Felix Leditzky

Department of Mathematics, University of Illinois Urbana-Champaign
Office 39, Computing Applications Building, 605 E Springfield Ave, Champaign, IL 61820, USA
Email: leditzky@illinois.edu, Website: http://www.felixleditzky.info

Employment

Jan 2021 – present	**Assistant Professor** Department of Mathematics & Department of Electrical and Computer Engineering (Affiliate), University of Illinois at Urbana-Champaign
Dec 2019 – Dec 2020	**Postdoctoral Fellow** Institute for Quantum Computing, University of Waterloo Perimeter Institute for Theoretical Physics
Nov 2016 – Nov 2019	**Postdoctoral Research Associate** JILA, University of Colorado Boulder

Education

Oct 2013 – Oct 2016	**PhD**, University of Cambridge Thesis: "Relative entropies and their use in quantum information theory" Supervised by Nilanjana Datta
Oct 2006 – Apr 2013	**Diploma in Physics** (Mag. rer. nat.), University of Vienna Thesis: "Deformed $\mathbb{R}^3$ as a physical framework for quantum mechanical problems" Supervised by Harald Grosse (graduated with distinction)
Oct 2006 – Feb 2012	**Diploma in Mathematics** (Mag. rer. nat.), University of Vienna Thesis: "Principal indecomposable modules for the Alternating group on five symbols in modular characteristic" Supervised by Joachim Mahnkopf (graduated with distinction)

Research interests

Quantum information theory, in particular mathematical and computational aspects:

- Additivity problems in quantum information theory, quantum channels and their capacities, quantum Shannon theory, mathematics of relative entropies, strong converse theorems, second order asymptotics
- Multipartite entanglement, symmetries and representation theory, group theory
- Neural networks and tensor networks ansätze for many-body quantum states
- Semidefinite programming, convex optimization theory, machine learning techniques, global optimization techniques

Publications & preprints

[25] B. Doolittle, F. Leditzky, and E. Chitambar. "Operational Nonclassicality in Quantum Communication Networks". *arXiv preprint* (2024). arXiv: 2403.02988 [quant-ph]

[24] G. A. Hamilton and F. Leditzky. "Probing multipartite entanglement through persistent homology". *Accepted for publication in Communications in Mathematical Physics* (2024). arXiv: 2307.07492 [quant-ph]

[23] E. Chitambar and F. Leditzky. "On the Duality of Teleportation and Dense Coding". *IEEE Transactions on Information Theory* (2023). arXiv: 2302.14798 [quant-ph]

[22] A. Seshadri, F. Leditzky, V. Siddhu, and G. Smith. "On the Separation of Correlation-Assisted Sum Capacities of Multiple Access Channels". *IEEE Transactions on Information Theory* 69.9 (2023), pp. 5805–5844. arXiv: 2205.13538 [cs.IT]

[21] F. Leditzky, D. Leung, V. Siddhu, G. Smith, and J. A. Smolin. "Generic Nonadditivity of Quantum Capacity in Simple Channels". *Physical Review Letters* 130 (20 2023), p. 200801. arXiv: 2202.08377 [quant-ph]

[20] F. Leditzky, D. Leung, V. Siddhu, G. Smith, and J. A. Smolin. "The Platypus of the Quantum Channel Zoo". *IEEE Transactions on Information Theory* 69.6 (2023), pp. 3825–3849. arXiv: 2202.08380 [quant-ph]

[19] A. Shlosberg, A. J. Jena, P. Mukhopadhyay, J. F. Haase, F. Leditzky, and L. Dellantonio. "Adaptive estimation of quantum observables". *Quantum* 7 (2023), p. 906. arXiv: 2110.15339 [quant-ph]

[18] C. Hirche and F. Leditzky. "Bounding Quantum Capacities via Partial Orders and Complementarity". *IEEE Transactions on Information Theory* 69.1 (2023), pp. 283–297. arXiv: 2202.11688 [quant-ph]

[17] F. Leditzky. "Optimality of the pretty good measurement for port-based teleportation". *Letters in Mathematical Physics* 112.5 (2022), p. 98. arXiv: 2008.11194 [quant-ph]

[16] R. Arnon-Friedman and F. Leditzky. "Upper bounds on device-independent quantum key distribution rates and a revised Peres conjecture". *IEEE Transactions on Information Theory* 67.10 (2021), pp. 6606–6618. arXiv: 2005.12325 [quant-ph]

[15] J. Bausch and F. Leditzky. "Error Thresholds for Arbitrary Pauli Noise". *SIAM Journal on Computing* 50.4 (2021), pp. 1410–1460. arXiv: 1910.00471 [quant-ph]

[14] E. I. Rosenthal, C. M. F. Schneider, M. Malnou, Z. Zhao, F. Leditzky, B. J. Chapman, W. Wustmann, X. Ma, D. A. Palken, M. F. Zanner, L. R. Vale, G. C. Hilton, J. Gao, G. Smith, G. Kirchmair, and K. W. Lehnert. "Efficient and Low-Backaction Quantum Measurement Using a Chip-Scale Detector". *Physical Review Letters* 126 (9 2021), p. 090503. arXiv: 2008.03805 [quant-ph]

[13] M. Christandl, F. Leditzky, C. Majenz, G. Smith, F. Speelman, and M. Walter. "Asymptotic performance of port-based teleportation". *Communications in Mathematical Physics* 381 (2021), pp. 379–451. arXiv: 1809.10751 [quant-ph]

[12] F. Leditzky, M. A. Alhejji, J. Levin, and G. Smith. "Playing Games with Multiple Access Channels". *Nature Communications* 11, 1497 (2020). arXiv: 1909.02479 [quant-ph]

[11] J. Bausch and F. Leditzky. "Quantum codes from neural networks". *New Journal of Physics* 22.2, 023005 (2020). arXiv: 1806.08781 [quant-ph]

[10] F. Leditzky, D. Leung, and G. Smith. "Dephrasure Channel and Superadditivity of Coherent Information". *Physical Review Letters* 121 (16 2018), p. 160501. arXiv: 1806.08327 [quant-ph]

[9] F. Leditzky, N. Datta, and G. Smith. "Useful states and entanglement distillation". *IEEE Transactions on Information Theory* 64.7 (2018), pp. 4689–4708. arXiv: 1701.03081 [quant-ph]

[8] F. Leditzky, D. Leung, and G. Smith. "Quantum and Private Capacities of Low-Noise Channels". *Physical Review Letters* 120 (16 2018), p. 160503. arXiv: 1705.04335 [quant-ph]

[7] F. Leditzky, E. Kaur, N. Datta, and M. M. Wilde. "Approaches for approximate additivity of the Holevo information of quantum channels". *Physical Review A* 97 (1 2018), p. 012332. arXiv: 1709.01111 [quant-ph]

[6] F. Leditzky, C. Rouzé, and N. Datta. "Data processing for the sandwiched Rényi divergence: a condition for equality". *Letters in Mathematical Physics* 107.1 (2017), pp. 61–80. arXiv: 1604.02119 [quant-ph]

[5] S. Beigi, N. Datta, and F. Leditzky. "Decoding Quantum Information via the Petz recovery map". *Journal of Mathematical Physics* 57.8, 082203 (2016). arXiv: 1504.04449 [quant-ph]

[4] F. Leditzky, M. M. Wilde, and N. Datta. "Strong converse theorems using Rényi entropies". *Journal of Mathematical Physics* 57.8, 082202 (2016). arXiv: 1506.02635 [quant-ph]

[3] F. Leditzky and N. Datta. "Second order asymptotics of visible mixed quantum source coding via universal codes". *IEEE Transactions on Information Theory* 62.7 (2016), pp. 4347–4355. arXiv: 1407.6616 [quant-ph]

[2] N. Datta and F. Leditzky. "Second-Order Asymptotics for Source Coding, Dense Coding, and Pure-State Entanglement Conversions". *IEEE Transactions on Information Theory* 61.1 (2015), pp. 582–608. arXiv: 1403.2543 [quant-ph], N. Datta and F. Leditzky. "Corrections to "Second-Order Asymptotics for Source Coding, Dense Coding, and Pure-State Entanglement Conversions"". *IEEE Transactions on Information Theory* 64.4 (2017), pp. 2625–2627

[1] N. Datta and F. Leditzky. "A limit of the quantum Rényi divergence". *Journal of Physics A: Mathematical and Theoretical* 47.4 (2014), p. 045304. arXiv: 1308.5961 [quant-ph]

Grants

Jul 2024 – Jul 2025	National Science Foundation No. 2409823 (Principal Investigator) Conference: Beyond IID in Information Theory 12 Co-PIs: Marius Junge, Eric Chitambar, Roy Araiza, Amanda Young (UIUC) Amount awarded: **$46,000**
Apr 2023 – Feb 2025	UIUC Campus Research Board Award No. RB23076 (Principal Investigator) "Quantum capacity thresholds from symmetric codes" Amount awarded: **$30,000** Arnold O. Beckman Research Award
Sep 2021 – Aug 2025	National Science Foundation No. 2137953 (Co-Principal Investigator) QuIC-TAQS: Quantum Networking with Multipartite Entangled Photons PI: Shuo Sun (University of Colorado Boulder), Co-PIs: Edwin Barnes (Virginia Tech), Paul Kwiat (UIUC) Amount awarded in total/to PI: **$2,499,999/$388,377**
Aug 2021 – Aug 2023	IBM-Illinois Discovery Accelerator Institute Grant (Principal Investigator) "Efficient implementation of optimal measurements in state discrimination" PIs: Srinivasan Arunachalam (IBM), Eric Chitambar, Felix Leditzky (UIUC) Amount awarded to PI: **$389,679**
Aug 2018	National Science Foundation No. 1834515 (Principal Investigator) Travel Support for Workshop: Rocky Mountain Summit on Quantum Information

	Co-PI: Graeme Smith Amount awarded: **$10,000**
May 2018	AI Grant (Principal Investigator) "Search for new quantum error correction codes using neural networks" PIs: Johannes Bausch (University of Cambridge), Felix Leditzky (University of Colorado Boulder) Amount awarded: **$2,500 plus $20,000 GPU credits**

Awards

Aug 2023 – Aug 2025	Lincoln Excellence for Assistant Professor (LEAP) Scholar College of Liberal Arts and Sciences, University of Illinois Urbana-Champaign Includes discretionary fund of **$10,000** for scholarly activities.
Apr 2023 – Feb 2025	Arnold O. Beckman Research Award University of Illinois Urbana-Champaign
Jan 2023 – Jan 2025	David H. Blackwell Scholar Department of Mathematics, University of Illinois Urbana-Champaign Includes discretionary fund of **$12,000** for scholarly activities.
Apr 2015	Smith-Knight and Rayleigh-Knight Prize (essay) University of Cambridge

Supervision & Mentoring

Postdocs

Aug 2022 – present	Stefano Chessa (jointly advised with Eric Chitambar)

PhD students

Aug 2022 – present	Sujeet Bhalerao
Aug 2021 – present	Haneul Kim (jointly advised with Eric Chitambar)
Apr 2021 – present	Stephen Zhou

Undergraduate students

Aug 2023 – present	Yulie Arad
Jan 2022 – present	Mayank Bhatia
Jan 2022 – Dec 2022	Mason Camp
Aug 2021 – Aug 2022	Nouralhoda Bayat

Teaching experience

Courses at University of Illinois Urbana-Champaign

At the University of Illinois, 4xx courses are intended for upper-division undergraduate students while 5xx courses are

intended for graduate and professional school students.

Spring 2024	Math 257 Linear Algebra with Computational Applications First course in linear algebra for STEM majors, 611 students
Spring 2023	Math 595 Quantum channels Advanced graduate topics course, 18 students
Fall 2022	Math 595 Representation-theoretic methods in quantum information theory Advanced graduate topics course, 28 students
Fall 2021	Math 416 Abstract Linear Algebra Proof-based linear algebra course for math majors, 61 students
Spring 2021	Math 595 Quantum channels I & Math 595 Quantum channels II Advanced graduate topics course, 28 students

Undergraduate research projects at University of Illinois Urbana-Champaign

2023 – 2024	Quantum computing and quantum communication IBM-Illinois Discovery Accelerator Institute REU Student: Yulie Arad
Fall 2023	Mapping out the quantum channel zoo Illinois Geometry Lab project Students: Ben Booker, Tianshun Gao, Anne Que, Yuxuan Wan, Lumi Xu Graduate student mentor: Sujeet Bhalerao
2022 – 2023	Optimization methods in quantum information theory IBM-Illinois Discovery Accelerator Institute REU Students: Hani Al Majed, Palak Kotwani
Fall 2022	Quantum teleportation and quantum state discrimination Illinois Geometry Lab project Students: Mayank Bhatia, Mason Camp, Devanshi Chakrabarti, Rishi Narayanan, Praneet Rathi Graduate student mentors: Sujeet Bhalerao, Stephen Zhou
Spring 2022	Select topics in quantum information theory Illinois Geometry Lab project Students: Mayank Bhatia, Mason Camp, Yuxuan Chen, Paul Ge, Evan Papoutsis, John Solak, Tianfan Xu, Boqin Yuan Graduate student mentor: Peixue Wu

Courses at University of Cambridge

Oct 2015 – Dec 2015	Exercise classes for lecture "Quantum Information Theory" Master level course (Part III), ca. 30 students
Oct 2014 – Dec 2014	Exercise classes for lecture "Quantum Information Theory" Master level course (Part III), ca. 30 students
Oct 2013 – Dec 2013	Exercise classes for lecture "Quantum Information Theory" Master level course (Part III), ca. 30 students

Extended research visits

Mar 2019	Kavli Institute for Theoretical Physics, Santa Barbara, CA, USA Program "Machine Learning for Quantum Many-Body Physics"
Dec 2017	Kavli Institute for Theoretical Physics, Santa Barbara, CA, USA Program "Quantum Physics of Information"
Sep 2017	Institute Henri Poincaré, Paris, France Program "Analysis in Quantum Information Theory"

Presentations

Contributed talks

[†]Talk given online. [*]Talk delivered by co-author.

Aug 2023	*Beyond I.I.D. in Information Theory*, Tübingen, Germany Title: "Probing multipartite entanglement through persistent homology"
Jul 2023[†]	*Theory of Quantum Computation, Communication and Cryptography*, Aveiro, Portugal Title: "On the Duality of Teleportation and Dense Coding"
Jun 2023[*]	*IEEE International Symposium on Information Theory*, Taipeh, Taiwan Title: "On the Duality of Teleportation and Dense Coding"
Sep 2022[†]	*Beyond I.I.D. in Information Theory*, Shenzhen, China Title: "Bounding Quantum Capacities via Partial Orders and Complementarity"
Jun 2022[†]	*IEEE International Symposium on Information Theory*, Espoo, Finland Title: "The platypus of the quantum channel zoo"
Jun 2022[*]	*IEEE International Symposium on Information Theory*, Espoo, Finland Title: "On the separation of correlation-assisted sum capacities of multiple access channels"
Jun 2022[*]	*IEEE International Symposium on Information Theory*, Espoo, Finland Title: "Bounding quantum capacities via partial orders and complementarity"
Mar 2022[*]	*Quantum Information Processing*, Pasadena, USA Title: "The platypus of the quantum channel zoo"
Sep 2021[†*]	*Beyond I.I.D. in Information Theory*, Taipei, Taiwan Title: "The platypus of the quantum channel zoo"
Aug 2021[†]	*International Congress on Mathematical Physics*, Geneva, Switzerland Title: "Asymptotic performance of port-based teleportation"
Jul 2021[†]	*Theory of Quantum Computation, Communication and Cryptography*, Riga, Latvia Title: "Upper bounds on device-independent quantum key distribution rates"
Nov 2020[†]	*Beyond I.I.D. in Information Theory*, Stanford, USA Title: "Playing games with multiple access channels"
Nov 2020[†*]	*Beyond I.I.D. in Information Theory*, Stanford, USA Title: "Upper bounds on device-independent quantum key distribution rates and a revised Peres conjecture"
Jun 2020[†]	*Theory of Quantum Computation, Communication and Cryptography*, Riga, Latvia Title: "Playing games with multiple access channels"

Jan 2020	*Quantum Information Processing*, Shenzhen, China Title: "Error thresholds for arbitrary Pauli noise"
Jul 2019	*Beyond I.I.D. in Information Theory*, Sydney, Australia Title: "Quantum codes from neural networks"
Feb 2019	*Southwest Quantum Information and Technology*, Albuquerque, USA Title: "Dephrasure channel and superadditivity of coherent information"
Jan 2019*	*Quantum Information Processing*, Boulder, USA Title: "Asymptotic performance of port-based teleportation"
Jul 2018	*Beyond I.I.D. in Information Theory*, Cambridge, UK Title: "Dephrasure channel and superadditivity of coherent information"
Jul 2017	*Beyond I.I.D. in Information Theory*, Singapore, Singapore Title: "Useful states and entanglement distillation"
Jun 2017	*IEEE International Symposium on Information Theory*, Aachen, Germany Title: "Degradable states and one-way entanglement distillation"
Jul 2016	*IEEE International Symposium on Information Theory*, Barcelona, Spain Title: "Strong converse theorem for state redistribution using Rényi entropies"
Sep 2015	*Quantum Information Processing and Communication*, Leeds, UK Title: "Second Order Asymptotics of Quantum Mixed Source Coding"

Invited talks

Nov 2021	*Mathematics Colloquium*, University of South Carolina, USA Title: "Symmetries in quantum information theory"
Oct 2020	*Recent developments in quantum information and computing*, The Graduate Center, City University of New York, USA Title: "Symmetries and asymptotics of port-based teleportation"
Jul 2020	*Tutte Colloquium*, Department of Combinatorics & Optimization, University of Waterloo, Canada Title: "Symmetries and asymptotics of port-based teleportation"
Sep 2019	*57th Annual Allerton Conference on Communication, Control and Computing*, University of Illinois Urbana-Champaign, Monticello, USA Title: "Quantum codes from neural networks"
Jul 2019	*Algebraic and Statistical ways into Quantum Resource Theories* (BIRS workshop), Banff, Canada Title: "Asymptotic performance of port-based teleportation"
May 2019	*Symposium on Quantum resources and their application*, ICTQT & KCIK, Gdansk, Poland Title: "Quantum Codes from Neural Networks"
Oct 2018	*Quantum Innovators in computer science and mathematics*, IQC, University of Waterloo, Canada Title: "Quantum Codes from Neural Networks"
Apr 2018	*IQC Colloquium*, IQC, University of Waterloo, Canada Title: "Asymptotic performance of port-based teleportation"
Nov 2017	*IEEE Information Theory Workshop*, Kaohsiung, Taiwan Title: "Quantum and private capacities of low-noise channels"
Aug 2015	*Young Researchers in Mathematics*, University of Oxford, UK

Title: "Second Order Asymptotics in Quantum Information Theory: Quantum Source Coding"

Jul 2015 *Beyond I.I.D. in Information Theory*, Banff, Canada
Title: "Strong converse theorems using Rényi entropies"

Aug 2014 *QUTE-Europe Summer School*, Smolenice, Slovakia
Title: "Source coding for a mixed source: determination of second order asymptotics"

Poster presentations

Feb 2019 *Southwest Quantum Information and Technology*, Albuquerque, USA
Title: "Quantum codes from neural networks"

Jan 2019 *Quantum Information Processing*, Boulder, USA
Title: "Quantum codes from neural networks"

Jul 2018 *Beyond I.I.D. in Information Theory*, Cambridge, UK
Title: "Port-based teleportation in arbitrary dimension – asymptotics and a converse bound"

Jan 2018 *Quantum Information Processing*, Delft, Netherlands
Title: "Bounds on quantum channel capacities from approximate additivity of channel information quantities"
Title: "Quantum and private capacities of low-noise channels"

Jan 2017 *Quantum Information Processing*, Seattle, USA
Title: "Degradable states and one-way entanglement distillation"

Jul 2016 *Beyond I.I.D. in Information Theory*, Barcelona, Spain
Title: "Degradable states: Upper bounds on one-way distillable entanglement and quantum capacity"

Jan 2016 *Quantum Information Processing*, Banff, Canada
Title: "Strong converse theorems using Rényi entropies"

Feb 2014 *Quantum Information Processing*, Barcelona, Spain
Title: "A limit of the quantum Rényi divergence"

Seminar talks

Jun 2023 *Seminar*, Ruhr Universität Bochum
Title: "Probing multipartite entanglement through persistent homology"

Mar 2023 *Seminar*, Weizmann Institute of Science, Israel
Title: "The platypus of the quantum channel zoo"

Nov 2022 *Seminar*, Virginia Tech, USA
Title: "The platypus of the quantum channel zoo"

Sep 2022 *Applied Mathematics Seminar*, University of California Berkeley, USA
Title: "The platypus of the quantum channel zoo"

Mar 2022 *Seminar*, University of Delaware, USA
Title: "The platypus of the quantum channel zoo"

Sep 2021 *QST seminar*, Louisiana State University, USA
Title: "Optimality of the pretty good measurement for port-based teleportation"

May 2021 *IQUIST Young researcher seminar*, University of Illinois at Urbana-Champaign, USA
Title: "Entanglement in quantum communication"

Mar 2021	*Quasar seminar*, University of Ottawa, Canada Title: "Symmetries and asymptotics of port-based teleportation"
Apr 2020	*ICTQT Seminar*, ICTQT/KCIK, University of Gdansk, Poland Title: "Playing games with multiple access channels" (remote talk)
Mar 2020	*IQUIST Seminar*, University of Illinois Urbana-Champaign, USA Title: "Symmetries and entanglement in channel coding problems" (remote talk)
Feb 2020	*IQC Seminar*, IQC, University of Waterloo, Canada Title: "Error thresholds for arbitrary Pauli noise"
Jan 2020	*KdVI Seminar*, Korteweg-de Vries Institute for Mathematics, University of Amsterdam, Netherlands Title: "Symmetries and entanglement in channel coding problems"
Nov 2019	*QuICS Seminar*, QuICS, University of Maryland, USA Title: "Playing games with multiple access channels"
Sep 2019	*IQUIST Seminar*, University of Illinois Urbana-Champaign, USA Title: "Symmetries and asymptotics of port-based teleportation"
Mar 2019	*Machine Learning for Quantum Many-Body Physics*, KITP, University of California Santa Barbara, USA Title: "Quantum codes from neural networks"
Nov 2018	*CQIF group seminar*, University of Cambridge, UK Title: "Asymptotic performance of port-based teleportation"
Sep 2018	*IQOQI Seminar*, Austrian Academy of Sciences & University of Vienna, Austria Title: "Dephrasure channel and superadditivity of coherent information"
Jun 2018	*Stanford University Seminar*, Stanford University, USA Title: "Dephrasure channel and superadditivity of coherent information"
May 2018	*MIT Seminar*, Massachussetts Institute of Technology, USA Title: "Asymptotic performance of port-based teleportation"
May 2018	*PI Seminar*, Perimeter Institute for Theoretical Physics, Canada Title: "Asymptotic performance of port-based teleportation"
Jan 2018	*QuSoft Seminar*, QuSoft, University of Amsterdam, Netherlands Title: "Useful states and entanglement distillation, and a toy channel exhibiting super-additivity of coherent information"
Nov 2017	*Hunter College group seminar*, City University of New York, USA Title: "Bounds on quantum channel capacities from approximate additivity of channel information quantities"
Sep 2017	*Analysis in Quantum Information Theory: Junior research seminar*, IHP, Paris, France Title: "Bounds on quantum channel capacities from approximate additivity of channel information quantities"
Jul 2017	*IQI Seminar*, Caltech, USA Title: "Useful states and entanglement distillation"
May 2017	*LSU group seminar*, Louisiana State University, USA Title: "On the quantum capacity of the qubit depolarizing channel"
May 2017	*LSU group seminar*, Louisiana State University, USA Title: "Relative entropies and their use in quantum information theory"
Apr 2017	*CTQM seminar*, University of Colorado Boulder, USA

	Title: "Upper bounds on the one-way and two-way distillable entanglement from suitable convex decompositions"
Apr 2017	*CQIF group seminar*, University of Cambridge, UK Title: "On the quantum capacity of the qubit depolarizing channel"
Feb 2016	*CAKE seminar*, University of Cambridge, UK Title: "Equality condition in the data processing inequality for the quantum relative entropy"
Jan 2016	IBM Thomas J. Watson Research Center, Yorktown Heights, USA Title: "Strong converse theorems using Rényi entropies"

Academic service

Committee service

Jan 2021 – present	IQUIST, University of Illinois Urbana-Champaign Science Advisory Board
Aug 2023 – May 2024	Department of Mathematics, University of Illinois Urbana-Champaign Climate, Equity & Inclusion Committee
Aug 2022 – May 2023	Department of Mathematics, University of Illinois Urbana-Champaign Strategic Planning Committee
Aug 2021 – May 2022	Department of Mathematics, University of Illinois Urbana-Champaign Faculty search committee for tenure-track position in Applied Mathematics
Aug 2020 – Dec 2020	Perimeter Institute for Theoretical Physics Organization of quantum information group seminar
Oct 2013 – Jun 2015	Girton College, University of Cambridge Organizing committee for the post-graduate community

Conference organization

Sep 2023 – Jul 2024	*Beyond IID in Information Theory* University of Illinois Urbana-Champaign, USA, July 29 - August 2, 2024. Co-organizers: Roy Araiza, Eric Chitambar, Marius Junge, Amanda Young. Website: https://beyondiid2024.iquist.illinois.edu/
Jan 2022 – Nov 2022	*QLA meets QIT II* Illini Center, Chicago, USA, November 3-4, 2022. Co-organizers: Roy Araiza, Marius Junge, Thomas Sinclair. Website: https://sites.google.com/view/qlameetsqitii/
Aug 2021 – Jul 2022	*Theory of Quantum Computation, Communication, and Cryptography (TQC)* University of Illinois Urbana-Champaign, USA, July 11-14, 2022. Co-organizers: Eric Chitambar, Emily Edwards. Website: https://tqc2022-conference.iquist.illinois.edu/
Jan 2018 – Jan 2019	*Quantum Information Processing (QIP)* University of Colorado Boulder, USA, January 14-18, 2019. Co-organizer: Graeme Smith. Website: http://jila.colorado.edu/qip2019

Nov 2017 – Jun 2018	*Rocky Mountain Summit on Quantum Information* University of Colorado Boulder, USA, June 25-29, 2018. Co-organizers: Graeme Smith, Mark M. Wilde. Website: http://jila.colorado.edu/rmsqi

Editorial services

Mar 2022 – present	Editor for *Quantum*. Website: https://quantum-journal.org/
Nov 2020 – present	Editor for *Illinois Journal of Mathematics*. Website: https://ijm.math.illinois.edu/

Referee services

Feb 2024 – Apr 2024	Member of program committee for conference *TQC 2022* Website: https://tqc-conference.org/
Sep 2023 – Nov 2023	Member of program committee for conference *QIP 2024* Website: https://qip2024.tw/
Mar 2023 – Apr 2023	Member of program committee for conference *Beyond IID in Information Theory* Website: https://sites.google.com/view/beyondiid11
Oct 2022 – Nov 2022	Member of program committee for conference *QIP 2023* Website: https://indico.cern.ch/event/1175020/
Feb 2022 – Mar 2022	Member of program committee for conference *TQC 2022* Website: https://tqc2022-conference.iquist.illinois.edu/
Aug 2021	Member of program committee for conference *Beyond IID in Information Theory* Website: http://cc.ee.ntu.edu.tw/~beyondiid9/
Mar 2021 – Apr 2021	Member of program committee for conference *TQC 2021* Website: https://tqc2021.lu.lv/call-for-papers/
April 2018	Member of program committee for conference *CEQIP 2018* Website: http://ceqip.eu/2018/index.php
Oct 2013 – present	Reviewing for: *IEEE Transactions on Information Theory*, *Communications in Mathematical Physics*, *Journal of Mathematical Physics*, *Letters in Mathematical Physics*, *Mathematical Programming*, *Physical Review Letters*, *Physical Review A*, *Nature Physics*, *Nature Communications*, *npj Quantum Information*, *New Journal of Physics*, *Quantum*, *Quantum Information Processing*, various conferences (*ISIT*, *ITW*, *QIP*, *TQC*, *AQIS*, *CEQIP*, *Q-Turn*, *STOC*)

Language & IT skills

Languages: German (native), English (fluent), Spanish (conversational), Latin (translation)
IT: Matlab, Mathematica, Python, HTML, CSS, Linux, LaTeX

Interests

Music, playing guitar, reading, playing football, running, traveling