilde, “Resource theory of asymmetric distinguishability for quantum channels,” *Physical Review Research*, vol. 1, no. 3, page 033169, December 2019. arXiv:1907.06306
124. Xin Wang, Mark M. Wilde, “Resource theory of asymmetric distinguishability,” *Physical Review Research*, vol. 1, no. 3, page 033170, December 2019. arXiv:1905.11629
123. Siddhartha Das, Mark M. Wilde, “Quantum reading capacity: General definition and bounds,” *IEEE Transactions on Information Theory*, vol. 65, no. 11, pages 7566–7583, November 2019. arXiv:1703.03706
122. Xin Wang, Mark M. Wilde, Yuan Su, “Quantifying the magic of quantum channels,” *New Journal of Physics*, vol. 21, page 103002, October 2019. arXiv:1903.04483
121. Siddhartha Das, Mark M. Wilde, “Quantum rebound capacity,” *Physical Review A*, vol. 100, no. 3, page 030302, September 2019. arXiv:1904.10344
120. Eneet Kaur, Siddhartha Das, Mark M. Wilde, Andreas Winter, “Extendibility limits the performance of quantum processors,” *Physical Review Letters*, vol. 123, no. 7, page 070502, August 2019. arXiv:2108.03137
119. Ludovico Lami, Sumeet Khatri, Gerardo Adesso, Mark M. Wilde, “Extendibility of bosonic Gaussian states,” *Physical Review Letters*, vol. 123, no. 5, page 050501, July 2019. arXiv:1904.02692
118. Patrick J. Coles, Vishal Katariya, Seth Lloyd, Iman Marvian, Mark M. Wilde, “Entropic energy-time uncertainty relation,” *Physical Review Letters*, vol. 122, no. 10, page 100401, March 2019. arXiv:1805.07772
117. Samad Khabbazi Oskouei, Stefano Mancini, Mark M. Wilde, “Union bound for quantum information processing,” *Proceedings of the Royal Society A*, vol. 475, no. 2221, id 20180612, January 2019. arXiv:1804.08144
116. Dawei Ding, Dmitri S. Pavlichin, Mark M. Wilde, “Quantum channel capacities per unit cost,” *IEEE Transactions on Information Theory*, vol. 65, no. 1, pages 418–435, January 2019. arXiv:1705.08878
115. Stefan Bäuml, Siddhartha Das, Mark M. Wilde, “Fundamental limits on the capacities of bipartite quantum interactions,” *Physical Review Letters*, vol. 121, no. 25, page 250504, December 2018. arXiv:1812.08223

114. Mark M. Wilde, Haoyu Qi, “Energy-constrained private and quantum capacities of quantum channels,” *IEEE Transactions on Information Theory*, vol. 64, no. 12, pages 7802–7827, December 2018. arXiv:1609.01997
113. Haoyu Qi, Qingle Wang, Mark M. Wilde, “Applications of position-based coding to classical communication over quantum channels,” *Journal of Physics A: Mathematical and Theoretical*, vol. 51, no. 44, page 444002, November 2018. arXiv:1704.01361
112. Mark M. Wilde, “Entanglement cost and quantum channel simulation,” *Physical Review A*, vol. 98, no. 4, page 042320, October 2018. arXiv:1807.11939
111. Mario Berta, Fernando G. S. L. Brandao, Christian Majenz, Mark M. Wilde, “Deconstruction and conditional erasure of quantum correlations,” *Physical Review A*, vol. 98, no. 4, pages 042320, October 2018. arXiv:1609.06994
110. Marius Junge, Renato Renner, David Sutter, Mark M. Wilde, Andreas Winter, “Universal recovery from a decrease of quantum relative entropy,” *Annales Henri Poincaré*, vol. 19, no. 10, pages 2955–2978, October 2018. arXiv:1509.07127
109. Haoyu Qi, Kunal Sharma, Mark M. Wilde, “Entanglement-assisted private communication over quantum broadcast channels,” *Journal of Physics A: Mathematical and Theoretical*, vol. 51, no. 37, page 374001, September 2018. arXiv:1803.03976
108. Mark M. Wilde, “Optimized quantum  $f$ -divergences and data processing,” *Journal of Physics A: Mathematical and Theoretical*, vol. 51, no. 37, page 374002, September 2018. arXiv:1710.10252
107. Mario Berta, Fernando G. S. L. Brandao, Christian Majenz, Mark M. Wilde, “Conditional decoupling of quantum information,” *Physical Review Letters*, vol. 121, no. 4, page 040504, July 2018. arXiv:1808.00135
106. Kaushik P. Seshadreesan, Ludovico Lami, Mark M. Wilde, “Rényi relative entropies of quantum Gaussian states,” *Journal of Mathematical Physics*, vol. 59, no. 7, page 072204, July 2018. arXiv:1706.09885
105. Mark M. Wilde, “Strong and uniform convergence in the teleportation simulation of bosonic Gaussian channels,” *Physical Review A*, vol. 97, no. 6, page 062305, June 2018. arXiv:1712.00145
104. Stephanie Wehner, Mark M. Wilde, Mischa P. Woods, “Work and reversibility in quantum thermodynamics,” *Physical Review A*, vol. 97, no. 6, page 062114, June 2018. arXiv:1506.08145
103. Noah Davis, Maksim E. Shirokov, Mark M. Wilde, “Energy-constrained two-way assisted private and quantum capacities of quantum channels,” *Physical Review A*, vol. 97, no. 6, page 062310, June 2018. arXiv:1801.08102
102. Kunal Sharma, Mark M. Wilde, Sushovit Adhikari, Masahiro Takeoka. “Bounding the energy-constrained quantum and private capacities of phase-insensitive Gaussian channels,” *New Journal of Physics*, vol. 20, page 063025, June 2018. arXiv:1708.07257
101. Mario Berta, Mark M. Wilde, “Amortization does not enhance the max-Rains information of a quantum channel,” *New Journal of Physics*, vol. 20, page 053044, May 2018. arXiv:1709.04907
100. Ludovico Lami, Siddhartha Das, Mark M. Wilde, “Approximate reversal of quantum Gaussian dynamics,” *Journal of Physics A: Mathematical and Theoretical*, vol. 51, no. 12, page 125301, March 2018. arXiv:1702.04737
99. Dawei Ding and Mark M. Wilde, “Strong converse exponents for the feedback-assisted classical capacity of entanglement-breaking channels,” *Problems of Information Transmission*, vol. 54, no. 1, pages 1-19, January 2018. arXiv:1506.02228
98. Felix Leditzky, Eneet Kaur, Nilanjana Datta, Mark M. Wilde, “Approaches for approximate additivity of the Holevo information of quantum channels,” *Physical Review A*, vol. 97, no. 1, page 012332, January 2018. arXiv:1709.01111

97. Eneet Kaur, Mark M. Wilde, “Amortized entanglement of a quantum channel and approximately teleportation-simulable channels,” *Journal of Physics A: Mathematical and Theoretical*, vol. 51, no. 3, page 035303, January 2018. arXiv:1707.07721
96. Siddhartha Das, Sumeet Khatri, George Siopsis, Mark M. Wilde, “Fundamental limits on quantum dynamics based on entropy change,” *Journal of Mathematical Physics*, vol. 59, no. 1, page 012205, January 2018. arXiv:1707.06584
95. Eneet Kaur, Mark M. Wilde, “Upper bounds on secret key agreement over lossy thermal bosonic channels,” *Physical Review A*, vol. 96, no. 6, page 062318, December 2017. arXiv:1706.04590
94. Eneet Kaur, Mark M. Wilde, “Relative entropy of steering: On its definition and properties,” *Journal of Physics A: Mathematical and Theoretical*, vol. 50, no. 46, page 465301, November 2017. arXiv:1612.07152
93. Qingle Wang, Siddhartha Das, Mark M. Wilde, “Hadamard quantum broadcast channels,” *Quantum Information Processing*, vol. 16, no. 10, article no. 248, October 2017. arXiv:1611.07651
92. Mark M. Wilde, “Position-based coding and convex splitting for private communication over quantum channels,” *Quantum Information Processing*, vol. 16, no. 10, article no. 264, October 2017. arXiv:1703.01733
91. Masahiro Takeoka, Kaushik P. Seshadreesan, Mark M. Wilde, “Unconstrained capacities of quantum key distribution and entanglement distillation for pure-loss bosonic broadcast channels,” *Physical Review Letters*, vol. 119, no. 15, page 150501, October 2017. arXiv:1706.06746
90. Mark M. Wilde, Marco Tomamichel, Seth Lloyd, Mario Berta, “Gaussian hypothesis testing and quantum illumination,” *Physical Review Letters*, vol. 119, no. 12, page 120501, September 2017. arXiv:1608.06991
89. Eneet Kaur, Xiaoting Wang, Mark M. Wilde, “Conditional mutual information and quantum steering,” *Physical Review A*, vol. 96, no. 2, page 022332, August 2017. arXiv:1612.03875
88. Marius Lemm and Mark M. Wilde, “Information-theoretic limitations on approximate quantum cloning and broadcasting,” *Physical Review A*, vol. 96, no. 1, page 012304, July 2017. arXiv:1608.07569
87. Mark M. Wilde, Marco Tomamichel, Mario Berta, “Converse bounds for private communication over quantum channels,” *IEEE Transactions on Information Theory*, vol. 63, no. 3, pages 1792–1817, March 2017. arXiv:1602.08898
86. Todd A. Brun and Mark M. Wilde, “Simulations of closed timelike curves,” *Foundations of Physics*, vol. 47, no. 3, pages 375–391, March 2017. arXiv:1504.05911
85. Haoyu Qi and Mark M. Wilde, “Capacities of quantum amplifier channels,” *Physical Review A*, vol. 95, no. 1, page 012339, January 2017. arXiv:1605.04922
84. Marco Tomamichel, Mark M. Wilde, Andreas Winter, “Strong converse rates for quantum communication,” *IEEE Transactions on Information Theory*, vol. 63, no. 1, pages 715–727, January 2017. arXiv:1406.2946
83. Mark M. Wilde, “Squashed entanglement and approximate private states,” *Quantum Information Processing*, vol. 15, no. 11, pages 4563–4580, November 2016. arXiv:1606.08028
82. Tom Cooney, Christoph Hirche, Ciara Morgan, Jonathan P. Olson, Kaushik P. Seshadreesan, John Watrous, Mark M. Wilde, “Operational meaning of quantum measures of recovery,” *Physical Review A*, vol. 94, no. 2, page 022310, August 2016. arXiv:1512.05324
81. Felix Leditzky, Mark M. Wilde, Nilanjana Datta, “Strong converse theorems using Rényi entropies,” *Journal of Mathematical Physics*, vol. 57, no. 8, page 082202, August 2016. arXiv:1506.02635
80. Mario Berta, Stephanie Wehner, Mark M. Wilde, “Entropic uncertainty and measurement reversibility,” *New Journal of Physics*, vol. 18, no. 7, page 073004, July 2016. arXiv:1511.00267
79. Francesco Buscemi, Siddhartha Das, Mark M. Wilde, “Approximate reversibility in the context of entropy gain, information gain, and complete positivity,” *Physical Review A*, vol. 93, no. 6, page 062314, June 2016. arXiv:1601.01207

78. Cosmo Lupo, Mark M. Wilde, Seth Lloyd, “Quantum data hiding in the presence of noise,” *IEEE Transactions on Information Theory*, vol. 62, no. 6, pages 3745–3756, June 2016. arXiv:1507.06038
77. Nilanjana Datta, Marco Tomamichel, and Mark M. Wilde, “On the second-order asymptotics for entanglement-assisted communication,” *Quantum Information Processing*, vol. 15, no. 6, pages 2569–2591, June 2016. arXiv:1405.1797
76. Tom Cooney, Milan Mosonyi, and Mark M. Wilde, “Strong converse exponents for a quantum channel discrimination problem and quantum-feedback-assisted communication,” *Communications in Mathematical Physics*, vol. 344, no. 3, pages 797–829, June 2016. arXiv:1408.3373
75. Kaushik P. Seshadreesan, Masahiro Takeoka, and Mark M. Wilde, “Bounds on entanglement distillation and secret key agreement for quantum broadcast channels,” *IEEE Transactions on Information Theory*, vol. 62, no. 5, pages 2849–2866, May 2016. arXiv:1503.08139
74. Frédéric Dupuis and Mark M. Wilde, “Swiveled Rényi entropies,” *Quantum Information Processing*, vol. 15, no. 3, pages 1309–1345, March 2016. arXiv:1506.00981
73. Mark M. Wilde, Joseph M. Renes, and Saikat Guha, “Second-order coding rates for pure-loss bosonic channels,” *Quantum Information Processing*, vol. 15, no. 3, pages 1289–1308, March 2016. arXiv:1408.5328
72. Christoph Hirche, Ciara Morgan, and Mark M. Wilde, “Polar codes in network quantum information theory,” *IEEE Transactions on Information Theory*, vol. 62, no. 2, pages 915–924, February 2016. arXiv:1409.7246
71. Nilanjana Datta and Mark M. Wilde, “Quantum Markov chains, sufficiency of quantum channels, and Rényi information measures,” *Journal of Physics A: Mathematical and Theoretical*, vol. 48, no. 50, page 505301, November 2015. arXiv:1501.05636
70. Mario Berta, Marius Lemm, and Mark M. Wilde, “Monotonicity of quantum relative entropy and recoverability,” *Quantum Information and Computation*, vol. 15, no. 15 & 16, pages 1333–1354, November 2015. arXiv:1412.4067
69. Kaushik P. Seshadreesan and Mark M. Wilde, “Fidelity of recovery, squashed entanglement, and measurement recoverability,” *Physical Review A*, vol. 92, page 042321, October 2015. arXiv:1410.1441
68. Mark M. Wilde, “Recoverability in quantum information theory,” *Proceedings of the Royal Society A*, vol. 471, no. 2182, page 20150338, October 2015. arXiv:1505.04661
67. Kaushik P. Seshadreesan, Mario Berta, and Mark M. Wilde, “Rényi squashed entanglement, discord, and relative entropy differences,” *Journal of Physics A: Mathematical and Theoretical*, vol. 48, article no. 395303, September 2015. arXiv:1410.1443
66. Mark M. Wilde, “Multipartite quantum correlations and local recoverability,” *Proceedings of the Royal Society A*, vol. 471, no. 2177, May 2015. arXiv:1412.0333
65. Bhaskar Roy Bardhan, Raul Garcia-Patron, Mark M. Wilde, and Andreas Winter, “Strong converse for the classical capacity of optical quantum communication channels,” *IEEE Transactions on Information Theory*, vol. 61, no. 4, pages 1842–1850, April 2015. arXiv:1401.4161
64. Kevin Milner, Gus Gutoski, Patrick Hayden, and Mark M. Wilde, “Quantum interactive proofs and the complexity of separability testing,” *Theory of Computing*, vol. 11, article 883, pages 101–145, March 2015. arXiv:1308.5788
63. Manish K. Gupta and Mark M. Wilde, “Multiplicativity of completely bounded  $p$ -norms implies a strong converse for entanglement-assisted capacity,” *Communications in Mathematical Physics*, vol. 334, no. 2, pages 867–887, March 2015. arXiv:1310.7028
62. Mario Berta, Kaushik P. Seshadreesan, and Mark M. Wilde, “Rényi generalizations of quantum information measures,” *Physical Review A*, vol. 91, no. 2, page 022333, February 2015. arXiv:1502.07977
61. Mario Berta, Kaushik P. Seshadreesan, and Mark M. Wilde, “Rényi generalizations of the conditional quantum mutual information,” *Journal of Mathematical Physics*, vol. 56, no. 2, page 022205, February 2015. arXiv:1403.6102

60. Mario Berta, Joseph M. Renes, and Mark M. Wilde, “Identifying the Information Gain of a Quantum Measurement,” *IEEE Transactions on Information Theory*, vol. 60, no. 12, pages 7987–8006, December 2014. arXiv:1301.1594
59. Stefano Mancini, Roberto Pierini, and Mark M. Wilde, “Preserving information from the beginning to the end of time in a Robertson-Walker universe,” *New Journal of Physics*, vol. 16, page 123049, December 2014. arXiv:1405.2510
58. Masahiro Takeoka, Saikat Guha, and Mark M. Wilde, “Fundamental rate-loss tradeoff for optical quantum key distribution,” *Nature Communications* vol. 5, no. 8, page 5235, October 2014. arXiv:1504.06390
57. Mark M. Wilde, Andreas Winter, and Dong Yang, “Strong converse for the classical capacity of entanglement-breaking and Hadamard channels via a sandwiched Rényi relative entropy,” *Communications in Mathematical Physics* vol. 331, no. 2, pages 593–622, October 2014. arXiv:1306.1586
56. Cosmo Lupo, Mark M. Wilde, and Seth Lloyd, “Robust quantum data locking from phase modulation,” *Physical Review A*, vol. 90, no. 2, page 022326, August 2014. arXiv:1311.5212
55. Masahiro Takeoka, Saikat Guha, and Mark M. Wilde, “The squashed entanglement of a quantum channel,” *IEEE Transactions on Information Theory*, vol. 60, no. 8, pages 4987–4998, August 2014. arXiv:1310.0129
54. Joseph M. Renes and Mark M. Wilde, “Polar codes for private and quantum communication over arbitrary channels,” *IEEE Transactions on Information Theory*, vol. 60, no. 6, pages 3090–3103, June 2014. arXiv:1212.2537
53. Mark M. Wilde and Andreas Winter, “Strong converse for the classical capacity of the pure-loss bosonic channel,” *Problems of Information Transmission*, vol. 50, no. 2, pages 117–132, April 2014. arXiv:1308.6732
52. Ching-Yi Lai, Todd A. Brun, and Mark M. Wilde, “Dualities and identities for entanglement-assisted quantum codes,” *Quantum Information Processing*, vol. 13, no. 4, pages 957–990, April 2014. arXiv:1010.5506
51. Francesco Buscemi, Michael J. W. Hall, Masanao Ozawa, and Mark M. Wilde, “Noise and disturbance in quantum measurements: an information-theoretic approach,” *Physical Review Letters*, vol. 112, no. 5, page 050401, February 2014. arXiv:1310.6603
50. Bhaskar Roy Bardhan and Mark M. Wilde, “Strong converse rates for classical communication over thermal and additive noise bosonic channels,” *Physical Review A*, vol. 89, no. 2, page 022302, February 2014. arXiv:1312.3287
49. Mark M. Wilde, Min-Hsiu Hsieh, and Zunaira Babar, “Entanglement-assisted quantum turbo codes,” *IEEE Transactions on Information Theory*, vol. 60, no. 2, pages 1203–1222, February 2014. arXiv:1010.1256
48. Saikat Guha, Patrick Hayden, Hari Krovi, Seth Lloyd, Cosmo Lupo, Jeffrey H. Shapiro, Masahiro Takeoka, and Mark M. Wilde, “Quantum enigma machines and the locking capacity of a quantum channel,” *Physical Review X*, vol. 4, no. 1, page 011016, January 2014. arXiv:1307.5368
47. Todd A. Brun, Mark M. Wilde, and Andreas Winter, “Quantum state cloning using Deutschian closed timelike curves,” *Physical Review Letters*, vol. 111, page 190401, November 2013. arXiv:1306.1795
46. Mark M. Wilde, Nilanjana Datta, Min-Hsiu Hsieh, and Andreas Winter, “Quantum rate distortion coding with auxiliary resources,” *IEEE Transactions on Information Theory*, vol. 59, no. 10, pages 6755–6773, October 2013. arXiv:1212.5316
45. Monireh Houshmand and Mark M. Wilde, “Recursive quantum convolutional encoders are catastrophic: A simple proof,” *IEEE Transactions on Information Theory*, vol. 59, no. 10, pages 6724–6731, October 2013. arXiv:1209.0082
44. Mark M. Wilde and Saikat Guha, “Polar codes for degradable quantum channels,” *IEEE Transactions on Information Theory*, vol. 59, no. 7, pages 4718–4729, July 2013. arXiv:1109.5346

43. Ching-Yi Lai, Todd A. Brun, and Mark M. Wilde, “Duality in entanglement-assisted quantum error correction,” *IEEE Transactions on Information Theory*, vol. 59, no. 6, pages 4020–4024, June 2013. arXiv:1010.5506
42. Nilanjana Datta, Min-Hsiu Hsieh, Mark M. Wilde, and Andreas Winter, “Quantum-to-classical rate distortion coding,” *Journal of Mathematical Physics*, vol. 54, no. 4, page 042201, April 2013. arXiv:1210.6962
41. Mark M. Wilde and Saikat Guha, “Polar codes for classical-quantum channels,” *IEEE Transactions on Information Theory*, vol. 59, no. 2, pages 1175–1187, February 2013. arXiv:1109.2591
40. Monireh Houshmand, Saied Hosseini-Khayat, Mark M. Wilde, “Minimal-memory, non-catastrophic, polynomial-depth quantum convolutional encoders,” *IEEE Transactions on Information Theory*, vol. 59, no. 2, pages 1198–1210, February 2013. arXiv:1105.0649
39. Cosmo Lupo, Stefano Mancini, and Mark M. Wilde, “Stochastic resonance in Gaussian quantum channels,” *Journal of Physics A: Mathematical and Theoretical*, vol. 46, no. 4, page 045306, February 2013. arXiv:1109.4147
38. Nilanjana Datta, Min-Hsiu Hsieh, Mark M. Wilde, “Quantum rate distortion, reverse Shannon theorems, and source-channel separation,” *IEEE Transactions on Information Theory*, vol. 59, no. 1, pages 615–630, January 2013. arXiv:1108.4940
37. Shen Chen Xu and Mark M. Wilde, “Sequential, successive, and simultaneous decoders for entanglement-assisted classical communication,” *Quantum Information Processing*, vol. 12, no. 1, pages 641–683, January 2013. arXiv:1107.1347
36. Mark M. Wilde, Patrick Hayden, and Saikat Guha, “Quantum trade-off coding for bosonic communication,” *Physical Review A*, vol. 86, page 062306, December 2012. arXiv:1105.0119
35. Mark M. Wilde and Min-Hsiu Hsieh, “The quantum dynamic capacity formula of a quantum channel,” *Quantum Information Processing*, vol. 11, no. 6, pages 1431–1463, December 2012. arXiv:1004.0458
34. Mark M. Wilde and Min-Hsiu Hsieh, “Public and private resource trade-offs for a quantum channel,” *Quantum Information Processing*, vol. 11, no. 6, pages 1465–1501, December 2012. arXiv:1005.3818
33. Mark M. Wilde, Patrick Hayden, Francesco Buscemi, and Min-Hsiu Hsieh, “The information-theoretic costs of simulating quantum measurements,” *Journal of Physics A: Mathematical and Theoretical*, vol. 45, no. 45, page 453001, November 2012. arXiv:1206.4121
32. Arun Kumar Pati, Mark M. Wilde, A. R. Usha Devi, A. K. Rajagopal, and Sudha, “Quantum discord and classical correlation can tighten the uncertainty principle in the presence of quantum memory,” *Physical Review A*, vol. 86, page 042105, October 2012. arXiv:1204.3803
31. Mark M. Wilde and Ivan Savov, “Joint source-channel coding for a quantum multiple access channel,” *Journal of Physics A: Mathematical and Theoretical*, vol. 45, no. 43, page 435302, October 2012. arXiv:1202.3467
30. Omar Fawzi, Patrick Hayden, Ivan Savov, Pranab Sen, Mark M. Wilde, “Classical communication over a quantum interference channel,” *IEEE Transactions on Information Theory*, vol. 58, no. 6, pages 3670–3691, June 2012. arXiv:1102.2624
29. Mark M. Wilde, Patrick Hayden, and Saikat Guha, “Information trade-offs for optical quantum communication,” *Physical Review Letters*, vol. 108, page 140501, April 2012. arXiv:1206.4886
28. Todd A. Brun and Mark M. Wilde, “Perfect state distinguishability and computational speedups with postselected closed timelike curves,” *Foundations of Physics*, vol. 42, no. 3, pages 341–361, March 2012. arXiv:1008.0433
27. Monireh Houshmand, Saied Hosseini-Khayat, and Mark M. Wilde, “Minimal memory requirements for pearl necklace encoders of quantum convolutional codes,” *IEEE Transactions on Computers*, vol. 61, no. 3, pages 299–312, March 2012. arXiv:1004.5179
26. Mark M. Wilde and Ari Mizel, “Addressing the clumsiness loophole in a Leggett-Garg test of macro-realism,” *Foundations of Physics*, vol. 42, no. 2, pages 256–265, February 2012. arXiv:1001.1777

25. Tomas Jochym-O'Connor, Kamil Bradler, Mark M. Wilde, "Trade-off coding for universal qudit cloners motivated by the Unruh effect," *Journal of Physics A: Mathematical and Theoretical*, vol. 44, page 415306, October 2011. arXiv:1103.0286
24. Kamil Bradler, Mark M. Wilde, Sai Vinjanampathy, Dmitry B. Uskov, "Identifying the quantum correlations in light-harvesting complexes," *Physical Review A* vol. 82, page 062310, December 2010. arXiv:0912.5112
23. David Avis, Patrick Hayden, and Mark M. Wilde, "Leggett-Garg inequalities and the geometry of the cut polytope," *Physical Review A*, vol. 82, page 030102(R), September 2010. arXiv:1004.3818
22. Min-Hsiu Hsieh and Mark M. Wilde, "Trading classical communication, quantum communication, and entanglement in quantum Shannon theory," *IEEE Transactions on Information Theory*, vol. 56, no. 9, pages 4705–4730, September 2010. arXiv:0901.3038
21. Min-Hsiu Hsieh and Mark M. Wilde, "Entanglement-assisted communication of classical and quantum information," *IEEE Transactions on Information Theory*, vol. 56, no. 9, pages 4682–4704, September 2010. arXiv:0811.4227
20. Mark M. Wilde and David Fattal, "Nonlocal quantum information in bipartite quantum error correction," *Quantum Information Processing*, vol. 9, no. 5, pages 591–610, arXiv:0912.2150, September 2010. arXiv:0912.2150
19. Mark M. Wilde and Todd A. Brun, "Quantum convolutional coding with shared entanglement: general structure," *Quantum Information Processing*, vol. 9, no. 5, pages 509–540, September 2010. arXiv:0807.3803
18. Kamil Bradler, Patrick Hayden, Dave Touchette, Mark M. Wilde, "Trade-off capacities of the quantum Hadamard channels," *Physical Review A*, vol. 81, page 062312, June 2010. arXiv:1001.1732
17. Mark M. Wilde, James M. McCracken, and Ari Mizel, "Could light harvesting complexes exhibit non-classical effects at room temperature?," *Proceedings of the Royal Society A*, vol. 466, no. 2117, pages 1347–1363, May 2010. arXiv:0911.1097
16. Mark M. Wilde and Todd A. Brun, "Entanglement-assisted quantum convolutional coding," *Physical Review A*, vol. 81, page 042333, April 2010. arXiv:0712.2223
15. Mark M. Wilde and Bart Kosko, "Quantum forbidden-interval theorems for stochastic resonance," *Journal of Physics A: Mathematical and Theoretical*, vol. 42, page 465309, November 2009. arXiv:0801.3141
14. Mark M. Wilde and Todd A. Brun, "Protecting quantum information with entanglement and noisy optical modes," *Quantum Information Processing*, vol. 8, pages 401–413, October 2009. arXiv:0807.3616
13. Min-Hsiu Hsieh and Mark M. Wilde, "Public and private communication with a quantum channel and a secret key," *Physical Review A*, vol. 80, page 022306, August 2009. arXiv:0903.3920
12. Mark M. Wilde, "Can classical noise enhance quantum transmission?" *Journal of Physics A: Mathematical and Theoretical*, vol. 42, page 325301, July 2009. arXiv:0801.0096
11. Mark M. Wilde, "Quantum shift register circuits," *Physical Review A*, vol. 79, page 062325, June 2009. arXiv:0903.3894
10. Mark M. Wilde, "Logical operators of quantum codes," *Physical Review A*, vol. 79, page 062322, June 2009. arXiv:0903.5256
9. Todd A. Brun, Jim Harrington, and Mark M. Wilde, "Localized closed timelike curves enable perfect state distinguishability," *Physical Review Letters*, vol. 102, page 210402, May 2009. arXiv:0811.1209
8. Mark M. Wilde and Todd A. Brun, "Extra shared entanglement reduces memory demand in quantum convolutional coding," *Physical Review A*, vol. 79, page 032313, March 2009. arXiv:0812.4449
7. Mark M. Wilde and Dmitry B. Uskov, "Linear-optical hyperentanglement-assisted quantum error-correcting code," *Physical Review A*, vol. 79, page 022305, February 2009. arXiv:0807.4906
6. Bilal Shaw, Mark M. Wilde, Ognyan Oreshkov, Isaac Kremsky, Daniel A. Lidar, "Encoding one logical qubit into six physical qubits," *Physical Review A*, vol. 78, page 012337, July 2008. arXiv:0803.1495

5. Mark M. Wilde and Todd A. Brun, “Optimal entanglement formulas for entanglement-assisted quantum coding,” *Physical Review A*, vol. 77, page 064302, June 2008. arXiv:0804.1404
4. Mark M. Wilde, Todd A. Brun, Jonathan P. Dowling, and Hwang Lee, “Coherent communication with linear optics,” *Physical Review A*, vol. 77, page 022321, February 2008. arXiv:0709.3852
3. Mark M. Wilde, Hari Krovi, and Todd A. Brun, “Entanglement-assisted quantum error correction with linear optics,” *Physical Review A*, vol. 76, page 052308, November 2007. arXiv:0705.4314
2. Mark M. Wilde, Federico Spedalieri, Jonathan P. Dowling, and Hwang Lee, “Alternate scheme for optical cluster-state generation without number-resolving photon detectors,” *International Journal of Quantum Information*, vol. 5, no. 4, pages 617–626, August 2007. arXiv:quant-ph/0610115
1. Mark M. Wilde, Hari Krovi, and Todd A. Brun, “Coherent communication with continuous quantum variables,” *Physical Review A*, vol. 75, page 060303(R), June 2007. arXiv:quant-ph/0612170

## Conference Proceedings

42. Ludovico Lami, Bartosz Regula, Xin Wang, Mark M. Wilde, “Upper Bounds on the Distillable Randomness of Bipartite Quantum States,” *Proceedings of the 2023 IEEE Information Theory Workshop*, pages 203–208, Saint-Malo, France, April 2023. arXiv:2212.09073.
41. Jens Eisert, Mark M. Wilde, “A smallest computable entanglement monotone,” *Proceedings of the 2022 IEEE International Symposium on Information Theory*, pages 2439–2444, June 2022. arXiv:2201.00835.
40. Mark M. Wilde, “Second Law of Entanglement Dynamics for the Non-Asymptotic Regime,” *2021 IEEE Information Theory Workshop*, Kanazawa, Japan, May 2021. arXiv:2105.05867.
39. Gilad Gour and Mark M. Wilde, “Entropy of a Quantum Channel: Definition, Properties, and Application,” *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, California, USA, pages 1903–1908, June 2020.
38. Eric P. Hanson, Vishal Katariya, Nilanjana Datta, Mark M. Wilde, “Guesswork with Quantum Side Information: Optimal Strategies and Aspects of Security,” *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, California, USA, June 2020.
37. Mark M. Wilde, “Coherent Quantum Channel Discrimination,” *Proceedings of the 2020 IEEE International Symposium on Information Theory*, Los Angeles, California, USA, pages 1921–1926, June 2020. arXiv:2001.02668
36. Dawei Ding, Yihui Quek, Peter W. Shor, Mark M. Wilde, “Entropy Bound for the Classical Capacity of a Quantum Channel Assisted by Classical Feedback,” *Proceedings of the 2019 IEEE International Symposium on Information Theory*, Paris, France, pages 250–254, July 2019. arXiv:1902.02490
35. Mario Berta, Christoph Hirche, Eneet Kaur, Mark M. Wilde, “Stein’s Lemma for Classical-Quantum Channels,” *Proceedings of the 2019 IEEE International Symposium on Information Theory*, pages 2564–2568, Paris, France, July 2019.
34. Mark M. Wilde, “Recoverability for Holevo’s just-as-good fidelity,” *Proceedings of the 2018 IEEE International Symposium on Information Theory*, pages 2331–2335, Vail, Colorado, USA, June 2018. arXiv:1801.02800
33. Mark M. Wilde, “Optimized Quantum F-Divergences,” *Proceedings of the 2018 IEEE International Symposium on Information Theory*, pages 2481–2485, Vail, Colorado, USA, June 2018.
32. Mario Berta, Mark M. Wilde, “Strong Converse Bound on the Two-Way Assisted Quantum Capacity,” *Proceedings of the 2018 IEEE International Symposium on Information Theory*, pages 2167–2171, Vail, Colorado, USA, June 2018.
31. Haoyu Qi, Qingle Wang, Mark M. Wilde, “Applications of position-based coding to classical communication over quantum channels,” *Proceedings of the 2017 IEEE Information Theory Workshop*, pages 209–213, Kaohsiung, Taiwan, November 2017.

30. Mark M. Wilde, Marco Tomamichel, Mario Berta, “A meta-converse for private communication over quantum channels,” *Proceedings of the 2017 IEEE International Symposium on Information Theory*, pages 291–295, Aachen, Germany, June 2017.
29. Marius Junge, Renato Renner, David Sutter, Mark M. Wilde, Andreas Winter, “Universal recoverability in quantum information,” *Proceedings of the 2016 IEEE International Symposium on Information Theory*, pages 2494–2498, Barcelona, Spain, July 2016.
28. Felix Leditzky, Mark M. Wilde, Nilanjana Datta, “Strong converse theorems using Rényi entropies,” *Proceedings of the 2016 IEEE International Symposium on Information Theory*, pages 2849–2853, Barcelona, Spain, July 2016.
27. Masahiro Takeoka, Kaushik P. Seshadreesan, Mark M. Wilde, “Unconstrained distillation capacities of a pure-loss bosonic broadcast channel,” *Proceedings of the 2016 IEEE International Symposium on Information Theory*, pages 2484–2488, Barcelona, Spain, July 2016. arXiv:1601.05563
26. Marco Tomamichel, Mark M. Wilde, Andreas Winter, “Strong converse rates for quantum communication,” *Proceedings of the 2015 IEEE International Symposium on Information Theory*, pages 2386–2390, Hong Kong, China, June 2015.
25. Nilanjana Datta, Marco Tomamichel, Mark M. Wilde, “Second-order coding rates for entanglement-assisted communication,” *Proceedings of the 2015 IEEE International Symposium on Information Theory*, pages 2772–2776, Hong Kong, China, June 2015.
24. Masahiro Takeoka, Saikat Guha, Mark M. Wilde, “Squashed entanglement and the two-way assisted capacities of a quantum channel,” *Proceedings of the 2014 IEEE International Symposium on Information Theory*, pages 326–330, Honolulu, HI, USA, June 2014.
23. Manish K. Gupta and Mark M. Wilde, “Strong converse for entanglement-assisted capacity,” *Proceedings of the 2014 IEEE International Symposium on Information Theory*, pages 716–720, Honolulu, HI, USA, June 2014.
22. Mario Berta, Joseph M. Renes, Mark M. Wilde, “Identifying the information gain of a quantum measurement,” *Proceedings of the 2014 IEEE International Symposium on Information Theory*, pages 331–335, Honolulu, HI, USA, June 2014.
21. Bhaskar Roy Bardhan, Raul Garcia-Patron, Mark M. Wilde, Andreas Winter, “Strong converse for the capacity of quantum Gaussian channels,” *Proceedings of the 2014 IEEE International Symposium on Information Theory*, pages 726–730, Honolulu, HI, USA, June 2014.
20. Mark M. Wilde and Andreas Winter, “Strong converse for the quantum capacity of the erasure channel for almost all codes,” *Proceedings of the 2014 Conference on the Theory of Quantum Computation, Communication, and Cryptography*, LIPICs vol. 27, pages 52–66, May 2014. arXiv:1402.3626
19. Patrick Hayden, Kevin Milner, and Mark M. Wilde, “Two-message quantum interactive proofs and the quantum separability problem,” *Proceedings of the 28th IEEE Conference on Computational Complexity*, pages 156–167, Palo Alto, California, June 2013. arXiv:1211.6120
18. Mark M. Wilde, Olivier Landon-Cardinal, and Patrick Hayden, “Towards efficient decoding of classical-quantum polar codes,” *Proceedings of the 8th Conference on the Theory of Quantum Computation, Communication, and Cryptography*, pages 157–177, May 2013. arXiv:1302.0398
17. Zachary Dutton, Saikat Guha, and Mark M. Wilde, “Performance of polar codes for quantum and private classical communication,” *Proceedings of the 50th Annual Allerton Conference on Communication, Control, and Computing*, pages 572–579, October 2012. arXiv:1205.5980
16. Mark M. Wilde and Saikat Guha, “Explicit receivers for pure-interference bosonic multiple access channels,” *Proceedings of the 2012 International Symposium on Information Theory and its Applications (ISITA 2012)*, pages 303–307, Honolulu, Hawaii, USA, October 2012. arXiv:1204.0521
15. Mark M. Wilde and Joseph M. Renes, “Polar codes for private classical communication,” *Proceedings of the 2012 International Symposium on Information Theory and its Applications (ISITA 2012)*, 745–749, Honolulu, Hawaii, USA, October 2012. arXiv:1203.5794

14. Saikat Guha and Mark M. Wilde, "Polar coding to achieve the Holevo capacity of a pure-loss optical channel," *Proceedings of the 2012 IEEE International Symposium on Information Theory (ISIT 2012)*, pages 546–550, Cambridge, Massachusetts, USA, July 2012. arXiv:1202.0533
13. Mark M. Wilde, Saikat Guha, Si-Hui Tan, and Seth Lloyd, "Explicit capacity-achieving receivers for optical communication and quantum reading," *Proceedings of the 2012 IEEE International Symposium on Information Theory (ISIT 2012)*, pages 551–555, Cambridge, Massachusetts, USA, July 2012. arXiv:1202.0518
12. Mark M. Wilde and Joseph M. Renes, "Quantum polar codes for arbitrary channels," *Proceedings of the 2012 IEEE International Symposium on Information Theory (ISIT 2012)*, pages 334–338, Cambridge, Massachusetts, USA, July 2012. arXiv:1201.2906
11. Ivan Savov, Mark M. Wilde, and Mai Vu, "Partial decode-forward for quantum relay channels," *Proceedings of the 2012 IEEE International Symposium on Information Theory (ISIT 2012)*, pages 731–735, Cambridge, Massachusetts, USA, July 2012. arXiv:1201.0011
10. Ivan Savov and Mark M. Wilde, "Classical codes for quantum broadcast channels," *Proceedings of the 2012 IEEE International Symposium on Information Theory (ISIT 2012)*, pages 721–725, Cambridge, Massachusetts, USA, July 2012. arXiv:1111.3645
9. Omar Fawzi, Patrick Hayden, Ivan Savov, Pranab Sen, Mark M. Wilde, "Quantum interference channels," *Proceedings of the 49th Allerton Conference on Communication, Control, and Computing*, pages 609–616, September 2011. arXiv:1102.2955
8. Saikat Guha, Ivan Savov, Mark M. Wilde, "The free space optical interference channel," *Proceedings of the 2011 IEEE International Symposium on Information Theory*, pages 114–118, St. Petersburg, Russia, July 2011. arXiv:1102.2627
7. Mark M. Wilde, Monireh Houshmand, Saied Hosseini-Khayat, "Examples of minimal-memory, non-catastrophic quantum convolutional encoders," *Proceedings of the 2011 IEEE International Symposium on Information Theory*, pages 450–454, St. Petersburg, Russia, July 2011. arXiv:1011.5535
6. Mark M. Wilde and Min-Hsiu Hsieh, "Entanglement boosts quantum turbo codes," *Proceedings of the 2011 IEEE International Symposium on Information Theory*, pages 445–449, St. Petersburg, Russia, July 2011.
5. Mark M. Wilde and Min-Hsiu Hsieh, "Entanglement generation with a quantum channel and a shared state," *Proceedings of the 2010 IEEE International Symposium on Information Theory*, pages 2713–2717, Austin, Texas, USA, June 2010. arXiv:0904.1175
4. Mark M. Wilde, Hari Krovi, and Todd A. Brun, "Convolutional entanglement distillation," *Proceedings of the 2010 IEEE International Symposium on Information Theory*, pages 2657–2661, Austin, Texas, USA, June 2010. arXiv:0708.3699
3. Min-Hsiu Hsieh and Mark M. Wilde, "Optimal trading of classical communication, quantum communication, and entanglement," *Proceedings of the 4th Workshop on Theory of Quantum Computation, Communication and Cryptography*, pages 85–93, Waterloo, Ontario, Canada, May 2009.
2. Mark M. Wilde and Todd A. Brun, "Unified quantum convolutional coding," *Proceedings of the 2008 IEEE International Symposium on Information Theory*, pages 359–363, arXiv:0801.0821, Toronto, Ontario, Canada, July 2008. arXiv:0801.0821
1. Mark M. Wilde and Bart Kosko, "Quantum forbidden-interval theorems for stochastic resonance with squeezed light," in *Proceedings of the 8th International Conference on Quantum Communication, Measurement, and Computing*, pages 553–556, December 2006.

## Book Chapters

3. Mark M. Wilde, “Introduction to Quantum Convolutional Codes,” Chapter in *Quantum Error Correction*, Cambridge University Press, October 2013.
2. Mark M. Wilde, “Error Correction in Quantum Communication,” Chapter in *Quantum Error Correction*, Cambridge University Press, October 2013.
1. Bart Kosko, Ian Lee, Sanya Mitaim, Ashok Patel and Mark M. Wilde, “Applications of Forbidden Interval Theorems in Stochastic Resonance,” Chapter in *Applications of Nonlinear Dynamics*, Springer Berlin / Heidelberg, February 2009.

## Pre-print Articles

28. Hemant K. Mishra, Ludovico Lami, Mark M. Wilde, “Near-optimal performance of square-root measurement for general score functions and quantum ensembles,” arXiv:2505.20447. May 2025.
27. Nana Liu, Michele Minervini, Dhruvil Patel, Mark M. Wilde, “Quantum thermodynamics and semi-definite optimization,” arXiv:2505.04514. May 2025.
26. Theshani Nuradha, Mark M. Wilde, “Query Complexity of Classical and Quantum Channel Discrimination,” arXiv:2504.12989. April 2025.
25. Ian George, Christoph Hirche, Theshani Nuradha, Mark M. Wilde, “Quantum Doeblin Coefficients: Interpretations and Applications,” arXiv:2503.22823. March 2025.
24. Kaiyuan Ji, Gilad Gour, Mark M. Wilde, “Fundamental work costs of preparation and erasure in the presence of quantum side information,” arXiv:2503.09012. March 2025.
23. Michele Minervini, Dhruvil Patel, Mark M. Wilde, “Quantum natural gradient with thermal-state initialization,” arXiv:2502.19487. February 2025.
22. Aidan N. Sims, Dhruvil Patel, Aby Philip, Alex H. Rubin, Rahul Bandyopadhyay, Marina Radulaski, Mark M. Wilde, “Digital Quantum Simulations of the Non-Resonant Open Tavis-Cummings Model,” arXiv:2501.18522. January 2025.
21. Theshani Nuradha, Vishal Singh, Mark M. Wilde, “Measured Hockey-Stick Divergence and its Applications to Quantum Pufferfish Privacy,” arXiv:2501.12359. January 2025.
20. Kaiyuan Ji, Hemant K. Mishra, Milán Mosonyi, Mark M. Wilde, “Converse bounds for quantum hypothesis exclusion: A divergence-radius approach,” arXiv:2501.09712. January 2025.
19. Michele Minervini, Dhruvil Patel, Mark M. Wilde, “Evolved Quantum Boltzmann Machines,” arXiv:2501.03367. January 2025.
18. Vishal Singh, Theshani Nuradha, Mark M. Wilde, “Extendible quantum measurements and limitations on classical communication,” arXiv:2412.18556. December 2024.
17. Byeongseon Go, Hyukjoon Kwon, Siheon Park, Dhruvil Patel, Mark M. Wilde, “Density matrix exponentiation and sample-based Hamiltonian simulation: Non-asymptotic analysis of sample complexity,” arXiv:2412.02134. December 2024.
16. Zixin Huang, Mark M. Wilde, “Information geometry of bosonic Gaussian thermal states,” arXiv:2411.18268. November 2024.
15. Dhruvil Patel, Mark M. Wilde, “Natural gradient and parameter estimation for quantum Boltzmann machines,” arXiv:2410.24058. October 2024.
14. Gereon Kossmann, Mark M. Wilde, “Semidefinite optimization of the quantum relative entropy of channels,” arXiv:2410.16362. October 2024.
13. Dhruvil Patel, Daniel Koch, Saahil Patel, Mark M. Wilde, “Quantum Boltzmann machine learning of ground-state energies,” arXiv:2410.12935. October 2024.

12. Margarite L. LaBorde, Soorya Rethinasamy, Mark M. Wilde, “Quantum Algorithms for Realizing Symmetric, Asymmetric, and Antisymmetric Projectors,” arXiv:2407.17563. July 2024.
11. Kaiyuan Ji, Hemant K. Mishra, Milán Mosonyi, Mark M. Wilde, “Barycentric bounds on the error exponents of quantum hypothesis exclusion,” arXiv:2407.13728. July 2024.
10. Zixin Huang, Mark M. Wilde, “Semi-definite optimization of the measured relative entropies of quantum states and channels,” arXiv:2406.19060. June 2024.
9. Vishal Singh, Mark M. Wilde, “No-go theorem for probabilistic one-way secret-key distillation,” arXiv:2404.01392. April 2024.
8. Karol Horodecki, Leonard Sikorski, Siddhartha Das, Mark M. Wilde, “Cost of quantum secret key,” arXiv:2402.17007. February 2024.
7. Soorya Rethinasamy, Ethan Guo, Alexander Wei, Mark M. Wilde, Kristina D. Launey, “Neutron-nucleus dynamics simulations for quantum computers,” arXiv:2402.14680. February 2024.
6. Hanna Westerheim, Jingxuan Chen, Zoë Holmes, Ivy Luo, Theshani Nuradha, Dhruvil Patel, Soorya Rethinasamy, Kathie Wang, Mark M. Wilde, “Dual-VQE: A quantum algorithm to lower bound the ground-state energy,” arXiv:2312.03083. December 2023.
5. Sarah Brandsen, Isabelle J. Geng, Mark M. Wilde, Gilad Gour, “Quantum conditional entropy from information-theoretic principles,” arXiv:2110.15330, October 2021.
4. Mark M. Wilde, Sumeet Khatri, Eneet Kaur, Saikat Guha, “Second-order coding rates for key distillation in quantum key distribution,” arXiv:1910.03883, October 2019.
3. Stefan Bäuml, Siddhartha Das, Xin Wang, Mark M. Wilde, “Resource theory of entanglement for bipartite quantum channels,” arXiv:1907.04181, July 2019.
2. Masahiro Takeoka, Mark M. Wilde, “Optimal estimation and discrimination of excess noise in thermal and amplifier channels,” arXiv:1611.09165, November 2016.
1. Haoyu Qi, Mark M. Wilde, and Saikat Guha, “Thermal states minimize the output entropy of single-mode phase-insensitive Gaussian channels with an input entropy constraint,” arXiv:1607.05262, July 2016.

### Conference Presentations (Invited Talks)

24. Mark M. Wilde, Invited talk at *Quantum Resources 2025*, Jeju Island, Korea, March 2025.
23. Mark M. Wilde, “Barycentric bounds on the error exponents of quantum hypothesis exclusion,” Invited talk at *Bridging Quantum Information and Mathematical Physics (Symposium)*, University of Cambridge, Cambridge, UK, August 2024.
22. Mark M. Wilde, “Exact solutions for the fundamental limits of bosonic dephasing channels,” Invited talk at *International Conference on Quantum Communication, Measurement and Computing (QCMC) 2024*, IIT Madras, Chennai, India, August 2024. Invited talk at *29th Annual MIT LIDS Student Conference*, MIT, Cambridge, MA, USA, February 2024.
21. Mark M. Wilde, “In Memory of Jonathan P. Dowling,” Invited talk at *Jonathan P. Dowling Memorial Conference on Quantum Science and Technology*, Quantum Terminal, Sydney, Australia, January 2023.
20. Mark M. Wilde, “Estimating and interpreting resource measures via quantum algorithms,” Invited talk at *Quantum Resources: From Mathematical Foundations to Operational Characterisation*, Singapore, December 2022.
19. Mark M. Wilde, “Applications of variational quantum algorithms,” Invited talk at *Quantum for International (Q4I)*, Air Force Research Laboratory, Rome, NY, USA, July 2022.

18. Mark M. Wilde, “Recoverability for optimized  $f$ -divergences,” Invited talk at *Entropy Inequalities, Quantum Information and Quantum Physics*, University of California, Los Angeles, California, February 2021.
17. Mark M. Wilde, “Resource theory of asymmetric distinguishability,” Invited talk at *Algebraic and Statistical Ways into Quantum Resource Theories*, Banff International Research Station, Banff, Canada, July 2019. Invited talk at *SwissMap Workshop Mathematical Physics meets Quantum Information*, Leysin, Switzerland, June 2019. Poster presentation at the *22nd Annual Southwest Quantum Information and Technology Workshop*, Eugene, OR, USA, February 2020. Contributed talk at the *American Physical Society March Meeting*, Denver, CO, March 2020.
16. Mark M. Wilde, “A tale of quantum data processing and recovery,” Invited talk at the *Fifth London Symposium on Information Theory (LSIT 2019)*, London, UK, May 2019.
15. Xin Wang, Mark M. Wilde, “ $\alpha$ -Logarithmic negativity,” Invited talk at *Mathematical Aspects in Current Quantum Information Theory*, Seoul National University, Seoul, Korea, May 2019.
14. Sumeet Khatri, Kunal Sharma, Mark M. Wilde, “Generalized amplitude damping channel: The single greatest qubit mystery in quantum Shannon theory,” Invited talk at *New Directions in Quantum Information*, Nordita, Stockholm, Sweden, April 2019.
13. Mark M. Wilde, “Energy-constrained private and quantum capacities of quantum channels,” Invited talk, dedicated to Alexander S. Holevo on the occasion of his 75th birthday, *International Conference on Quantum Information, Statistics, Probability*, Steklov Mathematical Institute, Moscow, Russia, September 2018. Invited talk at *Quantum Limits of Optical Communication II*, University of Warsaw, Warsaw, Poland, September 2018.
12. Mark M. Wilde, “Quantum Communication,” Invited talk at the *Air Force Global Strike Command Workshop*, Bossier City, Louisiana, USA, May 2018.
11. Mark M. Wilde, “Optimized quantum  $f$ -divergences and data processing,” Invited talk at the *Analysis in Quantum Information Theory Conference*, Institut Henri Poincaré, Paris, France, December 2017. Invited talk at the *American Mathematical Society Special Session* on “Mathematical Perspectives in Quantum Information Theory,” Northeastern University, Boston, MA, USA, April 2018.
10. Mark M. Wilde, “Trading resources in quantum Shannon theory,” Invited talk at the *Central European Workshop on Quantum Information Processing (CEQIP)*, Valtice, Czech Republic, June 2016. Invited talk at the *Information Theory Workshop*, Kaohsiung, Taiwan, November 2017.
9. Mark M. Wilde, “Converse bounds for private communication over quantum channels,” Invited talk at the *Third Workshop on Scalable Information Processing with Quantum Nano-Photonics (SIPQNP)*, Waltham, MA, USA, March 2016. Poster presentation at the *4th Beyond i.i.d. in Information Theory Conference*, Barcelona, Spain, July 2016. Invited talk at *QCrypt 2016*, Washington DC, USA, September 2016. Contributed talk at the *Twentieth Workshop on Quantum Information Processing*, Seattle, WA, USA, January 2017. Invited talk at *Within and Beyond Quantum Mechanics*, Sopot, Poland, May 2017.
8. Mark M. Wilde, “Universal recoverability in quantum information theory,” Invited talk at *Mathematical Results in Quantum Physics (QMath 2016)*, Atlanta, GA, October 2016. Contributed talk at the *18th Annual Southwest Quantum Information and Technology Workshop*, Albuquerque, New Mexico, February 2016. Contributed talk at the *American Physical Society March Meeting*, Baltimore, Maryland, March 2016.
7. Mark M. Wilde, “Quantum information theory: i.i.d. and beyond,” Invited talk at the *2nd Beyond i.i.d. in Information Theory Conference*, Singapore, May 2014.
6. Mark M. Wilde, “Theory of QIP: Quantum Optical Communication,” Invited talk at the *First Workshop on Scalable Information Processing with Quantum Nano-Photonics (SIPQNP)*, Boston, MA, USA, January 2014.
5. Mark M. Wilde, Nilanjana Datta, Min-Hsiu Hsieh, and Andreas Winter, “Quantum rate distortion coding with auxiliary resources,” Invited talk at the *1st Beyond i.i.d. in Information Theory Conference*, Cambridge, UK, January 2013.

4. Mark M. Wilde, Saikat Guha, Si-Hui Tan, Seth Lloyd, “Explicit receivers for optical communication and quantum reading,” Invited talk at the *Third Nagoya Winter Workshop on Quantum Information, Measurement, and Foundations*, Nagoya, Japan, February 2012.
3. Mark M. Wilde, Patrick Hayden, Saikat Guha, “Information Trade-offs for Optical Quantum Communication,” Invited talk at the *CORNER Workshop*, University of Cambridge, July 2011.
2. Mark M. Wilde, “The Quest for a Quantum Simultaneous Decoder,” Invited talk at the *Difficult Problems in Quantum Information Theory Conference*, Massachusetts Institute of Technology, Cambridge, MA, USA, May 2011.
1. Mark M. Wilde, “Additivity in quantum Shannon theory,” Invited Tutorial at the *2010 International Workshop on Quantum Information Science*, Tokyo, Japan, March 2010.

### Conference Presentations (Contributed Talks)

21. “Bounding the forward classical capacity of bipartite quantum channels,” Contributed talk at the *American Physical Society March Meeting*, March 2021.
20. Xin Wang, Mark M. Wilde, “Entanglement cost of quantum state preparation and channel simulation,” Contributed talk at *21st Annual Southwest Quantum Information and Technology Workshop*, Albuquerque, New Mexico, February 2019.
19. Mark M. Wilde, Mario Berta, Fernando Brandao, and Christian Majenz, “Deconstruction and Conditional Erasure of Quantum Correlations,” Contributed talk at the *American Physical Society March Meeting*, New Orleans, Louisiana, USA, March 2017.
18. Mark M. Wilde, “Fidelity of recovery, geometric squashed entanglement, and measurement recoverability,” Contributed talk at the *17th Annual Southwest Quantum Information and Technology Workshop*, Berkeley, California, February 2015.
17. Kevin Milner, Gus Gutoski, Patrick Hayden, and Mark M. Wilde, “Quantum interactive proofs and the complexity of entanglement detection,” Contributed talk at the *17th Workshop on Quantum Information Processing*, Barcelona, Spain, February 2014.
16. Mark M. Wilde, Patrick Hayden, and Kevin Milner, “How hard is it to decide if a quantum state is separable or entangled?,” Contributed talk at the *American Physical Society March Meeting*, Baltimore, Maryland, USA, March 2013.
15. Mark M. Wilde, Patrick Hayden, Francesco Buscemi, and Min-Hsiu Hsieh, “Information-theoretic costs of simulating quantum measurements,” Contributed talk at the *INTRIQ Biannual Meeting*, Lac Brome, Canada, September 2012.
14. Mark M. Wilde, Joseph M. Renes, “Polar codes for private classical communication,” Contributed talk at the *6th International Conference on Information-Theoretic Security*, Montreal, Canada, August 2012.
13. Mark M. Wilde, Saikat Guha, “Polar codes for achieving the classical capacity of a quantum channel,” Contributed talk at the *American Physical Society March Meeting*, Boston, MA, USA, March 2012.
12. Nilanjana Datta, Min-Hsiu Hsieh, Mark M. Wilde, “Quantum rate distortion, reverse Shannon theorems, and source-channel separation,” Contributed talk at the *15th Workshop on Quantum Information Processing*, Montreal, Quebec, December 2011.
11. Omar Fawzi, Patrick Hayden, Ivan Savov, Pranab Sen, Mark M. Wilde, “Advances in classical communication for network quantum information theory,” Contributed talk at the *15th Workshop on Quantum Information Processing*, Montreal, Quebec, December 2011.
10. Mark M. Wilde and Saikat Guha, “Polar Codes for Classical, Private, and Quantum Communication,” Contributed talk at the *Workshop on Quantum Information: Codes, Geometry and Random Structures*, Centre de Recherches Mathematiques, October 2011.

9. Mark M. Wilde, Patrick Hayden, Saikat Guha, “Information Trade-offs for Optical Quantum Communication,” Contributed talk at the *Biannual INTRIQ Workshop*, McGill University, October 2011.
8. Mark M. Wilde and Min-Hsiu Hsieh, “Trading Resources in Quantum Communication,” Contributed talk at the *10th Asian Conference on Quantum Information Science* in Tokyo, Japan, August 2010.
7. Mark M. Wilde and Min-Hsiu Hsieh, “Trade-off Capacities for Quantum Channels II: Completing the Analogy between the Classical and Quantum Worlds,” Contributed talk at the *INTRIQ Biannual meeting* in Saint-Sauveur, Quebec, Canada, June 2010.
6. Kamil Bradler, Patrick Hayden, Dave Touchette, Mark M. Wilde, “Trade-off capacities of the quantum Hadamard channels,” Rump session presentation at *The Thirteenth Workshop on Quantum Information Processing* in Zurich, Switzerland, January 2010.
5. Mark M. Wilde and Todd A. Brun, “Quantum Convolutional Coding with Entanglement Assistance,” Contributed talk at the *American Physical Society March Meeting* in New Orleans, Louisiana, March 2008.
4. Mark M. Wilde and Todd A. Brun, “Quantum Convolutional Coding with Entanglement Assistance,” Contributed talk at the University of New Mexico for the *10th Annual Southwest Quantum Information and Technology Network Workshop* in Albuquerque, New Mexico, February 2008.
3. Mark M. Wilde, Hari Krovi, and Todd A. Brun, “Convolutional Entanglement Distillation,” Contributed talk at the University of Southern California for the *First International Conference on Quantum Error Correction* in Los Angeles, California, December 2007.
2. Mark M. Wilde, Hari Krovi, Jonathan P. Dowling, and Todd A. Brun, “Coherent Communication of Continuous Quantum Variables with Linear Optics,” Contributed talk at the University of Rochester for the *International Conference of Quantum Information*, June 2007.
1. Mark M. Wilde, Hari Krovi and Todd A. Brun, “Coherent Communication with Continuous Variables,” Contributed talk at Caltech for the *Southwest Quantum Information and Technology Network Workshop*, February 2007.

## Seminars

49. “Gaussian Hypothesis Testing and Quantum Illumination,” Macquarie University, October 2021.
48. “Closed Timelike Curves and Quantum Information Processing,” University of Leipzig, Germany, June 2021.
47. “Applying Quantum Information-Theoretic Techniques to Quantum Complexity Theory,” Quantum Computing in Isolation Seminar, May 2021.
46. “Quantum Information Theory Tutorial,” University of South Florida, April 2021.
45. “Quantum Entanglement: Applications in Communication, Cryptography, and Complexity,” Department of Computer Science Colloquium at University of Texas Austin, April 2021. School of Electrical and Computer Engineering Colloquium, Cornell University, April 2021. Department of Physics Colloquium, University of Georgia, March 2021. Raman Research Institute, August 2021.
44. “Bounding the forward classical capacity of bipartite quantum channels,” Seminar for Grup d’Informació Quàntica, Universitat Autònoma de Barcelona, Barcelona, Spain, February 2021.
43. “ $\alpha$ -Logarithmic negativity,” Functional Analysis and Operator Theory Webinar, January 2021.
42. “On the quantum Rényi relative entropies and their use,” Information Systems Laboratory Colloquium, Stanford University, CA, USA, September 2020. QuICS Seminar, QuICS, University of Maryland and NIST Maryland, September, 2020.
41. “Generalized amplitude damping channel: The single greatest qubit mystery in quantum Shannon theory,” Quantum Seminar at Tulane University, New Orleans, Louisiana, USA, March 2020. QFarm Seminar, Stanford University, Stanford, CA, USA, April 2020.

40. “Resource theory of asymmetric distinguishability,” College of Optical Sciences, University of Arizona, Tucson, AZ, USA, December 2019. Quantum Seminar, Stanford University, Stanford, California, January 2020.
39. “Extendibility limits the performance of quantum processors,” Imperial College London, London, UK, May 2018.
38. “Strong and uniform convergence in the teleportation simulation of bosonic Gaussian channels,” Oxford Advanced Seminar on Informatic Structures, Department of Computer Science, University of Oxford, Oxford, UK, May 2018. Tulane Quantum Seminar, Tulane University, New Orleans, Louisiana, USA, April 2018. University of Nottingham, Nottingham, UK, July 2018.
37. “Converse bounds for private communication over quantum channels,” Seminar for the Quantum Information Research Group at the Autonomous University of Barcelona, Barcelona, Spain, July 2016. Seminar at the University of Camerino, Camerino, Italy, June 2016. Seminar at QuTech, Technical University of Delft, Delft, Netherlands, May 2016. Presentation at “Within and Beyond Quantum Mechanics,” Sopot, Poland, May 2017. Seminar at ENS Lyon, France, June 2017.
36. “Trading resources in quantum Shannon theory,” NICT, Koganei, Tokyo 184-8795, Japan, December 2015. Center for Quantum Information and Control, University of New Mexico, January 2019.
35. “Universal recoverability in quantum information theory,” NICT, Koganei, Tokyo 184-8795, Japan, December 2015.
34. “Recoverability in quantum information theory,” LSU Department of Physics and Astronomy Colloquium, Baton Rouge, Louisiana, USA, September 2015.
33. “Recoverability in quantum information theory,” Seminar for the Quantum Information and Non-linear Optics Group in the Department of Physics and Engineering Physics at Tulane University, New Orleans, Louisiana, USA, July 2015.
32. “Attempting to reverse the irreversible in quantum physics,” Seminar for the Centre for Quantum Information and Foundations in the Centre for Mathematical Sciences at the University of Cambridge, Cambridge, UK, January 2015.
31. “Strong converse exponents for a quantum channel discrimination problem,” Seminar for the Center for Extreme Quantum Information Theory at the Massachusetts Institute of Technology, Cambridge, MA, USA, December 2014.
30. “Rényi generalizations of the conditional mutual information,” Seminar for the Quantum Information Processing Group at Raytheon BBN Technologies, Cambridge, MA, USA, April 2014. Seminar for the Mathematics Department at Louisiana State University, Baton Rouge, Louisiana, USA, April 2014. Seminar for the Quantum Information Research Group at the Autonomous University of Barcelona, Barcelona, Spain, May 2014.
29. “Strong converse for entanglement-assisted capacity,” Seminar for the workshop “Mathematical Challenges in Quantum Information” at the Isaac Newton Institute, University of Cambridge, Cambridge, UK, December 2013.
28. “The squashed entanglement of a quantum channel,” Seminar for the quantum group at University College London, London, UK, December 2013.
27. “Strong converse theorems in quantum information theory,” Seminar for the Q+ group on Google Plus, November 2013.
26. “Strong converse for the classical capacity of entanglement-breaking and Hadamard channels,” Seminar for the Quantum Information Processing Group at Raytheon BBN Technologies, Cambridge, MA, USA, June 2013; Center for Theoretical Physics, Massachusetts Institute of Technology, July 2013.
25. “Two-message quantum interactive proofs and the quantum separability problem,” Seminar for the Centre for Quantum Information and Foundations in the Centre for Mathematical Sciences at the University of Cambridge, Cambridge, United Kingdom, January 2013; Quantum Chemistry and Quantum Computation Group at Harvard University, July 2013; Center for Quantum Information

Science and Technologies at the University of Southern California, May 2013; Quantum Information Group at the Autonomous University of Barcelona, May 2013.

24. "The Information-Theoretic Costs of Simulating Quantum Measurements," Seminar for the Quantum Information Theory Group at the Perimeter Institute for Theoretical Physics, Waterloo, Ontario, Canada, April 2012.
23. "Quantum Information and Optical Communication," Seminar for the Department of Physics and Astronomy at Louisiana State University, Baton Rouge, Louisiana, USA, April 2012.
22. "Quantum Computation and Quantum Error Correction," Seminar for the Center for Computation and Technology at Louisiana State University, Baton Rouge, Louisiana, USA, April 2012.
21. "Explicit Receivers for Optical Communication and Quantum Reading," Seminar for the Physics of Information group at IBM Research, Yorktown Heights, New York, March 2012.
20. "The Quest for a Quantum Simultaneous Decoder," Seminar for the Centre for Quantum Information and Foundations at the University of Cambridge, Cambridge, United Kingdom, July 2011.
19. "Information Trade-offs for Quantum Optical Communication," Department of Physics Colloquium at the Université de Sherbrooke, Sherbrooke, Québec, Canada, June 2011.
18. "How Alice should balance the photon budget in quantum communication," Seminar for the Disruptive Information Processing Technologies Group at Raytheon BBN, Boston, Massachusetts, USA, May 2011.
17. "Entanglement boosts quantum turbo codes," Institute for Quantum Computing Colloquium, University of Waterloo, Waterloo, Ontario, Canada, November 2010.
16. "Entanglement boosts quantum turbo codes," Center for Quantum Information and Quantum Control, University of Toronto, Toronto, Ontario, Canada, October 2010.
15. "Trading Resources in Quantum Communication," Institute for Quantum Information, California Institute of Technology, Pasadena, California, USA, August 2010.
14. "Trade-off capacities of the quantum Hadamard channels," ERATO-SORST Project of the Japan Science and Technology Agency, Tokyo, Japan, February 2010.
13. "Non-classical Behavior of Biological Systems at Room Temperature," Department of Chemistry and Chemical Biology at Harvard University and Department of Physics and Astronomy at Louisiana State University, October 2009.
12. "Claude Shannon Meets Quantum Mechanics: An Introduction to Quantum Shannon Theory," Department of Electrical Engineering and Department of Mathematics at the George Washington University, August 2009.
11. "Optimal Trading of Classical Communication, Quantum Communication, and Entanglement," School of Computer Science at McGill University and Naval Research Laboratory in Washington, DC, July 2009.
10. "Quantum Shift Register Circuits," Laser Cooled and Trapped Atoms Group of the Atomic Physics Division of the National Institute of Standards and Technology in Gaithersburg, Maryland, June 2009.
9. "The Classically-Enhanced Father Protocol," Northrop Grumman Space Technology Research Laboratory and Department of Electrical Engineering, University of Southern California, December 2008.
8. "Entanglement-Assisted Quantum Error Correction," Centre for Quantum Technologies at the National University of Singapore, November 2008.
7. "Closed Timelike Curves Enable Perfect State Distinguishability," Centre for Quantum Technologies at the National University of Singapore, October 2008.
6. "Entanglement-Assisted Quantum Convolutional Coding," Quantum Group at NEC Laboratories America, September 2008.

5. “Quantum Coding with Entanglement,” Quantum Lunch Seminar for the Quantum Institute at Los Alamos National Laboratory, April 2008.
4. “Quantum Convolutional Coding Techniques,” Information Processing Group at the Jet Propulsion Laboratory, December 2007.
3. “Quantum Convolutional Coding with Shared Entanglement for Distillation and Error Correction,” Hearne Institute for Theoretical Physics at Louisiana State University, November 2007.
2. “Quantum Communication, Quantum Entanglement, and All That Jazz,” Tulane University, November 2007.
1. “Entanglement-Assisted Quantum Error Correction,” Hearne Institute for Theoretical Physics at Louisiana State University, July 2007.

### Conference Presentations (Posters)

14. Gilad Gour, Mark M. Wilde, “Entropy of a quantum channel,” Poster presentation at the *Twenty Second Workshop on Quantum Information Processing*, University of Colorado Boulder, Boulder, CO, USA, January 2019.
13. Samad Khabbazi Oskouei, Stefano Mancini, Mark M. Wilde, “Union bound for quantum information processing,” Poster presentation at the *6th Beyond i.i.d. in Information Theory Conference*, Isaac Newton Institute, University of Cambridge, Cambridge, UK, July 2018.
12. “Position-based coding and convex splitting for private communication over quantum channels,” Poster presentation at the *5th Beyond i.i.d. in Information Theory Conference*, Institute for Mathematical Sciences, National University of Singapore, Singapore, July 2017.
11. Mark M. Wilde, Ludovico Lami, Siddhartha Das, “Approximate reversal of quantum Gaussian dynamics,” Poster presentation at the *Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC 2017)*, Paris, France, June 2017.
10. Mark M. Wilde, “Recoverability in quantum information theory,” Poster presentation at the *3rd Beyond i.i.d. in Information Theory Conference*, Banff, Canada, July 2015.
9. Monireh Houshmand, Saied Hosseini-Khayat, and Mark M. Wilde, “Minimal-Memory, Non-catastrophic Quantum Convolutional Encoders” and Mark M. Wilde and Min-Hsiu Hsieh, “Entanglement boosts quantum turbo codes,” Poster presentations at the *14th Workshop on Quantum Information Processing*, Singapore, January 2011.
8. Mark M. Wilde and Min-Hsiu Hsieh, “Entanglement boosts quantum turbo codes,” Poster presentation at the *INTRIQ Biannual meeting* in Sherbrooke, Quebec, Canada, September 2010.
7. Mark M. Wilde and Min-Hsiu Hsieh, “Trading Resources in Quantum Communication,” Poster presentation at the *QuantumWorks Fifth Annual General Meeting* in Ottawa, Ontario, Canada, June 2010.
6. Mark M. Wilde, “Quantum shift-register circuits,” Poster presentation at *The Thirteenth Workshop on Quantum Information Processing* in Zurich, Switzerland, January 2010.
5. Jim Harrington, Mark M. Wilde and Todd A. Brun, “Closed timelike curves enable perfect state distinguishability,” Poster presentation at *The Twelfth Workshop on Quantum Information Processing* in Santa Fe, New Mexico, January 2009.
4. Min-Hsiu Hsieh and Mark M. Wilde, “The Classically-Enhanced Father Protocol,” Poster presentation at *The Twelfth Workshop on Quantum Information Processing* in Santa Fe, New Mexico, January 2009.
3. Mark M. Wilde and Dmitry B. Uskov, “Linear-Optical Hyperentanglement-Assisted Quantum Code,” Poster presentation at the *Quantum Computing Program Review* in Atlanta, Georgia, August 2008.

2. Mark M. Wilde, Todd A. Brun, Hwang Lee, and Jonathan P. Dowling, “Coherent Communication with Linear Optics,” Poster presentation at the *Quantum Computing Program Review* in Minneapolis, August 2007.
1. Mark M. Wilde, Federico Spedalieri, Jonathan P. Dowling, and Hwang Lee, “Optical Cluster-State Generation without Number-Resolving Photon Detectors,” Poster presentation at *Frontiers in Optics* in Rochester, NY, October 2006.

## Other Documents

1. Mark M. Wilde, “Quantum coding with entanglement,” Ph.D. Thesis, University of Southern California, August 2008. arXiv:0806.4214

## Service

### Journal Editor

Associate Editor for Quantum Information Theory at *IEEE Transactions on Information Theory* from May 2015 until November 2021

Associate Editor at *New Journal of Physics* from January 2018 until April 2022

Journal Editorial Board Member for *Quantum Information Processing* since March 2012

### Conference and Workshop Organization

Co-organizer and Founder of Cornell Quantum Day, July 2025, April 2025, November 2024, July 2024, November 2023, July 2023, April 2023 <https://quantum.cornell.edu/cornell-quantum-day/>

Organizer and Founder of Cornell Information Theory Day, September 2025, October 2024, December 2023, July 2023 <https://find.engineering.cornell.edu/focal-areas/information-theory-coding/>

Co-organizer of QuILT Day (Quantum Information Technologies in Louisiana), May 2022, December 2021, August 2021, April 2021, December 2020, August 2020, March 2020, November 2019, July 2019, March 2019, November 2018, May 2018

Scientific co-organizer for 2018 Southwest Quantum Information and Technology Workshop

Lead local organizer for 2017 Southwest Quantum Information and Technology Workshop (hosted at LSU CCT during February 2017);

Co-organizer of *Beyond i.i.d. in information theory 2020, 2016, 2015*, Steering committee member from 2020–2023

### Conference Program Committee Chairing and Membership

Technical Program Committee Co-Chair for *2025 International Symposium on Information Theory*

Program Committee Chair for *2023 Asian Conference on Quantum Information Science, 2018 Quantum Communication, Measurement, and Computing, 2017 Conference on Theory of Quantum Computation, Communication, and Cryptography*;

Organizer of Focus Sessions on quantum information theory during the 2017 and 2016 APS March Meetings

Program Committee Member for *2025, 2024, 2023 Quantum Techniques in Machine Learning Conference; 2020, 2017, 2013 Quantum Information Processing Conference; 2022, 2021, 2020, 2015, 2014 International Symposium on Information Theory; 2016, 2014 Conference on Theory of Quantum Computation, Communication, and Cryptography; 2014 Asian Conference on Quantum Information Science*

### PhD thesis external examiner

Ph.D. thesis examiner for Amir Arqand, University of Waterloo (2025), Matthew S. Winnel, University of Queensland (2023), Yihui Quek, Stanford University (2021), Farzin Salek, Universitat Autònoma de Barcelona (2020), Eric Hanson, University of Cambridge (2020)

### **Reviewing**

Reviewer for the U.S. National Science Foundation, U.S. Department of Energy, the European Research Council, Czech Science Foundation

Journal Reviewer—*Physical Review Letters*, *Physical Review A*, *Nature*, *Nature Photonics*, *Nature Communications*, *Scientific Reports*, *IEEE Transactions on Information Theory*, *Communications in Mathematical Physics*, *Journal of Mathematical Physics*, *IEEE Communication Letters*, *IEEE International Symposium on Information Theory*, *Proceedings of the Royal Society A*, *Journal of Physics A: Mathematical and Theoretical*, *Journal of Physics B: Atomic, Molecular, and Optical Physics*, *Quantum Information Processing*, *Quantum Information and Computation*, *Optics Communications*

Writer for the *Quantum Times* (the newsletter for the Topical Unit on Quantum Information of the American Physical Society)

### **Honors and Awards**

Cornell Engineering Research Excellence Award (2025)

James McCormick Family Advising Award for Outstanding Advisors of First-Year Undergraduate Students (2025)

Dorothy and Fred Chau Award for Excellence in Undergraduate Research Project Supervision (2023–2024)

IEEE Fellow (2023)

Outstanding Referee of the American Physical Society (2021)

LSU Rainmaker Mid-Career Scholar Award (Science, Technology, Engineering & Mathematics) (2019)

AHP-Birkhäuser Prize, awarded to “the most remarkable contribution” published in the journal *Annales Henri Poincaré* (2018)

LSU College of Science Non-Tenured Faculty Research Award (2016)

LSU Alumni Association Rising Faculty Research Award (2015)

National Science Foundation Career Development Award (2014)

APS-IUSSTF Professorship Award in Physics (2014)

Senior Member of the IEEE (2013)

Centre de Recherches Mathématiques Thematic Postdoctoral Fellowship (2011-2013)

Best Teaching Assistant Award, Department of Electrical Engineering, University of Southern California (2007)

School of Engineering Fellowship, University of Southern California (2004)

Teaching Assistantship, Tulane University (2002)

Thomas Barton Scholarship, Texas A&M University (1998)

## Teaching Experience

Course Number	Title	Term	Location
ECE 6960	Quantum Information Theory	Spring 2025	Cornell
Math 1910	Calculus for Engineers	Fall 2024	Cornell
ECE 4950	Intro to QIS: Communication & Computation	Fall 2023	Cornell
ECE 6960	Quantum Information Theory	Spring 2023	Cornell
PHYS 7348	Theory of Quantum Computation	Spring 2022	LSU
PHYS 7347	Quantum Information Theory	Fall 2021	LSU
PHYS 7411	Computational Physics	Spring 2021	LSU
PHYS 2112	Fluids, Thermo., Waves & Modern Physics	Fall 2019	LSU
PHYS 7895	Gaussian Quantum Information	Spring 2019	LSU
PHYS 4112	Intermediate Mathematical Physics	Fall 2018	LSU
PHYS 7411	Computational Physics	Spring 2018	LSU
PHYS 7895	Theory of Quantum Computation	Fall 2017	LSU
PHYS 7895	Quantum Information Theory	Spring 2017	LSU
PHYS 2113	Fields: Gravity, Electricity, and Magnetism	Fall 2016	LSU
PHYS 7895	Theory of Quantum Computation	Spring 2016	LSU
PHYS 7895	Quantum Information Theory	Fall 2015	LSU
PHYS 7411	Computational Physics	Spring 2015	LSU
PHYS 2113	Fields: Gravity, Electricity, and Magnetism	Fall 2014	LSU
PHYS 7895	Theory of Quantum Computation	Spring 2014	LSU
PHYS 7895	Quantum Information Theory	Fall 2013	LSU
COMP 598	Quantum Information Theory	Winter 2011	McGill

## Invited Tutorials / Teaching

Invited Lecturer, 2020 Mitteldeutsche Physik Combo,  
Tutorial on entanglement theory, University of Leipzig,  
Leipzig, Germany, September 2020

Invited Lecturer, 2019 Illinois Quantum Computing Summer School,  
Discovery Partners Institute,  
Chicago, Illinois, June 2019

Invited Lecturer, Summer School on “Mathematical Aspects of Quantum Information,”  
Institut des Etudes Scientifiques de Cargese,  
Corsica, France, September 2017

Invited Lecturer, Tutorial on quantum information theory,  
International Symposium on Information Theory,  
Barcelona, Spain, July 2016

Lecturer, Short course on Quantum Information Theory,  
Delft University of Technology,  
Delft, Netherlands, Summer 2015

Lecturer, Short course on Quantum Information Theory,  
Tata Institute of Fundamental Research,  
Mumbai, India, Summer 2014

Lecturer, Introduction to Quantum Computation,  
Department of Physics and Astronomy,  
Center for Computation and Technology,  
Louisiana State University, Spring 2014

Lecturer, Introduction to Quantum Information Theory,  
Department of Physics and Astronomy,

Center for Computation and Technology,  
Louisiana State University, Fall 2013

Invited Lecturer, Summer School on Quantum Integrable Systems and Quantum Information,  
Hosted by the Dublin Institute for Advanced Studies,  
Dungarvan, County Waterford, Ireland, August 2013

Invited Lecturer, 12th Canadian Summer School on Quantum Information,  
University of Waterloo, Waterloo, Ontario, Canada, June 2012

Lecturer, Full semester course entitled "Introduction to Quantum Shannon Theory,"  
McGill University, Winter 2011

Guest Lecturer, Quantum Computation,  
"Reversible Computation,"  
McGill University, Winter 2010

Teaching Assistant, Quantum Computation,  
McGill University, Winter 2010

Guest Lecturer, "Mysteries of the Quantum World,"  
"Introduction to Quantum Error Correction,"  
Tulane University, Fall 2008

Guest Lecturer, Linear Algebra,  
"Introduction to Quantum Information Processing,"  
University of Southern California, Spring 2007

Teaching Assistant, Linear Signals and Systems,  
University of Southern California, Fall 2005–Spring 2007