Mario Berta

Publications

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Overview

- Journal articles (peer-reviewed): 42
- Conference proceedings (peer-reviewed): 17
- Preprints arXiv: 6
- Citations: 2735
- H-Index: 28
  (according to Google Scholar as of September 4, 2020)

- **Information Theory**: IEEE Transactions on Information Theory.
- **Cryptography**: Advances in Cryptology - CRYPTO.
- **Optimization Theory**: SIAM Journal on Optimization.
- **Physics**: Nature Physics, Nature Communications, Physical Review Letters, Reviews of Modern Physics.
- **Mathematical Physics**: Communications in Mathematical Physics, Annales Henri Poincaré.

- 5 most important publications ∗ in reverse chronological order:

∗ **Mario Berta**, Francesco Borderi, Omar Fawzi, Volkher B. Scholz *Semidefinite programming hierarchies for quantum error correction*, arXiv:1810.12197, under review at Mathematical Programming.

∗ David Sutter, **Mario Berta**, Marco Tomamichel, *Multivariate trace inequalities*, Communications in Mathematical Physics 352, 37 (2017).

∗ **Mario Berta**, Omar Fawzi, Marco Tomamichel, *On variational expressions for quantum relative entropies*, Letters in Mathematical Physics 107, 2239 (2017).

∗ **Mario Berta**, Omar Fawzi, Volkher B. Scholz, *Quantum bilinear optimization*, SIAM Journal on Optimization 26, 1529 (2016).

∗ **Mario Berta**, Matthias Christandl, Roger Colbeck, Joseph M. Renes, Renato Renner, *The uncertainty principle in the presence of quantum memory*, Nature Physics 6, 659 (2010).

Latest Preprints

- Hyejung H. Jee, Carlo Sparaciari, Omar Fawzi, **Mario Berta**, *Characterising quantum correlations of fixed dimension*, arXiv:2005.08883, under review at SIAM Journal on Computing.

- Philippe Faist, **Mario Berta**, Mario Berta, Fernando Brandão, *Thermodynamic implementations of quantum processes*, arXiv:1911.05563, under review at Communications in Mathematical Physics.
- **Mario Berta**, David Sutter, Michael Walter, *Quantum Brascamp-Lieb dualities*, arXiv:1909.02383, under review at Communications in Mathematical Physics.
- Navneeth Ramakrishnan, Raban Iten, Volkher B. Scholz, **Mario Berta**, *Non-commutative Blahut-Arimoto algorithms*, arXiv:1905.01286, under review at IEEE Transactions on Information Theory.
- **Mario Berta**, Fernando Brandão, Christoph Hirche, *On composite quantum hypothesis testing*, arXiv:1709.07268, under review at Communications in Mathematical Physics.

Review Articles

- Stefano Pirandola *et al.* — **Mario Berta**, *Advances in quantum cryptography*, Advances in Optics and Photonics, to appear (2020).
- Patrick J. Coles, **Mario Berta**, Marco Tomamichel, Stephanie Wehner, *Entropic uncertainty relations and their applications*, Reviews of Modern Physics 89, 015002 (2017).

Journal Articles

- Arkin Tikku, **Mario Berta**, Joseph M. Renes, *Non-additivity in classical-quantum wiretap channels*, arXiv:2002.06580, IEEE Journal on Selected Areas in Information Theory, to appear (2020).
- Mark M. Wilde, **Mario Berta**, Christoph Hirche, Eneet Kaur, *Amortized channel divergence for asymptotic quantum channel discrimination*, Letters in Mathematical Physics 100, 2277 (2020).
- Anurag Anshu, **Mario Berta**, Rahul Jain, Marco Tomamichel, *Partially smoothed information measures*, IEEE Transactions on Information Theory 66, 5022 (2020).
- Kun Fang, Xin Wang, Marco Tomamichel, **Mario Berta**, *Quantum channel simulation and the channel's smooth max-Information*, IEEE Transactions on Information Theory 66, 2129 (2020).
- Anurag Anshu, **Mario Berta**, Rahul Jain, Marco Tomamichel, *A minimax approach to one-shot entropy inequalities*, Journal of Mathematical Physics 60, 122201 (2019).
- Philippe Faist, **Mario Berta**, Fernando Brandão, *Thermodynamic capacity of quantum processes*, Physical Review Letters 122, 200601 (2019).
- **Mario Berta**, Fernando Brandão, Jutho Haegeman, Volkher B. Scholz, Frank Verstraete, *Thermal states as convex combinations of matrix product states*, Physical Review B 98, 235154 (2018).
- **Mario Berta**, Christian Majenz, *Disentanglement cost of quantum states*, Physical Review Letters 121, 190503 (2018).
- **Mario Berta**, Fernando Brandão, Christian Majenz, Mark M. Wilde, *Deconstruction and conditional erasure of quantum correlations*, Physical Review A 98, 042320 (2018).

- **Mario Berta**, Fernando Brandão, Christian Majenz, Mark M. Wilde, *Conditional decoupling of quantum information*, Physical Review Letters 121, 040504 (2018).
- **Mario Berta**, Mark M. Wilde, *Amortization does not enhance the max-Rains information of a quantum channel*, New Journal of Physics 20, 053044 (2018).
- **Mario Berta**, Volkher B. Scholz, Marco Tomamichel, *Rényi divergences as weighted non-commutative vector valued L_p-spaces*, Annales Henri Poincaré 19, 1843 (2018).
- Mark M. Wilde, Marco Tomamichel, Seth Lloyd, **Mario Berta**, *Gaussian hypothesis testing and quantum illumination*, Physical Review Letters 119, 120501 (2017).
- **Mario Berta**, Hrant Gharibyan, Michael Walter, *Entanglement-assisted capacities of compound quantum channels*, IEEE Transactions on Information Theory 63, 3306 (2017).
- Christian Majenz, **Mario Berta**, Frédéric Dupuis, Renato Renner, Matthias Christandl, *Catalytic decoupling of quantum information*, Physical Review Letters 118, 080503 (2017).
- **Mario Berta**, Omar Fawzi, Volkher B. Scholz, *Quantum-proof randomness extractors via operator space theory*, IEEE Transactions on Information Theory 63, 2480 (2017).
- Mark M. Wilde, Marco Tomamichel, **Mario Berta**, *Converse bounds for private communication over quantum channels*, IEEE Transactions on Information Theory 63, 1792 (2017).
- **Mario Berta**, Stephanie Wehner, Mark M. Wilde, *Entropic uncertainty and measurement reversibility*, New Journal of Physics 18, 073004 (2016).
- Marco Tomamichel, **Mario Berta**, Joseph M. Renes, *Quantum coding with finite resources*, Nature Communications 7, 11419 (2016).
- **Mario Berta**, Marco Tomamichel, *The fidelity of recovery is multiplicative*, IEEE Transactions on Information Theory 62, 1758 (2016).
- **Mario Berta**, Matthias Christandl, Dave Touchette, *Smooth entropy bounds on one-shot quantum state redistribution*, IEEE Transactions on Information Theory 62, 1425 (2016).
- **Mario Berta**, Fabian Furrer, Volkher B. Scholz, *The smooth entropy formalism for von Neumann algebras*, Journal of Mathematical Physics 57, 015213 (2016), Special Issue: Operator Algebras and Quantum Information Theory.
- **Mario Berta**, Marius Lemm, Mark M. Wilde, *Monotonicity of quantum relative entropy and recoverability*, Quantum Information and Computation 15, 1333 (2015).
- Kaushik P. Seshadreesan, **Mario Berta**, Mark M. Wilde, *Rényi squashed entanglement, discord, and relative entropy differences*, Journal of Physics A 48, 395303 (2015).
- **Mario Berta**, Kaushik P. Seshadreesan, Mark M. Wilde, *Rényi generalizations of the conditional quantum mutual information*, Journal of Mathematical Physics 56, 022205 (2015).
- **Mario Berta**, Kaushik P. Seshadreesan, Mark M. Wilde, *Rényi generalizations of quantum information measures*, Physical Review A 91, 022333 (2015).
- Marco Tomamichel, **Mario Berta**, Masahito Hayashi, *Relating different quantum generalizations of the conditional Rényi entropy*, Journal of Mathematical Physics 55, 082206 (2014).

- Fabian Furrer, **Mario Berta**, Marco Tomamichel, Volkher B. Scholz, Matthias Christandl, *Position-momentum uncertainty relations in the presence of quantum memory*, Journal of Mathematical Physics 55, 122205 (2014)
- **Mario Berta**, Patrick J. Coles, Stephanie Wehner, *Entanglement-assisted guessing of complementary measurement outcomes*, Physical Review A 90, 062127 (2014).
- **Mario Berta**, Joseph M. Renes, Mark M. Wilde, *Identifying the information gain of a quantum measurement*, IEEE Transactions on Information Theory 60, 7987 (2014).
- **Mario Berta**, Omar Fawzi, Stephanie Wehner, *Quantum to classical randomness extractors*, IEEE Transactions on Information Theory 60, 1168 (2014).
- Frédéric Dupuis, **Mario Berta**, Jürg Wullschleger, Renato Renner, *One-shot decoupling*, Communications in Mathematical Physics 328, 251 (2014).
- **Mario Berta**, Fernando Brandão, Matthias Christandl, Stephanie Wehner, *Entanglement cost of quantum channels*, IEEE Transactions on Information Theory 59, 6779 (2013).
- Fabian Furrer, Torsten Franz, **Mario Berta**, Anthony Leverrier, Volkher B. Scholz, Marco Tomamichel, Reinhard F. Werner, *Continuous variable quantum key distribution: finite-key analysis of composable security against coherent attacks*, Physical Review Letters 109, 100502 (2012).
- Nelly Huei Ying Ng, **Mario Berta**, Stephanie Wehner, *A min-entropy uncertainty relation for finite size cryptography*, Physical Review A 86, 042315 (2012).
- **Mario Berta**, Matthias Christandl, Renato Renner, *The quantum reverse Shannon theorem based on one-shot information theory*, Communications in Mathematical Physics 306, 579 (2011).

Conference Proceedings

- Navneeth Ramakrishnan, Raban Iten, Volkher B. Scholz, **Mario Berta**, *Quantum Blahut-Arimoto algorithms*, IEEE International Symposium on Information Theory, to appear as Jack Keil Wolf Student Paper Award (2020).
- Arkin Tikku, Joseph M. Renes, **Mario Berta**, *Additivity in classical-quantum wiretap channels*, IEEE International Symposium on Information Theory, to appear (2020).
- **Mario Berta**, Francesco Borderi, Omar Fawzi, Volkher B. Scholz, *Quantum coding via semidefinite programming*, IEEE International Symposium on Information Theory, pages 260-264 (2019).
- **Mario Berta**, Christoph Hirche, Eneet Kaur, Mark M. Wilde, *Stein's lemma for classical-quantum channels*, IEEE International Symposium on Information Theory, pages 2564-2568 (2019).
- Anurag Anshu, **Mario Berta**, Rahul Jain, Marco Tomamichel, *Second-order characterizations via partial smoothing*, IEEE International Symposium on Information Theory, pages 937-941 (2019).
- Kun Fang, Xin Wang, Marco Tomamichel, **Mario Berta**, *Quantum channel simulation and the channel's smooth max-information*, IEEE International Symposium on Information Theory, pages 2326-2330 (2018).

- **Mario Berta**, Mark M. Wilde, *Strong converse bound on the two-way assisted quantum capacity*, IEEE International Symposium on Information Theory, pages 2167-2171 (2018).
- David Sutter, **Mario Berta**, Marco Tomamichel, *Quantum Markov chains and logarithmic trace inequalities*, IEEE International Symposium on Information Theory, pages 1988-1992 (2017).
- Mark M. Wilde, Marco Tomamichel, **Mario Berta**, *A meta-converse for private communication over quantum channels*, IEEE International Symposium on Information Theory, pages 291-295 (2017).
- **Mario Berta**, Omar Fawzi, Marco Tomamichel, *Exploiting variational formulas for quantum relative entropy*, IEEE International Symposium on Information Theory, pages 2844-2848 (2016).
- **Mario Berta**, Omar Fawzi, Volkher B. Scholz, *Semidefinite programs for randomness extractors*, Conference on Theory of Quantum Computation, Communication, and Cryptography, Leibniz International Proceedings in Informatics 44, pages 73-91 (2015).
- **Mario Berta**, Joseph M. Renes, Mark M. Wilde, *Identifying the information gain of a quantum measurement*, IEEE International Symposium on Information Theory, pages 331-335 (2014).
- Marco Tomamichel, **Mario Berta**, Masahito Hayashi, *A duality relation connecting different quantum generalizations of the conditional Rényi entropy*, IEEE International Symposium on Information Theory, pages 731-735 (2014).
- **Mario Berta**, Omar Fawzi, Volkher B. Scholz, Oleg Szehr, *Variations on classical and quantum extractors*, IEEE International Symposium on Information Theory, pages 1474-1478 (2014).
- **Mario Berta**, Omar Fawzi, Stephanie Wehner, *Quantum to classical randomness extractors*, Advances in Cryptology - CRYPTO, pages 776-793 (2012).
- **Mario Berta**, Fernando Brandão, Matthias Christandl, Stephanie Wehner, *Entanglement cost of quantum channels*, IEEE International Symposium on Information Theory, pages 900-904 (2012).
- **Mario Berta**, Matthias Christandl, Renato Renner, *A Conceptually simple proof of the quantum reverse Shannon theorem*, Conference on Theory of Quantum Computation, Communication, and Cryptography, pages 131-140 (2010).