
CURRICULUM VITAE

Jens Eisert

Professor of Theoretical Physics

Email: jense@physik.fu-berlin.de

Web: <http://www.physik.fu-berlin.de/en/einrichtungen/ag/ag-eisert>

Freie Universität Berlin

Arnimallee 14

14195 Berlin

PERSONAL DETAILS

- **Date of birth:** 9th of October 1970
- **Nationalities:** German and Swedish
- **Marital status:** Married, one child

ACADEMIC APPOINTMENTS

05/11-	Full professor , Dahlem Center for Complex Quantum Systems, Freie Universität Berlin
08/19-	Group leader , Quantum Computing and Simulation, Helmholtz Center Berlin
11/21-	Group leader , Quantum Machine Learning, Fraunhofer Heinrich Hertz Institute Berlin
10/09-09/10	Fellow at the Institute for Advanced Study Berlin (Wissenschaftskolleg)
05/08-04/11	Full professor , University of Potsdam
03/05-05/08	Lecturer (permanent), Institute for Mathematical Sciences, Imperial College London
12/02-03/05	Junior professor , Quantum Optics and Quantum Information, University of Potsdam
12/02-01/03	Visiting scholar , IQI, California Institute of Technology
07/01-11/02	Feodor Lynen Fellow of the Alexander von Humboldt Foundation , Imperial College London
02/01-07/01	Postdoctoral researcher in QOLS, Imperial College London , supported by the EU

RESEARCH

Research interests: Quantum information theory, quantum many-body theory

- Quantum computing and simulation
- Quantum information theory
- Complex quantum systems
- Tensor networks
- Machine learning
- Quantum systems identification

Research talks:

- **>1000 invited talks** at workshops, conferences, and in colloquia

Publications:

- **406** scientific publications, of which
- **107** published in **PRL**, **PRX (Quantum)** or **RMP**
- **41** published in the **Nature** and **Science** groups
- **5** in the **Commun. Math. Phys.**

Citations:

- **26,805 citations** according to Web of Science (WoS)
- **49,005 citations** according to Google Scholar (GS)
- **h-index 108** (GS), **76** (WoS)

AWARDS AND PRIZES

- **ERC Advanced Grant** of the European Research Council, 2023
- **Google NISQ Award**, 2019
- **ERC Consolidator Grant** of the European Research Council, 2012
- **Institute for Advanced Study Berlin** Fellow, 2010-2011
- **European Research Young Investigator** (EURYI) Award, 2004
- **Feodor Lynen** Scholarship of the **Alexander von Humboldt Foundation**, 2001
- **Michelson Prize**, 1998
- **Sigma Pi Sigma Honour Society Award**, 1995
- **J. W. Fulbright** Scholarship, 1994
- Named among the **Top 100** researchers of Berlin, Tagesspiegel, 2023

PHD

04/98-01/01	PhD , University of Potsdam , thesis advisor M. Wilkens <i>"Entanglement in Quantum Information Theory"</i> Final grade: Summa cum laude
-------------	---

EDUCATION

95-98, 91-94	Albert Ludwigs University Freiburg , studies in physics Degree: Diploma in Physics Final grade: Very good (very good) Topic of dissertation: <i>"Quantum Brownian Motion: A Quantum Monte Carlo Approach"</i>
--------------	---

- 94–95 **University of Connecticut**, as a J. W. Fulbright Fellow
Postgraduate studies in mathematics and physics
Degree: **Master of Science**, GPA: **3.88** (4.0)
Scientific work in applied mathematics/numerical analysis
- 81–90 **Wilhelm-von-Humboldt-High-School**, Ludwigshafen
Degree: **Abitur**, average mark: **1.0** (1.0)

EDITORIAL BOARD MEMBERSHIPS AND SERVICES TO THE COMMUNITY

- Substantial **outreach** in public talks, podcasts, and programmes in the public television and radio
- **Agenda on quantum computing of the German government**, co-author with I. Bloch and T. Calarco, 2020
- **Government consulting** on quantum technologies for the German government, 2019–
- **EU’s Strategic Research Agenda** on quantum technologies, co-author, 2019
- **Physical Review Letters**, divisional editor, 2017–2020
- **EU road map for quantum information science**, lead author of the quantum simulations section, 2016
- **Quantum**, advisory board member, 2016–
- **QUTEGA committee** planning the German part of the *EU Flagship for Quantum Technologies*, member, 2016
- **Quantum Science and Technologies**, editor, 2016–
- **Quantum Information and Computation**, editor, 2011–
- **Physical Review A**, divisional editor, 2008–2010
- **Journal of Physics A**, editor, 2012–2016
- **Quantum Information Processing**, editor, 2012–2016
- **2010 EU road map for quantum information science**, co-author and lead theory editor, 2010

ORGANISATIONAL SKILLS

- **Berlin University Alliance**, contributing to Berlin’s excellence project, 2025–
- **Berlin Quantum**, founding board member and co-speaker of Berlin Quantum, the quantum initiative of the state of Berlin, 2023–
- **Einstein Research Unit**, Perspectives of a quantum digital transformation: Near-term quantum computational devices and quantum processors on near-term quantum computing, project coordinator of a project within the Berlin University Alliance of the German Excellence Initiative, involving 19 PIs, December 2020–December 2024
- **FOR 2724**, project leader of a DFG Research Unit on quantum thermodynamics, January 2019–
- **TQC 2016**, head organizer, major conference on quantum information, September 2016
- **Subproject leader** in EU projects QAP and QESSENCE
- **COST Action MP1209** “Thermodynamics in the Quantum Regime”, co-author and working group leader, 2012
- **COST-Conference**, first COST conference on quantum thermodynamics held in Potsdam, January 2014
- **QQQ-Meeting**, regular meeting in the Berlin-Potsdam academic landscape on quantum information, quantum optics, and quantum many-body theory (organizer and co-founder), 2005–2011
- **Summer academy of the Studienstiftung des deutschen Volkes**, Görlitz 2008, course on quantum information theory, jointly with A. Rauschenbeutel, August 2008
- **PAQ07, head of local organizing committee**, major international conference on quantum optics and quantum information, Royal Society London, September 2007
- **Summer academy of the Studienstiftung des deutschen Volkes**, Rot an der Rot 2004, course on quantum information theory, jointly with R. F. Werner, August 2004
- **IQING 2002**, organizer of an international conference for PhD students and postdocs in quantum information
- **IQING 2001**, jointly with C. Simon (Oxford) and D. Jonathan (Cambridge), 2001
- **YAO ’99 – Young Atom Opticians**, jointly with T. Felbinger and C. Henkel (Potsdam), 1999
- **A2-Consortium For Quantum Information**, 1998 – 2001, 2003

GROUP LEADING SKILLS AND SUPPORT OF YOUNG SCIENTISTS

- **Diploma and MSc supervision**: (Present and past) J. Anders, B. Bach, I. Benthin, H. Bernigau, P. Fährmann, J. Frank, A. Friedenauer, M. Friesdorf, M. Gluza, M. Goihl, D. Gross, D. Hangleiter, M. von Hase, M. Herold, J. Hoersch, A. Kegeles, M. Kramer, S. Lahs, J. Lekscha, J. J. Meyer, A. Nietner, C. Prunkl, S. Rosset, A. Steffens, A. Studt, L. Trotta, C. Verheven, C. Wassner, F. Wilde, H. Wilming, J. Wilkens

- **PhD supervision:** (Present and past) G. Aguilar, S. Aimet, A. Bauer, C. Bertoni, P. Boes, F. G. S. L. Brandao (co-supervised with M. B. Plenio), A. Burchards, J. Conrad, M. Cramer, J. Denzler, P.-J. Derks, A. Feito (co-supervised with M. B. Plenio), P. Fährmann, M. Friesdorf, J. C. M. de la Fuente, J. Fiksa, J. Gertis, E. Gil-Fuster, M. Gluza, M. Goihl, C. Gogolin, D. Gross, F. Hahn, J. Haferkamp, D. Hangleiter, A. A. Mele, M. Hinsche, M. Ioannou, A. Jahn, M. Kesselring, K. Kieling, J. Kitzinger, M. Kliesch, C. Krumnow, A. Mari, J. Meyer, D. Miller, J. Naumann, J. Nauth, A. Nietner, M. Ohliger, E. Onorati, I. Roth, A. Serafini (long term visitor), A. Steffens, R. Suzuki, A. Townsend-Teague, F. Wilde, C. Wille, H. Wilming, A. Wilms
- **Postdoctoral researchers:** (Present and past) T. Barthel, N. de Beaudrap, L. Bittel, J. Bermejo-Vega, C. Bravo-Prieto, O. Buerschaper, E. T. Campbell, C. Cao, M. Caro, J. Carrasco, M. Cramer, C. Dawson, E. Derbyshire, F. vom Ende, P. Faist, R. Gallego, D. Gross, T. Guaita, G. Guarinieri, R. Hübener, P. Hyllus, S. Khatri, R. Küng, V. Lahtinen, L. Leone, A. Lund, M. Müller, A. Nagy, V. Nesme, H. Pashayan, F. Pastawski, C. Pineda, J. Roffe, K. Pregnell (co-supervised with M. B. Plenio), Y. Quek, A. Quintavalle, A. Riera, C. Riofrio, J. Roffe, R. Schadow, P. Schmoll, N. Tarantino, N. Tischler, A. H. Werner, N. Walk, J. Wallnöfer, B. Wu, D. Yang, Z. Zimboras
- **Host of Humboldt Bessel Award winners and professors:** (Present and past) M. Aspelmeyer, T. Prosen, R. Sweke
- **Host of Humboldt/Marie-Skłodowska-Curie grants:** (Present and past) F. Arzani, L. Aolita, R. DiCandia, S. Campbell (shared with C. Koch), C. Cao, F. vom Ende, R. Gallego, F. Pastawski, M. J. Kastoryano, R. Laurenza, N. Ng, A. Pappa, Y. Quek, M. Schwarz, S. J. Thomson, N. Tischler, A. Streltsov, R. Sweke, N. Walk
- **Past group members in senior academic positions and permanent jobs in the quantum industry:** This research group, despite being a relatively young group, already has a long list of past group members who are now in **group leader positions in academia** or are **permanently employed as researchers** in the quantum industry. At least the **43 past group members** in the following list fairly qualify for this. This can be seen as an indication of taking academic support, coaching, mentoring and academic career planning very seriously.

David Gross (PhD student and Diploma student, now W3 professor at the University of Cologne), Martin Kliesch (PhD student and postdoc, now W3 professor at the University of Hamburg), Richard Kueng (postdoc, now professor at the Johannes Kepler University of Linz), Zoltan Zimboras (postdoc, now assistant professor at the Wigner Institute, Budapest), Alexander Streltsov (postdoc, now group leader at the University of Warsaw), Albert Werner (postdoc, now professor in Copenhagen), Dong Yang (postdoc, now assistant professor at the Jiliang University, China), Thomas Barthel (postdoc, now assistant professor at Duke University), Earl Campbell (postdoc, now lecturer – assistant professor – at the University of Sheffield and team lead at Riverlane, Cambridge), Ryan Sweke (postdoc, now Humboldt professor in Stellenbosch, South Africa), Spyros Sotiriadis (postdoc, now assistant professor at the University of Crete, Greece), Alessio Serafini (long term visiting PhD student, now professor at University College London), Janet Anders (Diploma student, now W3 professor at the University of Potsdam), Michael Kastoryano, (postdoc, now assistant professor at the University of Copenhagen), Fernando Brandao (PhD student, joint supervision with Martin Plenio, now professor at the California Institute of Technology and quantum researcher at Amazon Quantum Solutions Lab, Pasadena), Niel de Beaudrap (postdoc, now lecturer – assistant professor – at the University of Sussex), Ingo Roth (PhD student, now lead scientist at the Technology Innovation Institute, Dubai), Markus Mueller (postdoc, now group leader – similar to assistant professor – at IQOQI, Vienna), Steven J. Thomson, (postdoc, now EPSRC Open Fellow at the University of Edinburgh), Giacomo Guarneri (postdoc, now adjunct professor at the University of Padua), Leandro Aolita (postdoc and Marie-Skłodowska-Curie Fellow, now professor and executive director at the Quantum Research Center, Abu Dhabi), Augustine Kshetrimalayum (postdoc, now assistant professor at the Saha Institute of Nuclear Physics, Kolkata), Arnau Riera (postdoc, now researcher at Qilimanjaro), Christian Gogolin (PhD student and postdoc, now quantum researcher at Covestro), Carlos Pineda (postdoc, now assistant professor at the Universidad Nacional Autonoma de Mexico), Fernando Pastawski (postdoc, now quantum researcher at PsiQuantum), Konrad Kieling (postdoc, PhD student and Diploma student, now quantum researcher at PsiQuantum), Mark Steudtner (postdoc, now quantum researcher at PsiQuantum), Juani Bermejo-Vega (postdoc, now group leader at the University of Granada), Christopher Dawson (postdoc, now quantum researcher at PsiQuantum), Anna Pappa (postdoc, now Emmy Noether junior group leader at TU Berlin), Nelly Ng (postdoc and Humboldt Fellow, now assistant professor at NTU Singapore), Marcus Cramer (PhD student, now quantum researcher at Q-CTRL), Christian Krumnow (PhD student and postdoc, now group and project leader at the University of Applied Sciences, Berlin), Winton Brown (postdoc, now quantum researcher at Northrop Grumman), Francesco Arzani (Marie Curie Fellow and postdoc, now group leader at Ecole Normale Supérieure), Andrea Mari (PhD student, now professor at the University of Camerino), Ji-Yao Chen (postdoc, now professor at Sun Yat-sen University), Nora Tischler (postdoc, now assistant professor at Griffith University), Matthias Caro (postdoc, now lecturer at Warwick University), Joschka Roffe (postdoc, now tenure track lecturer at the University of Edinburgh), Lorenzo Leone (postdoc, now with accepted offer for assistant professorship at the University of Salerno) Adrian Perez-Salinas (postdoc, now with accepted offer for assistant professorship at the Universidad Complutense de Madrid).

LIST OF PUBLICATIONS

Jens Eisert

Professor of Theoretical Physics

Email: jense@physik.fu-berlin.de

Web: <http://www.physik.fu-berlin.de/en/einrichtungen/ag/ag-eisert>

Freie Universität Berlin

Arnimallee 14

14195 Berlin

This list comprises all those publications that have been published in

- *Communications in Mathematical Physics*
- *Communications Physics (Nature)*
- *Nature*
- *Nature Communications*
- *Nature Photonics*
- *Nature Physics*
- *Nature PJ Quantum Information*
- *Nature Reviews Physics*
- *Physical Review Letters*
- *Physical Review X*
- *PRX Quantum*
- *Proceedings of the National Academy of Sciences*
- *Reviews of Modern Physics*
- *Reports on Progress in Physics*
- *Science Advances*

- [1] “Entanglement theory with limited computational resources”,
L. Leone, J. Rizzo, J. Eisert, S. Jerbi,
Nature Physics **21**, in press (2025),
(Lanl e-print arXiv:2502.12284).
- [2] “Experimentally probing Landauer’s principle in the quantum many-body regime”,
S. Aimet, M. Tajik, G. Tournaire, P. Schüttelkopf, J. Sabino, S. Sotiriadis, G. Guarnieri, J. Schmiedmayer, J. Eisert,
Nature Physics **21**, 1326 (2025),
(Lanl e-print arXiv:2407.21690).
- [3] “Learning quantum states of continuous variable systems”,
F. Anna Mele, A. A. Mele, L. Bittel, J. Eisert, V. Giovannetti, L. Lami, L. Leone, S. F. E. Oliviero,
Nature Physics **21**, in press (2025),
(Lanl e-print arXiv:2405.01431).
- [4] “Localized statistics decoding: A parallel decoding algorithm for quantum low-density parity-check codes”,
T. Hillmann, L. Berent, A. O. Quintavalle, J. Eisert, R. Wille, J. Roffe,
Nature Communications **16**, 8214 (2025),
(Lanl e-print arXiv:2406.18655).
- [5] “Verifiable measurement-based quantum random sampling with trapped ions”,
M. Ringbauer, M. Hinsche, T. Feldker, P. K. Faehrmann, J. Bermejo-Vega, C. Edmunds, L. Postler, R. Stricker, C. D. Marciniak, M. Meth, I. Pogorelov, R. Blatt, P. Schindler, J. Eisert, T. Monz, D. Hangleiter,
Nature Communications **16**, 106 (2025),
(Lanl e-print arXiv:2307.14424).
- [6] “Large-scale stochastic simulation of open quantum systems”,
A. Sander, M. Fröhlich, M. Eigel, J. Eisert, P. Gelß, M. Hintermüller, R. M. Milbradt, R. Wille, C. B. Mendl,
Nature Communications **16**, in press (2025),
(Lanl e-print arXiv:2501.17913).

-
- [7] “In the shadow of the Hadamard test: Using the garbage state for good and further modifications”,
P. K. Faehrmann, J. Eisert, R. Kueng,
Physical Review Letters **135**, 150603 (2025),
(Lanl e-print arXiv:2505.15913).
- [8] “Typical thermalization of low-entanglement states”,
C. Bertoni, C. Wassner, G. Guarnieri, J. Eisert,
Communications Physics (Nature) **8**, 301 (2025),
(Lanl e-print arXiv:2403.18007).
- [9] “Optimal trace-distance bounds for free-fermionic states: Testing and improved tomography”,
L. Bittel, A. Anna Mele, J. Eisert, L. Leone,
PRX Quantum **6**, 030341 (2025),
(Lanl e-print arXiv:2409.17953).
- [10] “Efficient distributed inner product estimation via Pauli sampling”,
M. Hinsche, M. Ioannou, S. Jerbi, L. Leone, J. Eisert, J. Carrasco,
PRX Quantum **6**, 030354 (2025),
(Lanl e-print arXiv:2405.06544).
- [11] “Learning topological states from randomized measurements using variational tensor network tomography”,
Y. Teng, R. Samajdar, K. Van Kirk, F. Wilde, S. Sachdev, J. Eisert, R. Sweke, K. Najafi,
PRX Quantum **6**, in press (2025),
(Lanl e-print arXiv:2406.00193).
- [12] “Quantum metrology in the finite-sample regime”,
J. Jakob Meyer, S. Khatri, D. Stilck Franca, J. Eisert, P. Faist,
PRX Quantum **6**, 030336 (2025),
(Lanl e-print arXiv:2307.06370).
- [13] “Tomography of parametrized quantum states”,
F. J. Schreiber, J. Eisert, J. J. Meyer,
PRX Quantum **6**, 020346 (2025),
(Lanl e-print arXiv:2407.12916).
- [14] “Complexity-constrained quantum thermodynamics”,
A. Munson, N. B. T. Kothakonda, J. Haferkamp, N. Yunger Halpern, J. Eisert, P. Faist,
PRX Quantum **6**, 010346 (2025),
(Lanl e-print arXiv:2403.04828).
- [15] “The XYZ ruby code: Making a case for a three-colored graphical calculus for quantum error correction in spacetime”,
J. C. Magdalena de la Fuente, J. Old, A. Townsend-Teague, M. Rispler, J. Eisert, M. Müller,
PRX Quantum **6**, 010360 (2025),
(Lanl e-print arXiv:2407.08566).
- [16] “Exponentially tighter bounds on limitations of quantum error mitigation”,
Y. Quek, D. Stilck Franca, S. Khatri, J. J. Meyer, J. Eisert,
Nature Physics **20**, 1648 (2024),
(Lanl e-print arXiv:2210.11505).

-
- [17] “Unraveling long-time quantum dynamics using flow equations”,
S. J. Thomson, J. Eisert
Nature Physics **20**, 1401 (2024),
(Lanl e-print arXiv:2308.13005).
- [18] “Probing coherent quantum thermodynamics using a trapped ion”,
O. Onishchenko, G. Guarnieri, P. Rosillo-Rodes, D. Pijn, J. Hilder, U. G. Poschinger, M. Perarnau-Llobet, J. Eisert,
F. Schmidt-Kaler,
Nature Communications **15**, 6974 (2024),
(Lanl e-print arXiv:2207.14325).
- [19] “Towards provably efficient quantum algorithms for large-scale machine-learning models”,
J. Liu, M. Liu, J.-P. Liu, Z. Ye, Y. Alexeev, J. Eisert, L. Jiang,
Nature Communications **15**, 434 (2024),
(Lanl e-print arXiv:2301.06142).
- [20] “Understanding quantum machine learning also requires rethinking generalization”,
E. Gil-Fuster, J. Eisert, C. Bravo-Prieto,
Nature Communications **15**, 2277 (2024),
(Lanl e-print arXiv:2306.13461).
- [21] “Precise Hamiltonian identification of a superconducting quantum processor”,
D. Hangleiter, I. Roth, J. Eisert, P. Roushan,
Nature Communications **15**, 9595 (2024),
(Lanl e-print arXiv:2108.08319).
- [22] “A super-polynomial quantum advantage for combinatorial optimization problems”,
N. Pirnay, V. Ulitzsch, F. Wilde, J. Eisert, J.-P. Seifert,
Science Advances **10**, eadj5170 (2024),
(Lanl e-print arXiv:2212.08678).
- [23] “Measuring out quasi-local integrals of motion from entanglement”,
B. Lu, C. Bertoni, S. J. Thomson, J. Eisert,
Communications Physics **7**, 17 (2024),
(Lanl e-print arXiv:2301.01787).
- [24] “Hardware-tailored diagonalization circuits”,
D. Miller, L. E. Fischer, K. Levi, E. J. Kuehnke, I. O. Sokolov, P. Kl. Barkoutsos, J. Eisert, I. Tavernelli,
Nature PJ Quantum Information **10**, 122 (2024),
(Lanl e-print arXiv:arXiv:2203.03646).
- [25] “(Semi-)device independently characterizing quantum temporal correlations”,
S.-L. Chen, J. Eisert,
Physical Review Letters **132**, 220201 (2024),
(Lanl e-print arXiv:2305.19548).
- [26] “Shallow shadows: Expectation estimation using low-depth random Clifford circuits”,
C. Bertoni, J. Haferkamp, M. Hinsche, M. Ioannou, J. Eisert, H. Pashayan,
Physical Review Letters **133**, 020602 (2024),
(Lanl e-print arXiv:2209.12924).

-
- [27] “Generalised linear response theory for the full quantum work statistics”,
G. Guarnieri, J. Eisert, H. J. D. Miller,
Physical Review Letters **133**, 070405 (2024),
(Lanl e-print arXiv:2307.01885).
- [28] “Pseudomagic quantum states”,
A. Gu, L. Leone, S. Ghosh, J. Eisert, S. Yelin, Y. Quek,
Physical Review Letters **132**, 210602 (2024),
(Lanl e-print arXiv:2308.16228).
- [29] “The domain wall color code”,
K. Tiurev, A. Pesah, P.-J. H. S. Derks, J. Roffe, J. Eisert, M. S. Kesselring, J.-M. Reiner,
Physical Review Letters **133**, 110601 (2024),
(Lanl e-print arXiv:2307.00054).
- [30] “Learning fermionic correlations by evolving with random translationally invariant Hamiltonians”,
J. Denzler, A. Anna Mele, E. Derbyshire, T. Guaita, J. Eisert,
Physical Review Letters **133**, 240604 (2024),
(Lanl e-print 2309.12933).
- [31] “ReQuSim: Faithfully simulating near-term quantum repeaters”,
J. Walln fer, F. Hahn, F. Wiesner, N. Walk, J. Eisert,
PRX Quantum **5**, 010351 (2024),
(Lanl e-print arXiv:2212.03896).
- [32] “Analog information decoding of bosonic quantum LDPC codes”,
L. Berent, T. Hillmann, J. Eisert, R. Wille, J. Roffe,
PRX Quantum **5**, 020349 (2024),
(Lanl e-print arXiv:2311.01328).
- [33] “Anyon condensation and the color code”,
M. S. Kesselring, J. C. Magdalena de la Fuente, F. Thomsen, J. Eisert, S. D. Bartlett, B. J. Brown,
PRX Quantum **5**, 010342 (2024),
(Lanl e-print arXiv:2212.00042).
- [34] “Computational advantage of quantum random sampling”,
D. Hangleiter, J. Eisert,
Reviews of Modern Physics **95**, 035001 (2023),
(Lanl e-print arXiv:2206.04079).
- [35] “Estimating gate-set properties from random sequences”,
J. Helsen, M. Ioannou, J. Kitzinger, E. Onorati, A. H. Werner, J. Eisert, I. Roth,
Nature Communications **14**, 5039 (2023),
(Lanl e-print arXiv:2110.13178).
- [36] “Quantum photo-thermodynamics on a programmable photonic quantum processor”,
F. H. B. Somhorst, R. van der Meer, M. Correa Anguita, R. Shadow, H. J. Snijders, M. de Goede, B. Kassenberg,
P. Venderbosch, C. Taballione, J. P. Epping, H. H. van den Vlekkert, J. F. F. Bulmer, J. Lugani, I. A. Walmsley, P.
W. H. Pinkse, J. Eisert, N. Walk, J. J. Renema,
Nature Communications **14**, 3895 (2023),
(Lanl e-print arXiv:2201.00049).

-
- [37] “A single T-gate makes distribution learning hard”,
M. Hinsche, M. Ioannou, A. Nietner, J. Haferkamp, Y. Quek, D. Hangleiter, J.-P. Seifert, J. Eisert, R. Sweke,
Physical Review Letters **130**, 240602 (2023),
(Lanl e-print arXiv:2207.03140).
- [38] “Classical surrogates for quantum learning models”,
F. J. Schreiber, J. Eisert, J. J. Meyer,
Physical Review Letters **131**, 100803 (2023),
(Lanl e-print arXiv:2206.11740).
- [39] “Exploiting symmetry in variational quantum machine learning ”,
J. J. Meyer, M. Mularski, E. Gil-Fuster, A. A. Mele, F. Arzani, A. Wilms, J. Eisert,
PRX Quantum **4**, 010328 (2023),
(Lanl e-print arXiv:2205.06217).
- [40] “Time-energy uncertainty relation for noisy quantum metrology”,
P. Faist, M. P. Woods, V. V. Albert, J. M. Renes, J. Eisert, J. Preskill,
PRX Quantum **4**, 040336 (2023),
(Lanl e-print arXiv:2207.13707).
- [41] “Experimental observation of curved light-cones in a quantum field simulator”,
M. Tajik, M. Gluza, N. Sebe, P. Schüttelkopf, F. Cataldini, J. Sabino, F. Møller, S.-C. Ji, S. Erne, G. Guarnieri, S. Sotiriadis, J. Eisert, J. Schmiedmayer,
Proceedings of the National Academy of Sciences **120**, e2301287120 (2023),
(Lanl e-print arXiv:2209.09132).
- [42] “Efficient unitary designs with a system-size independent number of non-Clifford gates”,
J. Haferkamp, F. Montealegre-Mora, M. Heinrich, J. Eisert, D. Gross, I. Roth,
Communications in Mathematical Physics **397**, 995 (2023),
(Lanl e-print arXiv:2002.09524).
- [43] “Linear growth of quantum circuit complexity”,
J. Haferkamp, P. Faist, N. B. T. Kothakonda, J. Eisert, N. Yunger Halpern,
Nature Physics **18**, 528 (2022),
(Lanl e-print arXiv:2106.05305).
- [44] “A general framework for randomized benchmarking”,
J. Helsen, I. Roth, E. Onorati, A. H. Werner, J. Eisert,
PRX Quantum **3**, 020357 (2022),
(Lanl e-print arXiv:2010.07974).
- [45] “Quantum computational supremacy via high-dimensional Gaussian boson sampling”,
A. Deshpande, A. Mehta, T. Vincent, N. Quesada, M. Hinsche, M. Ioannou, L. Madsen, J. Lavoie, H. Qi, J. Eisert,
D. Hangleiter, B. Fefferman, I. Dhand,
Science Advances **8**, eabi7894 (2022),
(Lanl e-print arXiv:2102.12474).
- [46] “Simulating quantum repeater strategies for multiple satellites”,
J. Wallnöfer, F. Hahn, M. Gündogan, J. S. Sidhu, F. Krüger, N. Walk, J. Eisert, J. Wolters,
Communications Physics **5**, 169 (2022),
(Lanl e-print arXiv:2110.15806).

-
- [47] “Entanglement estimation in tensor network states via sampling”,
N. Feldman, A. Kshetrimayum, J. Eisert, M. Goldstein,
PRX Quantum **3**, 030312 (2022),
(Lanl e-print arXiv:2202.04089).
- [48] “Transparent reporting of research-related greenhouse gas emissions through the scientific CO₂nduct initiative”,
R. Sweke, P. Boes, N. H. Y. Ng, C. Sparaciari, J. Eisert, M. Goihl,
Communications Physics **5**, 150 (2022),
(Lanl e-print arXiv:2206.00857).
- [49] “Entangling power and quantum circuit complexity”,
J. Eisert,
Physical Review Letters **127**, 020501 (2021),
(Lanl e-print arXiv:2104.03332).
- [50] “Decay and recurrence of non-Gaussian correlations in a quantum many-body system”,
T. Schweigler, M. Gluza, M. Tajik, S. Sotiriadis, F. Cataldini, S.-C. Ji, F. S. Møller, J. Sabino, B. Rauer, J. Eisert, J. Schmiedmayer,
Nature Physics **17**, 559 (2021),
(Lanl e-print arXiv:2003.01808).
- [51] “Recovering quantum correlations in optical lattices from interaction quenches”,
M. Gluza, J. Eisert,
Physical Review Letters **127**, 090503 (2021),
(Lanl e-print arXiv:2005.09000).
- [52] “Sharing classical secrets with continuous-variable entanglement: Composable security and network coding advantage”,
N. Walk, J. Eisert,
PRX Quantum **2**, 040339 (2021),
(Lanl e-print arXiv:2104.10659).
- [53] “Emergent statistical mechanics from properties of disordered random matrix product states”,
J. Haferkamp, C. Bertoni, I. Roth, J. Eisert,
PRX Quantum **2**, 040308 (2021),
(Lanl e-print arXiv:2103.02634).
- [54] “Quantum field thermal machines”,
M. Gluza, J. Sabino, N. H. Y. Ng, G. Vitagliano, M. Pezzutto, Y. Omar, I. Mazets, M. Huber, J. Schmiedmayer, J. Eisert,
PRX Quantum **2**, 030310 (2021),
(Lanl e-print arXiv:2006.01177).
- [55] “A variational toolbox for quantum multi-parameter estimation”,
J. J. Meyer, J. Borregaard, J. Eisert,
Nature PJ Quantum Information **7**, 89 (2021),
(Lanl e-print arXiv:2006.06303).
- [56] “Bounding the resources for thermalizing many-body localized systems”,
C. Sparaciari, M. Goihl, P. Boes, J. Eisert, N. H. Y. Ng,
Communications Physics (Nature) **4**, 3 (2021),
(Lanl e-print arXiv:1912.04920).

-
- [57] “Easing the Monte Carlo sign problem”,
D. Hangleiter, I. Roth, D. Nagaj, J. Eisert,
Science Advances **6**, eabb8341 (2020),
(Lanl e-print arXiv:1906.02309).
- [58] “Dynamical structure factors of dynamical quantum simulators”,
M. L. Baez, M. Goihl, J. Haferkamp, J. Bermejo-Vega, M. Gluza, J. Eisert,
Proceedings of the National Academy of Sciences **117**, 26123-26134 (2020),
(Lanl e-print arXiv:1912.06076).
- [59] “Quantum certification and benchmarking”,
J. Eisert, D. Hangleiter, N. Walk, I. Roth, D. Markham, R. Parekh, U. Chabaud, E. Kashefi,
Nature Reviews Physics **2**, 382-390 (2020),
(Lanl e-print arXiv:1910.06343).
- [60] “Closing gaps of a quantum advantage with short-time Hamiltonian dynamics”,
J. Haferkamp, D. Hangleiter, A. Bouland, B. Fefferman, J. Eisert, J. Bermejo-Vega,
Physical Review Letters **125**, 250501 (2020),
(Lanl e-print arXiv:1908.08069).
- [61] “Floquet engineering topological many-body localized systems”,
K. S. C. Decker, C. Karrasch, J. Eisert, D. M. Kennes,
Physical Review Letters **124**, 190601 (2020),
(Lanl e-print arXiv:1911.01269).
- [62] “Rates of multi-partite entanglement transformations and applications in quantum networks”,
A. Streltsov, C. Meignant, J. Eisert,
Physical Review Letters **125**, 080502 (2020),
(Lanl e-print arXiv:1709.09693).
- [63] “Quantum read-out for cold atomic quantum simulators”,
M. Gluza, T. Schweigler, B. Rauer, C. Krumnow, J. Schmiedmayer, J. Eisert,
Communications Physics (Nature) **3**, 12 (2020),
(Lanl e-print arXiv:1807.04567).
- [64] “Holography and criticality in matchgate tensor networks”,
A. Jahn, M. Gluza, F. Pastawski, J. Eisert,
Science Advances **5**, eaaw0092 (2019),
(Lanl e-print arXiv:1711.03109).
- [65] “Randomized benchmarking for individual quantum gates”,
E. Onorati, A. H. Werner, J. Eisert,
Physical Review Letters **123**, 060501 (2019),
(Lanl e-print arXiv:1811.11775).
- [66] “Sample complexity of device-independently certified quantum supremacy”,
D. Hangleiter, M. Kliesch, J. Eisert, C. Gogolin,
Physical Review Letters **122**, 210502 (2019),
(Lanl e-print arXiv:1812.01023).

-
- [67] “A tensor network annealing algorithm for two-dimensional thermal states”,
A. Kshetrimayum, M. Rizzi, J. Eisert, R. Orus,
Physical Review Letters **122**, 070502 (2019),
(Lanl e-print arXiv:1809.08258).
- [68] “Entanglement-ergodic quantum systems equilibrate exponentially well”,
H. Wilming, M. Goihl, I. Roth, J. Eisert,
Physical Review Letters **123**, 200604 (2019),
(Lanl e-print arXiv:1802.02052).
- [69] “Von Neumann entropy from unitarity”,
P. Boes, J. Eisert, R. Gallego, M. P. Mueller, H. Wilming,
Physical Review Letters **122**, 210402 (2019),
(Lanl e-print arXiv:1807.08773).
- [70] “Single-shot holographic compression from the area law”,
H. Wilming, J. Eisert,
Physical Review Letters **122**, 190501 (2019),
(Lanl e-print arXiv:1809.10156).
- [71] “Quantum network routing and local complementation”,
F. Hahn, A. Pappa, J. Eisert,
Nature PJ Quantum Information **5**, 76 (2019)
(Lanl e-print arXiv:1805.04559).
- [72] “Recovering quantum gates from few average gate fidelities”,
I. Roth, R. Kueng, S. Kimmel, Y.-K. Liu, D. Gross, J. Eisert, M. Kliesch,
Physical Review Letters **121**, 170502 (2018),
(Lanl e-print arXiv:1803.00572).
- [73] “Catalytic quantum randomness”,
P. Boes, H. Wilming, R. Gallego, J. Eisert,
Physical Review X **8**, 041016 (2018),
(Lanl e-print arXiv:1804.03027).
- [74] “Statistical ensembles without typicality”,
P. Boes, H. Wilming, J. Eisert, R. Gallego,
Nature Communications **9**, 1022 (2018),
(Lanl e-print arXiv:1707.08218).
- [75] “Fidelity witnesses for fermionic quantum simulations”,
M. Gluza, M. Kliesch, J. Eisert, L. Aolita,
Physical Review Letters **120**, 190501 (2018),
(Lanl e-print arXiv:1703.03152).
- [76] “Strong coupling corrections in quantum thermodynamics”,
M. Perarnau-Llobet, H. Wilming, A. Riera, R. Gallego, J. Eisert,
Physical Review Letters **12**, 120602 (2018),
(Lanl e-print arXiv:1704.05864).

-
- [77] “Architectures for quantum simulation showing a quantum speedup”,
J. Bermejo-Vega, D. Hangleiter, M. Schwarz, R. Raussendorf, J. Eisert,
Physical Review X **8**, 021010 (2018),
(Lanl e-print arXiv:1703.00466).
- [78] “Towards holography via quantum source-channel codes”,
F. Pastawski, J. Eisert, H. Wilming,
Physical Review Letters **119**, 020501 (2017),
(Lanl e-print arXiv:1611.07528).
- [79] “Experimental quantum compressed sensing for a seven-qubit system”,
C. A. Riofrio, D. Gross, S. T. Flammia, T. Monz, D. Nigg, R. Blatt, J. Eisert,
Nature Communications **8**, 15305 (2017),
(Lanl e-print arXiv:1608.02263).
- [80] “Combining topological hardware and topological software: Color code quantum computing with topological superconductor networks”,
D. Litinski, M. S. Kesselring, J. Eisert, F. von Oppen,
Physical Review X **7**, 031048 (2017),
(Lanl e-print arXiv:1704.01589).
- [81] “Structure of the resource theory of quantum coherence”,
A. Streltsov, S. Rana, P. Boes, J. Eisert,
Physical Review Letters **119**, 140402 (2017),
(Lanl e-print arXiv:1705.04189).
- [82] “Mixing properties of stochastic quantum Hamiltonians”,
E. Onorati, O. Buerschaper, M. Kliesch, W. Brown, A. H. Werner, J. Eisert,
Communications in Mathematical Physics **355**, 905 (2017),
(Lanl e-print arXiv:1606.01914).
- [83] “Diagnosing topological edge states via entanglement monogamy”,
K. Meichanetzidis, J. Eisert, M. Cirio, V. Lahtinen, J. K. Pachos,
Physical Review Letters **116**, 130501 (2016),
(Lanl e-print arXiv:1511.04459).
- [84] “Fermionic orbital optimisation in tensor network states”,
C. Krumnow, L. Veis, Ö. Legeza, J. Eisert,
Physical Review Letters **117**, 210402 (2016),
(Lanl e-print arXiv:1504.00042).
- [85] “Equilibration via Gaussification in fermionic lattice systems”,
M. Gluza, C. Krumnow, M. Friesdorf, C. Gogolin, J. Eisert,
Physical Review Letters **117**, 190602 (2016),
(Lanl e-print arXiv:1601.00671).
- [86] “Renormalising entanglement distillation”,
S. Waeldchen, J. Gertis, E. T. Campbell, J. Eisert,
Physical Review Letters **116**, 020502 (2016),
(Lanl e-print arXiv:1503.04822).

-
- [87] “A positive tensor network approach for simulating open quantum many-body systems”,
A. H. Werner, D. Jaschke, P. Silvi, M. Kliesch, T. Calarco, J. Eisert, S. Montangero,
Physical Review Letters **116**, 237201 (2016),
(Lanl e-print arXiv:1412.5746).
- [88] “Equilibration, thermalisation, and the emergence of statistical mechanics in closed quantum systems”,
C. Gogolin, J. Eisert,
Reports on Progress in Physics **79**, 056001 (2016),
(Lanl e-print arXiv:1503.07538).
- [89] “Quantum many-body systems out of equilibrium”,
J. Eisert, M. Friesdorf, C. Gogolin,
Nature Physics **11**, 124 (2015),
(Lanl e-print arXiv:1408.5148).
- [90] “Many-body localisation implies that eigenvectors are matrix-product states”,
M. Friesdorf, A. H. Werner, W. Brown, V. B. Scholz, J. Eisert,
Physical Review Letters **114**, 170505 (2015),
(Lanl e-print arXiv:1409.1252).
- [91] “Observation of non-Markovian micro-mechanical Brownian motion”,
S. Groeblacher, A. Trubarov, N. Prigge, M. Aspelmeyer, J. Eisert,
Nature Communications **6**, 7606 (2015),
(Lanl e-print arXiv:1305.1953).
- [92] “Advances in quantum teleportation”,
S. Pirandola, J. Eisert, C. Weedbrook, A. Furusawa, S. L. Braunstein,
Nature Photonics **9**, 641 (2015),
(Lanl e-print arXiv:1505.07831).
- [93] “Towards experimental quantum field tomography with ultracold atoms”,
A. Steffens, M. Friesdorf, T. Langen, B. Rauer, T. Schweigler, R. Huebener, J. Schmiedmayer, C. A. Riofrio, J. Eisert,
Nature Communications **6**, 7663 (2015),
(Lanl e-print arXiv:1406.3632).
- [94] “Reliable quantum certification for photonic quantum technologies”,
L. Aolita, C. Gogolin, M. Kliesch, J. Eisert,
Nature Communications **6**, 8498 (2015),
(Lanl e-print arXiv:1407.4817).
- [95] “Cellular-automaton decoders for topological quantum memories”,
M. Herold, E. T. Campbell, J. Eisert, M. J. Kastoryano,
Nature PJ Quantum Information **1**, 15010 (2015),
(Lanl e-print arXiv:1406.2338).
- [96] “Matrix product operators and states - NP-hardness and undecidability”,
M. Kliesch, D. Gross, J. Eisert,
Physical Review Letters **113**, 160503 (2014),
(Lanl e-print arXiv:1404.4466).

-
- [97] “Locality of temperature”,
M. Kliesch, C. Gogolin, M. J. Kastoryano, A. Riera, J. Eisert,
Physical Review X **4**, 031019 (2014),
(Lanl e-print arXiv:1309.0816).
- [98] “Breakdown of quasilocality in long-range quantum lattice models”,
J. Eisert, M. van den Worm, S. R. Manmana, M. Kastner,
Physical Review Letters **111**, 260401 (2013),
(Lanl e-print arXiv:1309.2308).
- [99] “Wick’s theorem for matrix product states”,
R. Hübener, A. Mari, J. Eisert,
Physical Review Letters **110**, 040401 (2013),
(Lanl e-print arXiv:1207.6537).
- [100] “Precisely timing dissipative quantum information processing”,
M. J. Kastoryano, M. M. Wolf, J. Eisert,
Physical Review Letters **110**, 110501 (2013),
(Lanl e-print arXiv:1205.0985).
- [101] “Probing the relaxation towards equilibrium in an isolated strongly correlated 1D Bose gas”,
S. Trotzky, Y.-A. Chen, A. Flesch, I. P. McCulloch, U. Schollwöck, J. Eisert, I. Bloch,
Nature Physics **8**, 325 (2012),
(Lanl e-print arXiv:1101.2659).
- [102] “Positive Wigner functions render classical simulation of quantum computation efficient”,
A. Mari, J. Eisert,
Physical Review Letters **109**, 230503 (2012),
(Lanl e-print 1208.3660).
- [103] “Quantum measurement occurrence is undecidable”,
J. Eisert, M. P. Mueller, C. Gogolin,
Physical Review Letters **108**, 260501 (2012),
(Lanl e-print arXiv:1111.3965).
- [104] “Gaussification and entanglement distillation of continuous variable systems: a unifying picture”,
E. T. Campbell, J. Eisert,
Physical Review Letters **108**, 020501 (2012),
(Lanl e-print arXiv:1107.1406).
- [105] “Extracting dynamical equations from experimental data is NP hard”,
T. S. Cubitt, J. Eisert, M. M. Wolf,
Physical Review Letters **108**, 120503 (2012),
(Lanl e-print arXiv:1005.0005).
- [106] “Cooling by heating”,
A. Mari, J. Eisert,
Physical Review Letters **108**, 120602 (2012),
(Lanl e-print arXiv:1104.0260).

-
- [107] “Thermalization in nature and on a quantum computer”,
A. Riera, C. Gogolin, J. Eisert,
Physical Review Letters **108**, 080402 (2012),
(Lanl e-print arXiv:1102.2389).
- [108] “Deciding whether a quantum channel is Markovian is NP-hard”,
T. S. Cubitt, J. Eisert, M. M. Wolf,
Communications in Mathematical Physics **310**, 383 (2012)
(Lanl e-print arXiv:0908.2128).
- [109] “A dissipative quantum Church-Turing theorem”,
M. Kliesch, T. Barthel, C. Gogolin, M. Kastoryano, J. Eisert,
Physical Review Letters **107**, 120501 (2011),
(Lanl e-print arXiv:1105.3986).
- [110] “Entangled inputs cannot make imperfect quantum channels perfect”,
F. G. S. L. Brandao, J. Eisert, M. Horodecki, D. Yang,
Physical Review Letters **106**, 230502 (2011),
(Lanl e-print arXiv:1010.5074).
- [111] “Absence of thermalization in non-integrable systems”,
C. Gogolin, M. P. Mueller, J. Eisert,
Physical Review Letters **106**, 040401 (2011),
(Lanl e-print arXiv:1009.2493).
- [112] “Experimental implementation of the optimal linear-optical controlled phase gate”,
K. Lemr, A. Cernoch, J. Soubusta, K. Kieling, J. Eisert, M. Dusek,
Physical Review Letters **106**, 013602 (2011),
(Lanl e-print arXiv:1007.4797).
- [113] “Preparing the bound instance of quantum entanglement”,
J. DiGuglielmo, A. Samblowski, B. Hage, C. Pineda, J. Eisert, R. Schnabel,
Physical Review Letters **107**, 240503 (2011),
(Lanl e-print arXiv:1006.4651).
- [114] “Directly estimating non-classicality”,
A. Mari, K. Kieling, B. Melholt Nielsen, E. S. Polzik, J. Eisert,
Physical Review Letters **106**, 010403 (2011),
(Lanl e-print arXiv:1005.1665).
- [115] “Concentration of measure for quantum states with a fixed expectation value”,
M. Mueller, D. Gross, J. Eisert,
Communications in Mathematical Physics **303**, 785 (2010),
(Lanl e-print arXiv:1003.4982).
- [116] “Holographic quantum states”,
T. J. Osborne, J. Eisert, F. Verstraete,
Physical Review Letters **105**, 260401 (2010),
(Lanl e-print arXiv:1005.1268).

-
- [117] “Solving frustration-free spin systems”,
N. de Beaudrap, M. Ohliger, T. J. Osborne, J. Eisert,
Physical Review Letters **105**, 060504 (2010),
(Lanl e-print arXiv:1005.3781).
- [118] “Real-space renormalization yields finite correlations”,
T. Barthel, M. Kliesch, J. Eisert,
Physical Review Letters **105**, 010502 (2010),
(Lanl e-print arXiv:1003.2319).
- [119] “Quantum state tomography via compressed sensing”,
D. Gross, Y.-K. Liu, S.T. Flammia, S. Becker, J. Eisert,
Physical Review Letters **105**, 150401 (2010),
(Lanl e-print arXiv:0909.3304).
- [120] “Area laws for the entanglement entropy”,
J. Eisert, M. Cramer, M. B. Plenio,
Reviews of Modern Physics **82**, 277 (2010),
(Lanl e-print arXiv:0808.3773).
- [121] “Most quantum states are too entangled to be useful as computational resources”,
D. Gross, S. Flammia, J. Eisert,
Physical Review Letters **102**, 190501 (2009),
(Lanl e-print arXiv:0810.4331).
- [122] “Entanglement combing”,
D. Yang, J. Eisert,
Physical Review Letters **103**, 220501 (2009),
(Lanl e-print arXiv:0907.4757).
- [123] “Gently modulating opto-mechanical systems”,
A. Mari, J. Eisert,
Physical Review Letters **103**, 213603 (2009),
(Lanl e-print arXiv:0911.0433).
- [124] “Tomography of quantum detectors”,
J. S. Lundeen, A. Feito, H. Coldenstrodt-Ronge, K. L. Pregnell, Ch. Silberhorn, T. C. Ralph, J. Eisert, M. B. Plenio,
I. A. Walmsley,
Nature Physics **5**, 29 (2009),
(Lanl e-print arXiv:0807.2444).
- [125] “Supersonic quantum communication”,
D. Gross, J. Eisert,
Physical Review Letters **102**, 240501 (2009),
(Lanl e-print arXiv:0808.3581).
- [126] “Entangled families”,
M. Aspelmeyer, J. Eisert,
Nature **455**, 180 (2008).
- [127] “Assessing non-Markovian dynamics”,
M. M. Wolf, J. Eisert, T. S. Cubitt, J. I. Cirac,
Physical Review Letters **101**, 150402 (2008),
(Lanl e-print arXiv:0711.3172).

-
- [128] “Exploring local quantum many-body relaxation by atoms in optical superlattices”,
M. Cramer, A. Flesch, I.P. McCulloch, U. Schollwöck, J. Eisert,
Physical Review Letters **101**, 063001 (2008),
(Lanl e-print arXiv:0805.0798).
- [129] “Quenching, relaxation, and a central limit theorem for quantum lattice systems”,
M. Cramer, C. Dawson, J. Eisert, T. J. Osborne,
Physical Review Letters **100**, 030602 (2008),
(Lanl e-print cond-mat/0703314).
- [130] “Unifying simulation methods of quantum many-body systems”,
C.M. Dawson, J. Eisert, T. J. Osborne
Physical Review Letters **100**, 130501 (2008),
(Lanl e-print arXiv:0705.3456).
- [131] “Do mixtures of bosonic and fermionic atoms adiabatically heat up in optical lattices?”,
M. Cramer, S. Ospelkaus, C. Ospelkaus, K. Bongs, K. Sengstock, J. Eisert,
Physical Review Letters **100**, 140409 (2008),
(Lanl e-print arXiv:0707.3633).
- [132] “Percolation, renormalization, and quantum computing with non-deterministic gates”,
K. Kieling, T. Rudolph, J. Eisert,
Physical Review Letters **99**, 130501 (2007),
(Lanl e-print quant-ph/0611140).
- [133] “Covariance matrices and the separability problem”,
O. Gühne, P. Hyllus, O. Gittsovich, J. Eisert,
Physical Review Letters **99**, 130504 (2007),
(Lanl e-print quant-ph/0611282).
- [134] “Novel schemes for measurement-based quantum computation”,
D. Gross, J. Eisert,
Physical Review Letters **98**, 220503 (2007),
(Lanl e-print quant-ph/0609149).
- [135] “Statistics dependence of the entanglement entropy”,
M. Cramer, J. Eisert, M. B. Plenio,
Physical Review Letters **98** (2007),
(Lanl e-print quant-ph/0611264).
- [136] “Creating and probing macroscopic entanglement with light”,
M. Paternostro, D. Vitali, S. Gigan, M. S. Kim, C. Brukner, J. Eisert, M. Aspelmeyer,
Physical Review Letters **99**, 250401 (2007),
(Lanl e-print quant-ph/0609210).
- [137] “Gaussian quantum marginal problem”,
J. Eisert, T. Tyc, T. Rudolph, B. Sanders,
Communications in Mathematical Physics **280**, 263 (2007),
(Lanl e-print quant-ph/0703225).

-
- [138] “Computational difficulty of global variations in the density matrix renormalization group”,
J. Eisert,
Physical Review Letters **97**, 260501 (2006),
(Lanl e-print quant-ph/0609051).
- [139] “General entanglement scaling from time evolution”,
J. Eisert, T. J. Osborne,
Physical Review Letters **97**, 150404 (2006),
(Lanl e-print quant-ph/0603114).
- [140] “Optimizing linear optics quantum gates”,
J. Eisert,
Physical Review Letters **95**, 040502 (2005),
(Lanl e-print quant-ph/0409156).
- [141] “Entropy, entanglement, and area: analytical results for harmonic lattice systems”,
M. B. Plenio, J. Eisert, J. Dreissig, M. Cramer,
Physical Review Letters **94**, 060503 (2005),
(Lanl e-print quant-ph/0409156).
- [142] “Exact decoherence to pointer states in free open quantum systems is universal”,
J. Eisert,
Physical Review Letters **92**, 210401 (2004),
(Lanl e-print quant-ph/0311022).
- [143] “Towards mechanical entanglement in nano-electromechanical devices”,
J. Eisert, M. B. Plenio, S. Bose, J. Hartley,
Physical Review Letters **93**, 190402 (2004),
(Lanl e-print quant-ph/0311113).
- [144] “Inhomogeneous Bose-Fermi mixtures in cubic lattices”.
M. Cramer, J. Eisert, F. Illuminati,
Physical Review Letters, **93**, 190405 (2004),
(Lanl e-print cond-mat/0310705).
- [145] “The entangling power of passive optical elements”,
M. M. Wolf, J. Eisert, M. B. Plenio,
Physical Review Letters **90**, 047904 (2003),
(Lanl e-print quant-ph/0206171).
- [146] “The entanglement cost under operations preserving the positivity of partial transpose”,
K. Audenaert, M. B. Plenio, J. Eisert,
Physical Review Letters **90**, 027901 (2003),
(Lanl e-print quant-ph/0207146).
- [147] “Distilling Gaussian states with Gaussian operations is impossible”,
J. Eisert, S. Scheel, M. B. Plenio,
Physical Review Letters **89**, 137903 (2002),
(Lanl e-print quant-ph/0204052).

-
- [148] “Quantum and classical correlations in quantum Brownian motion”,
J. Eisert, M. B. Plenio,
Physical Review Letters **89**, 137902 (2002),
(Lanl e-print quant-ph/0111016).
- [149] “Conditions for the local manipulation of Gaussian states”,
J. Eisert, M. B. Plenio,
Physical Review Letters **89**, 097901 (2002),
(Lanl e-print quant-ph/0109126).
- [150] “Reply: Quantum games and quantum strategies”,
J. Eisert, M. Wilkens, M. Lewenstein,
Physical Review Letters **87**, 069802 (2001).
- [151] “The asymptotic relative entropy of entanglement”,
K. Audenaert, J. Eisert, E. Jane, M. B. Plenio, S. Virmani, B. de Moor,
Physical Review Letters **87**, 217902 (2001),
(Lanl e-print quant-ph/9912080).
- [152] “Catalysis of entanglement manipulation for mixed states”,
J. Eisert, M. Wilkens,
Physical Review Letters **85**, 437 (2000),
(Lanl e-print quant-ph/9912080).
- [153] “Classical information and distillable entanglement”,
J. Eisert, T. Felbinger, P. Papadopoulos, M. B. Plenio, M. Wilkens,
Physical Review Letters **84**, 1611 (2000),
(Lanl e-print quant-ph/9907021).
- [154] “Quantum games and quantum strategies”,
J. Eisert, M. Wilkens, M. Lewenstein,
Physical Review Letters **83**, 3077 (1999),
(Lanl e-print quant-ph/9806088).

REGULAR REFEREED PUBLICATIONS

- [155] “Complexity of geometrically local stoquastic Hamiltonians”,
A. Raza, J. Eisert, A. B. Grilo,
Quantum, in press (2025),
(Lanl e-print arXiv:2407.15499).
- [156] “On the average-case complexity of learning output distributions of quantum circuits”,
A. Nietner, M. Ioannou, R. Sweke, R. Kueng, J. Eisert, M. Hinsche, J. Haferkamp,
Quantum **9**, 1883 (2025),
(Lanl e-print arXiv:2305.05765).
- [157] “Variationally optimizing infinite projected entangled-pair states at large bond dimensions: A split-CTMRG approach”,
J. Naumann, E. L. Weerda, J. Eisert, M. Rizzi, P. Schmoll,
Physical Review B **111**, 235116 (2025),
(Lanl e-print arXiv:2502.10298).

-
- [158] “Short-time simulation of quantum dynamics by Pauli measurements”,
P. K. Faehrmann, J. Eisert, M. Kieferova, R. Kueng,
Physical Review A **112**, 012602 (2025),
(Lanl e-print arXiv:2412.08719).
- [159] “Stochastic noise can be helpful for variational quantum algorithms”,
J. Liu, F. Wilde, A. A. Mele, L. Jiang, J. Eisert,
Physical Review A **111**, 052441 (2025),
(Lanl e-print arXiv:2210.06723).
- [160] “Single-shot quantum machine learning”,
E. Recio-Armengol, J. Eisert, J. J. Meyer,
Physical Review A **111**, 042420 (2025),
(Lanl e-print arXiv:2406.13812).
- [161] “A minimal tensor network beyond free fermions”,
C. Wille, M. Usoltcev, J. Eisert, A. Altland,
SciPost Physics **18**, 196 (2025),
(Lanl e-print arXiv:2412.04216).
- [162] “Artificially intelligent Maxwell’s demon for optimal control of open quantum systems”,
P. A. Erdman, R. Czupryniak, B. Bhandari, A. N. Jordan, F. Noé, J. Eisert, G. Guarnieri,
Quantum Science and Technology **10**, 025047 (2025),
(Lanl e-print arXiv:2408.15328).
- [163] “Stability of emergent time periodicity in a few-body interacting system”,
S. Campbell, J. Eisert, G. Guarnieri,
New Journal of Physics **27**, 023001 (2025),
(Lanl e-print 2409.18516).
- [164] “PAC-learning of free-fermionic states is NP-hard”,
L. Bittel, A. A. Mele, J. Eisert, L. Leone,
Quantum **9**, 1665 (2025),
(Lanl e-print arXiv:2404.03585).
- [165] “Potential and limitations of random Fourier features for dequantizing quantum machine learning”,
R. Sweke, E. Recio, S. Jerbi, E. Gil-Fuster, B. Fuller, J. Eisert, J. J. Meyer,
Quantum **9**, 1640 (2025),
(Lanl e-print arXiv:2309.11647).
- [166] “Quantum complexity phase transitions in monitored random circuits”,
R. Suzuki, J. Haferkamp, J. Eisert, P. Faist,
Quantum **9**, 1627 (2025),
(Lanl e-print arXiv:2305.15475).
- [167] “Lower bounds to variational problems with guarantees”,
J. Eisert,
Physical Review A, in press (2025),
(Lanl e-print arXiv:2301.06142).

-
- [168] “Decoding quantum color codes with MaxSAT”,
L. Berent, L. Burgholzer, P.-J. H. S. Derks, J. Eisert, R. Wille,
Quantum **8**, 1506 (2024),
(Lanl e-print arXiv:2303.14237).
- [169] “Block sparsity and gauge mediated weight sharing for learning dynamical laws from data”,
M. Götze, J. Fuksa, I. Roth, J. Eisert,
Machine Learning: Science and Technology **5**, 025064 (2024),
(Lanl e-print arXiv:2208.01591).
- [170] “Finite temperature tensor network algorithm for frustrated two-dimensional quantum materials”,
P. Schmoll, C. Balz, B. Lake, J. Eisert, A. Kshetrimayum,
Physical Review B **109**, 235119 (2024),
(Lanl e-print arXiv:2211.00121).
- [171] “A perturbative gadget for delaying the onset of barren plateaus in variational quantum algorithms”,
S. Cichy, P. K. Faehrmann, S. Khatri, J. Eisert,
Physical Review A **109**, 052624 (2024),
(Lanl e-print arXiv:2210.03099).
- [172] “Topological dualities via tensor networks”,
C. Wille, J. Eisert, A. Altland,
Physical Review Research **6**, 013302 (2024),
(Lanl e-print arXiv:2309.13118).
- [173] “On the expressivity of embedding quantum kernels”,
E. Gil-Fuster, J. Eisert, V. Dunjko,
Machine Learning: Science and Technology **5**, 025003 (2024),
(Lanl e-print arXiv:2309.14419).
- [174] “Local integrals of motion and the stability of many-body localisation in Wannier-Stark potentials”,
C. Bertoni, J. Eisert, A. Kshetrimayum, A. Nietner, S. J. Thomson,
Physical Review B **109**, 024206 (2024),
(Lanl e-print arXiv:2208.14432).
- [175] “variPEPS - a versatile tensor network library for variational ground state simulations in two spatial dimensions”,
J. Naumann, E. L. Weerden, M. Rizzi, J. Eisert, P. Schmoll,
SciPost Phys. Lect. Notes **86** (2024),
(Lanl e-print arXiv:2308.12358).
- [176] “Good Gottesman-Kitaev-Preskill codes from the NTRU cryptosystem”,
J. Conrad, J. Eisert, J.-P. Seifert,
Quantum **8**, 1398 (2024),
(Lanl e-print arXiv:2303.02432).
- [177] “A super-polynomial quantum-classical separation for density modelling”,
N. Pirnay, R. Sweke, J. Eisert, J.-P. Seifert,
Physical Review A **107**, 042416 (2023),
(Lanl e-print arXiv:2210.14936).

-
- [178] “Tensor network study of the spin-1/2 Heisenberg anti-ferromagnet on the Shuriken lattice”,
P. Schmoll, A. Kshetrimayum, J. Naumann, J. Eisert, Y. Iqbal,
Physical Review B **107**, 064406 (2023),
(Lanl e-print arXiv:2211.16932).
- [179] “Particle current statistics in driven mesoscale conductors”,
M. Brenes, G. Guarnieri, A. Purkayastha, J. Eisert, D. Segal, G. Landi,
Physical Review B **108**, L081119 (2023),
(Lanl e-print arXiv:2211.13832).
- [180] “Semi-device-dependent blind quantum tomography”,
I. Roth, J. Wilkens, D. Hangleiter, J. Eisert,
Quantum **7**, 1053 (2023),
(Lanl e-print arXiv:2006.03069).
- [181] “Correcting non-independent and non-identically distributed errors with surface codes”,
K. Tiurev, P.-J. H. S. Derks, J. Roffe, J. Eisert, J.-M. Reiner,
Quantum **7**, 1123 (2023),
(Lanl e-print arXiv:2208.02191).
- [182] “Anonymous conference key agreement in linear quantum networks”,
J. de Jong, F. Hahn, J. Eisert, N. Walk, A. Pappa,
Quantum **7**, 1117 (2023),
(Lanl e-print arXiv:2205.09169).
- [183] “Bulk-to-boundary anyon fusion from microscopic models”,
J. C. Magdalena de la Fuente, J. Eisert, A. Bauer,
Journal of Mathematical Physics **64**, 111904 (2023),
(Lanl e-print arXiv:2302.01835).
- [184] “Tensor network models of AdS/qCFT”,
A. Jahn, Z. Zimboras, J. Eisert,
Quantum **6**, 643 (2022),
(Lanl e-print arXiv:2004.04173).
- [185] “Randomizing multi-product formulas for improved Hamiltonian simulation”,
P. K. Faehrmann, M. Steudtner, R. Kueng, M. Kieferova, J. Eisert,
Quantum **6**, 806 (2022),
(Lanl e-print arXiv:2101.07808).
- [186] “A smallest computable entanglement monotone”,
J. Eisert, M. M. Wilde,
2022 IEEE International Symposium on Information Theory (ISIT), 2439-2444 (2022),
(Lanl e-print arXiv:2201.00835).
- [187] “Towards topological fixed-point models beyond gappable boundaries”,
A. Bauer, J. Eisert, C. Wille,
Physical Review B **106**, 125143 (2022),
(Lanl e-print arXiv:2111.14868).

-
- [188] “Resource theory of quantum uncomplexity”,
N. Yunger Halpern, N. B. T. Kothakonda, J. Haferkamp, A. Munson, J. Eisert, P. Faist,
Physical Review A **106**, 062417 (2022),
(Lanl e-print arXiv:2110.11371).
- [189] “Single-component gradient rules for variational quantum algorithms”,
T. Hubregtsen, F. Wilde, S. Qasim, J. Eisert,
Quantum Science and Technology **7**, 035008 (2022),
(Lanl e-print arXiv:2106.01388).
- [190] “Boundary theories of critical matchgate tensor networks”,
A. Jahn, M. Gluza, C. Verhoeven, S. Singh, J. Eisert,
Journal of High Energy Physics **2022**, 111 (2022),
(Lanl e-print arXiv:2110.02972).
- [191] “Gottesman-Kitaev-Preskill codes: A lattice perspective”,
J. Conrad, J. Eisert, F. Arzani,
Quantum **6**, 648 (2022),
(Lanl e-print arXiv:2109.14645).
- [192] “Limitations of nearest-neighbour quantum networks”,
F. Hahn, A. Dahlberg, J. Eisert, A. Pappa,
Physical Review A **106**, L010401 (2022),
(Lanl e-print arXiv:2202.10886).
- [193] “Mechanisms for the emergence of Gaussian correlations”,
M. Gluza, T. Schweigler, M. Tajik, J. Sabino, F. Cataldini, F. S. Møller, S.-C. Ji, B. Rauer, J. Schmiedmayer, J. Eisert,
S. Sotiriadis,
SciPost Physics **12**, 113 (2022),
(Lanl e-print arXiv:2108.07829).
- [194] “Rate limits in quantum networks with lossy repeaters”,
R. Laurenza, N. Walk, J. Eisert, S. Pirandola,
Physical Review Research **4**, 023158 (2022),
(Lanl e-print arXiv:2110.10168).
- [195] “Hierarchical isometry properties of hierarchical measurements”,
A. Flinth, B. Groß, I. Roth, J. Eisert, G. Wunder,
Applied and Computational Harmonic Analysis **58**, 27-49 (2022),
(Lanl e-print arXiv:2005.10379).
- [196] “A unified diagrammatic approach to topological fixed point models”,
A. Bauer, J. Eisert, C. Wille,
SciPost Physics Core **5**, 038 (2022),
(Lanl e-print arXiv:2011.12064).
- [197] “Encoding-dependent generalization bounds for parametrized quantum circuits”,
M. C. Caro, E. Gil-Fuster, J. Jakob Meyer, J. Eisert, R. Sweke,
Quantum **5**, 582 (2021),
(Lanl e-print arXiv:2106.03880).

-
- [198] “On the quantum versus classical learnability of discrete distributions”,
R. Sweke, J.-P. Seifert, D. Hangleiter, J. Eisert,
Quantum **5**, 417 (2021),
(Lanl e-print arXiv:2007.14451).
- [199] “Reinforcement learning decoders for fault-tolerant quantum computation”,
R. Sweke, M. S. Kesselring, E. P. L. van Nieuwenburg, J. Eisert,
Machine Learning: Science and Technology **2**, 025005 (2021),
(Lanl e-print arXiv:1810.07207).
- [200] “Dimension reduction with mode transformations: Simulating two-dimensional fermionic condensed matter systems”,
C. Krumnow, L. Veis, J. Eisert, O. Legeza,
Physical Review B **104**, 075137 (2021),
(Lanl e-print 1906.00205).
- [201] “Local optimization on pure Gaussian state manifolds”,
B. Windt, A. Jahn, J. Eisert, L. Hackl,
SciPost Physics **10**, 066 (2021),
(Lanl e-print arXiv:2009.11884).
- [202] “Holographic tensor network models and quantum error correction: A topical review”,
A. Jahn, J. Eisert,
Quantum Science and Technology **6**, 033002 (2021),
(Lanl e-print arXiv:2102.02619).
- [203] “The classical two-dimensional Heisenberg model revisited: An $SU(2)$ -symmetric tensor network study”,
P. Schmoll, A. Kshetrimayum, J. Eisert, R. Orus, M. Rizzi,
SciPost Physics **11**, 098 (2021),
(Lanl e-print arXiv:2106.06310).
- [204] “Quantum time crystals with programmable disorder in higher dimensions”,
A. Kshetrimayum, M. Goihl, D. M. Kennes, J. Eisert,
Physical Review B **103**, 224205 (2021),
(Lanl e-print arXiv:2004.07267).
- [205] “Non-Pauli topological stabilizer codes from twisted quantum doubles”,
J. C. Magdalena de la Fuente, N. Tarantino, J. Eisert,
Quantum **5**, 398 (2021),
(Lanl e-print arXiv:2001.11516).
- [206] “Pinned QMA: The power of fixing a few qubits in proofs”,
D. Nagaj, D. Hangleiter, J. Eisert, M. Schwarz,
Physical Review A **103**, 012604 (2021),
(Lanl e-print arXiv:2001.03636).
- [207] “Stark time crystals: Symmetry breaking in space and time”,
A. Kshetrimayum, J. Eisert, D. M. Kennes,
Physical Review B **102**, 195116 (2020),
(Lanl e-print arXiv:2007.13820).

-
- [208] “Central charges of aperiodic holographic tensor network models”,
A. Jahn, Z. Zimboras, J. Eisert,
Physical Review A **102**, 042407 (2020),
(Lanl e-print arXiv:1911.03485).
- [209] “Time evolution of many-body localized systems in two spatial dimensions”,
A. Kshetrimayum, M. Goihl, J. Eisert,
Physical Review B **102**, 235132 (2020),
(Lanl e-print arXiv:1910.11359).
- [210] “Stochastic gradient descent for hybrid quantum-classical optimization”,
R. Sweke, F. Wilde, J. Meyer, M. Schuld, P. K. Fährmann, B. Meynard-Piganeau, J. Eisert,
Quantum **4**, 314 (2020)
(Lanl e-print arXiv:1910.01155).
- [211] “Efficient variational contraction of two-dimensional tensor networks with a non-trivial unit cell”,
A. Nietner, B. Vanhecke, F. Verstraete, J. Eisert, L. Vanderstraeten,
Quantum **4**, 328 (2020),
(Lanl e-print arXiv:2003.01142).
- [212] “By-passing fluctuation theorems”,
P. Boes, R. Gallego, N. H. Y. Ng, J. Eisert, H. Wilming,
Quantum **4**, 231 (2020),
(Lanl e-print arXiv:1904.01314).
- [213] “Tensor network investigation of the double layer Kagome compound $\text{Ca}_{10}\text{Cr}_7\text{O}_{28}$ ”,
A. Kshetrimayum, C. Balz, B. Lake, J. Eisert,
Annals of Physics **421**, 168292 (2020),
(Lanl e-print arXiv:1904.00028).
- [214] “Contracting projected entangled pair states is average-case hard”,
J. Haferkamp, D. Hangleiter, J. Eisert, M. Gluza,
Physical Review Research **2**, 013010 (2020)
(Lanl e-print arXiv:1810.00738).
- [215] “Reliable recovery of hierarchically sparse signals and application in machine-type communications”,
I. Roth, M. Kliesch, G. Wunder, J. Eisert,
IEEE Transactions in Signal Processing **68**, 4002-4016 (2020),
(Lanl e-print arXiv:1612.07806).
- [216] “Stationary optomechanical entanglement between a mechanical oscillator and its measurement apparatus”,
C. Gut, K. Winkler, J. Hoelscher-Obermaier, S. G. Hofer, R. Moghadas Nia, N. Walk, A. Steffens, J. Eisert, W. Wieczorek, J. A. Slater, M. Aspelmeyer, K. Hammerer,
Physical Review Research **2**, 033244 (2020),
(Lanl e-print arXiv:1912.01635).
- [217] “Subsystem symmetries, quantum cellular automata, and computational phases of quantum matter”,
D. T. Stephen, H. Poulsen Nautrup, J. Bermejo-Vega, J. Eisert, R. Raussendorf,
Quantum **3**, 142 (2019),
(Lanl e-print arXiv:1806.08780).

-
- [218] “Lieb-Robinson bounds for open quantum systems with long-ranged interactions”,
R. Sweke, J. Eisert, M. Kastner,
Journal of Physics A, **52**, 424003 (2019),
(Lanl e-print arXiv:1906.00791).
- [219] “Majorana dimers and holographic quantum error-correcting codes”,
A. Jahn, M. Gluza, F. Pastawski, J. Eisert,
Physical Review Research **1**, 033079 (2019),
(Lanl e-print arXiv:1905.03268).
- [220] “Are many-body localized systems stable in the presence of a small bath?”,
M. Goihl, J. Eisert, C. Krumnow,
Physical Review B **99**, 195145 (2019),
(Lanl e-print arXiv:1902.04371).
- [221] “Edge mode locality in perturbed symmetry protected topological order”,
M. Goihl, C. Krumnow, M. Gluza, J. Eisert, N. Tarantino,
SciPost Physics **6**, 072 (2019),
(Lanl e-print arXiv:1901.02891).
- [222] “Equilibration towards generalized Gibbs ensembles in non-interacting theories”,
M. Gluza, J. Eisert, T. Farrelly,
SciPost Physics **7**, 038 (2019),
(Lanl e-print arXiv:1809.08268).
- [223] “Quantum work statistics and resource theories: bridging the gap through Renyi divergences”,
G. Guarnieri, N. H. Y. Ng, K. Modi, J. Eisert, M. Paternostro, J. Goold,
Physical Review E **99**, 050101 (2019),
(Lanl e-print arXiv:1804.09962).
- [224] “Complexity and entanglement for thermofield double states”,
S. Chapman, J. Eisert, L. Hackl, M. P. Heller, R. Jefferson, H. Marrochio, R. C. Myers,
SciPost Physics **6**, 034 (2019),
(Lanl e-print arXiv:1810.05151).
- [225] “Multidimensional approximation of nonlinear dynamical systems”,
P. Gelß, S. Klus, J. Eisert, C. Schütte,
Journal of Computational Nonlinear Dynamics **14**, 061006 (2019),
(Lanl e-print arXiv:1809.02448).
- [226] “Guaranteed recovery of quantum processes from few measurements”,
M. Kliesch, R. Kueng, J. Eisert, D. Gross,
Quantum **3**, 171 (2019),
(Lanl e-print arXiv:1701.03135).
- [227] “Expressive power of tensor-network factorizations for probabilistic modeling, with applications from hidden Markov models to quantum machine learning”,
I. Glasser, R. Sweke, N. Pancotti, J. Eisert, J. I. Cirac,
Advances in Neural Information Processing Systems 32, Proceedings of the NeurIPS 2019 Conference (2019),
(Lanl e-print arXiv:1907.03741).

-
- [228] “Simulating topological tensor networks with Majorana qubits”,
C. Wille, R. Egger, J. Eisert, A. Altland,
Physical Review B **99**, 115117 (2019),
(Lanl e-print arXiv:1808.04529).
- [229] “The boundaries and twist defects of the color code and their applications to topological quantum computation”,
M. S. Kesselring, F. Pastawski, J. Eisert, B. J. Brown,
Quantum **2**, 101 (2018),
(Lanl e-print arXiv:1806.02820).
- [230] “What it takes to shun equilibration”,
R. Gallego, H. Wilming, J. Eisert, C. Gogolin,
Physical Review A **98**, 022135 (2018),
(Lanl e-print arXiv:1711.09832).
- [231] “Secure massive IoT using hierarchical fast blind deconvolution”,
G. Wunder, I. Roth, R. Fritschek, B. Groß, J. Eisert,
2018 IEEE WCNCW, 17806227 (2018),
(Lanl e-print arXiv:1801.09628).
- [232] “Anti-concentration theorems for schemes showing a quantum speedup”,
D. Hangleiter, J. Bermejo-Vega, M. Schwarz, J. Eisert,
Quantum **2**, 65 (2018),
(Lanl e-print arXiv:1706.03786).
- [233] “Construction of exact constants of motion and effective models for many-body localized systems”,
M. Goihl, M. Gluza, C. Krumnow, J. Eisert,
Physical Review B **97**, 134202 (2018),
(Lanl e-print arXiv:1707.05181).
- [234] “Entanglement negativity bounds for fermionic Gaussian states”,
J. Eisert, V. Eisler, Z. Zimboras,
Physical Review B **97**, 165123 (2018),
(Lanl e-print arXiv:1611.08007).
- [235] “Quantum thermodynamics with local control”,
J. Lekscha, H. Wilming, J. Eisert, R. Gallego,
Physical Review E **97**, 022142 (2018),
(Lanl e-print arXiv:1612.00029).
- [236] “The European quantum technologies roadmap”,
A. Acin and I. Bloch and H. Buhrman and T. Calarco and C. Eichler and J. Eisert and D. Esteve and N. Gisin and
S. J. Glaser and F. Jelezko and S. Kuhr and M. Lewenstein and M. F. Riedel and P. O. Schmidt and R. Thew and
A. Wallraff and I. Walmsley and F. K. Wilhelm,
New Journal of Physics **20**, 080201 (2018),
(Lanl e-print arXiv:1712.03773).
- [237] “A fermionic de Finetti theorem”,
C. Krumnow, Z. Zimboras, J. Eisert,
Journal of Mathematical Physics **58**, 122204 (2017),
(Lanl e-print arXiv:1708.01266).

-
- [238] “Experimentally exploring compressed sensing quantum tomography”,
A. Steffens, C. Riofrio, W. McCutcheon, I. Roth, B. A. Bell, A. McMillan, M. S. Tame, J. G. Rarity, J. Eisert,
Quantum Science and Technology **2**, 025005 (2017),
(Lanl e-print arXiv:1611.01189).
- [239] “Axiomatic characterization of the quantum relative entropy and free energy”,
H. Wilming, R. Gallego, J. Eisert,
Entropy **19**, 241 (2017),
(Lanl e-print arXiv:1702.08473).
- [240] “An efficient quantum algorithm for spectral estimation”,
A. Steffens, P. Rebentrost, I. Marvian, J. Eisert, S. Lloyd,
New Journal of Physics **19**, 033005 (2017),
(Lanl e-print arXiv:1609.08170).
- [241] “Approximating local observables on projected entangled pair states”,
M. Schwarz, O. Buerschaper, J. Eisert,
Physical Review A **95**, 060102 (2017),
(Lanl e-print arXiv:1606.06301).
- [242] “Emergence of spontaneous symmetry breaking in dissipative lattice systems”,
H. Wilming, M. J. Kastoryano, A. H. Werner, J. Eisert,
Journal of Mathematical Physics **58**, 033302 (2017),
(Lanl e-print arXiv:1602.01108).
- [243] “Fermionic topological quantum states as tensor networks”,
C. Wille, O. Buerschaper, J. Eisert,
Physical Review B **95**, 245127 (2017),
(Lanl e-print arXiv:1609.02574).
- [244] “Approximating local observables on projected entangled pair states”,
M. Schwarz, O. Buerschaper, J. Eisert,
Physical Review A **95**, 060102 (2017),
(Lanl e-print arXiv:1606.06301).
- [245] “Cellular automaton decoders of topological quantum memories in the fault tolerant setting”,
M. Herold, M. J. Kastoryano, E. T. Campbell, J. Eisert,
New Journal of Physics **19**, 063012 (2017),
(Lanl e-print arXiv:1511.05579).
- [246] “Drude weight fluctuations in many-body localized systems”,
M. Filippone, P. W. Brouwer, J. Eisert, F. von Oppen,
Physical Review B **94**, 201112 (2016),
(Lanl e-print arXiv:1606.07291).
- [247] “Estimating strong correlations in optical lattices”,
J. Gertis, M. Friesdorf, C. A. Riofrio, J. Eisert,
Physical Review A **94**, 053628 (2016),
(Lanl e-print arXiv:1606.01913).

-
- [248] “Direct certification of a class of quantum simulations”,
D. Hangleiter, M. Kliesch, M. Schwarz, J. Eisert,
Quantum Science and Technology **2**, 015004 (2017),
(Lanl e-print arXiv:1511.05579).
- [249] “Work and entropy production in generalised Gibbs ensembles”,
M. Perarnau-Llobet, A. Riera, R. Gallego, H. Wilming, J. Eisert,
New Journal of Physics **18**, 123035 (2016),
(Lanl e-print arXiv:1512.03823).
- [250] “Improving compressed sensing with the diamond norm”,
M. Kliesch, R. Kueng, J. Eisert, D. Gross,
IEEE Transactions in Information Theory **62**, 7445 (2016),
(Lanl e-print arXiv:1511.01513).
- [251] “Thermodynamic work from operational principles”,
R. Gallego, J. Eisert, H. Wilming,
New Journal of Physics **18**, 103017 (2016),
(Lanl e-print arXiv:1504.05056).
- [252] “Second laws under control restrictions”,
H. Wilming, R. Gallego, J. Eisert,
Physical Review E **93**, 042126 (2016),
(Lanl e-print arXiv:1411.3754).
- [253] “Area laws and efficient descriptions of quantum many-body states”,
Y. Ge, J. Eisert,
New Journal of Physics **18**, 083026 (2016),
(Lanl e-print arXiv:1411.2995).
- [254] “Emergence of coherence and the dynamics of quantum phase transitions”,
S. Braun, M. Friesdorf, S. S. Hodgman, M. Schreiber, J. P. Ronzheimer, A. Riera, M. del Rey, I. Bloch, J. Eisert, U. Schneider,
Proceedings of the National Academy of Sciences, **112**, 3641 (2015),
(Lanl e-print arXiv:1403.7199).
- [255] “Total correlations of the diagonal ensemble herald the many-body localization transition”,
J. Goold, S. R. Clark, C. Gogolin, J. Eisert, A. Scardicchio, A. Silva,
Physical Review B **92**, 180202(R) (2015),
(Lanl e-print arXiv:1504.06872).
- [256] “Continuous matrix product state tomography of quantum transport experiments”,
G. Haack, A. Steffens, J. Eisert, R. Hübener,
New Journal of Physics **17**, 113024 (2015),
(Lanl e-print arXiv:1504.04194).
- [257] “Local constants of motion imply information propagation”,
M. Friesdorf, A. H. Werner, M. Goihl, J. Eisert, W. Brown,
New Journal of Physics **17**, 113054 (2015),
(Lanl e-print arXiv:1504.06872).

-
- [258] “Limits to catalysis in quantum thermodynamics”,
N. H. Y. Ng, L. Mancinska, C. Cirstoiu, J. Eisert, S. Wehner,
New Journal of Physics **17**, 085004 (2015),
(Lanl e-print arXiv:1405.3039).
- [259] “Equilibration in low-dimensional quantum matrix models”,
R. Hübener, Y. Sekino, J. Eisert,
Journal of High Energy Physics **2015**, 166 (2015),
(Lanl e-print arXiv:1403.1392).
- [260] “Area laws for thermal free fermions”,
H. Bernigau, M. J. Kastoryano, J. Eisert,
Journal of Statistical Mechanics P02008 (2015),
(Lanl e-print arXiv:1305.1953).
- [261] “Quantum field tomography”,
A. Steffens, C. A. Riofrio, R. Hübener, J. Eisert,
New Journal of Physics **16**, 123010 (2014),
(Lanl e-print arXiv:1406.3631).
- [262] “Search for localized Wannier functions of topological band structures via compressed sensing”,
J. C. Budich, J. Eisert, E. J. Bergholtz, S. Diehl, P. Zoller,
Physical Review B **90**, 115110 (2014),
(Lanl e-print arXiv:1405.6641).
- [263] “Topological insulators with arbitrarily tunable entanglement scaling”,
J. C. Budich, J. Eisert, E. J. Bergholtz,
Physical Review B **89**, 195120 (2014),
(Lanl e-print arXiv:1311.3309).
- [264] “Thermal machines beyond the weak coupling regime”,
R. Gallego, A. Riera, J. Eisert,
New Journal of Physics **16**, 125009 (2014),
(Lanl e-print arXiv:1311.3309).
- [265] “Majorana fermions and non-locality”,
E. T. Campbell, M. J. Hoban, J. Eisert,
Quantum Information and Computation **14**, 0981 (2014),
(Lanl e-print arXiv:1305.1953).
- [266] “Entanglement of nano-electromechanical oscillators by Cooper-pair tunneling”,
S. Walter, J. Carl Budich, J. Eisert, B. Trauzettel,
Physical Review B **88**, 035441 (2013),
(Lanl e-print arXiv:1210.0665).
- [267] “Rapid mixing implies exponential decay of correlations”,
M. Kastoryano, J. Eisert,
Journal of Mathematical Physics **54**, 102201 (2013),
(Lanl e-print arXiv:1303.6304).

-
- [268] “Entanglement and tensor network states”,
J. Eisert,
Modeling and Simulation **3**, 520 (2013),
(Lanl e-print arXiv:1308.3318).
- [269] “Continuous-variable entanglement distillation and non-commutative central limit theorems”,
E. T. Campbell, M. G. Genoni, J. Eisert,
Physical Review A **87**, 042330 (2013),
(Lanl e-print arXiv:1211.54830).
- [270] “Efficient and feasible state tomography of quantum many-body systems”,
M. Ohliger, V. Nesme, J. Eisert,
New Journal of Physics **15**, 015024 (2012),
(Lanl e-print arXiv:1204.5735).
- [271] “Opto- and electro-mechanical entanglement improved by modulation”,
A. Mari, J. Eisert,
New Journal of Physics **14**, 075014 (2012),
(Lanl e-print arXiv:1111.2415).
- [272] “Recursive quantum detector tomography”,
L. Zhang, A. Datta, H. B. Coldenstrodt-Ronge, X.-M. Jin, J. Eisert, M. B. Plenio, I. A. Walmsley,
New Journal of Physics **14**, 115005 (2012),
(Lanl e-print arXiv:1207.3501).
- [273] “Quantum tomography via compressed sensing: Error bounds, sample complexity, and efficient estimators”,
S. T. Flammia, D. Gross, Y.-K. Liu, J. Eisert,
New Journal of Physics **14**, 095022 (2012),
(Lanl e-print arXiv:1205.2300).
- [274] “Efficient measurement-based quantum computing with continuous-variable systems”,
M. Ohliger, J. Eisert,
Physical Review A **85**, 062318 (2012),
(Lanl e-print arXiv:1112.2641).
- [275] “Tensor network methods with graph enhancement”,
R. Hübener, C. Kruszynska, L. Hartmann, W. Dür, M. B. Plenio, J. Eisert,
Physical Review B **84**, 125103 (2011),
(Lanl e-print 1101.1874).
- [276] “Information propagation for interacting particle systems”,
N. Schuch, S. K. Harrison, T. J. Osborne, J. Eisert,
Physical Review A **84**, 032309 (2011),
(Lanl e-print arXiv:1010.4576).
- [277] “The optimal unitary dilation for bosonic Gaussian channels”,
F. Caruso, J. Eisert, V. Giovannetti, A. S. Holevo,
Physical Review A **84**, 022306 (2011),
(Lanl e-print arXiv:1009.1108).

-
- [278] “Continuity bounds on the quantum relative entropy - II”,
K. M. R. Audenaert, J. Eisert,
Journal of Mathematical Physics **52**, 112201 (2011),
(Lanl e-print arXiv:1105.2656).
- [279] “Unitary circuits for strongly correlated fermions”,
C. Pineda, T. Barthel, J. Eisert,
Physical Review A **81**, 050303(R) (2010),
(Lanl e-print arXiv:0905.0669).
- [280] “Limitations of quantum computing with Gaussian cluster states”,
M. Ohliger, K. Kieling, J. Eisert,
Physical Review A **82**, 042336 (2010),
(Lanl e-print arXiv:1004.0081).
- [281] “Entanglement quantification from incomplete measurements: Applications using photon-number-resolving weak homodyne detectors”,
G. Puentes, A. Feito, A. Datta, J. Eisert, M. B. Plenio, I. A. Walmsley,
New Journal of Physics **12**, 033042 (2010),
(Lanl e-print arxiv.org:0911.2482).
- [282] “Ground states of frustration-free spin Hamiltonians satisfy an area law”,
N. de Beaudrap, T. J. Osborne, J. Eisert,
New Journal of Physics **12**, 095007 (2010),
(Lanl e-print arXiv:1009.3051).
- [283] “Quantum computational webs”,
D. Gross, J. Eisert,
Physical Review A **82**, 040303(R) (2010),
(Lanl e-print arXiv:0810.2542).
- [284] “A quantum central limit theorem for quantum lattice systems”,
M. Cramer, J. Eisert,
New Journal of Physics **12**, 055020 (2009),
(Lanl e-print arXiv:0911.2475).
- [285] “Contraction of fermionic operator circuits and the simulation of strongly correlated fermions”,
T. Barthel, C. Pineda, J. Eisert,
Physical Review A **80**, 042333 (2009),
(Lanl e-print arXiv:0907.3689).
- [286] “A renormalization algorithm with graph enhancement”,
R. Hübener, C. Kruszynska, L. Hartmann, W. Dür, F. Verstraete, J. Eisert, M. B. Plenio,
Physical Review A **79**, 022317 (2009),
(Lanl e-print arXiv:0802.1211).
- [287] “Information propagation through quantum chains with fluctuating disorder”,
C. K. Burrell, J. Eisert, T. J. Osborne,
Physical Review A **80**, 052319 (2009),
(Lanl e-print arXiv:0809.4833).

-
- [288] “On photonic controlled phase gates”,
K. Kieling, J. L. O’Brien, J. Eisert,
New Journal of Physics **12**, 013003 (2009),
(Lanl e-print arXiv:0909.2057).
- [289] “A proposed testbed for detector tomography”,
H. Coldenstrodt-Ronge, J. S. Lundeen, A. Feito, B. J. Smith, W. Mauerner, Ch. Silberhorn, J. Eisert, M. B. Plenio, I. A. Walmsley,
Journal of Modern Optics **56**, 432 (2009),
(Lanl e-print arXiv:0807.2444).
- [290] “Measuring measurement: Theory and practice”,
A. Feito, J. S. Lundeen, H. Coldenstrodt-Ronge, J. Eisert, M. B. Plenio, I. A. Walmsley,
New Journal of Physics **11**, 093038 (2009),
(Lanl e-print arXiv:0807.2444).
- [291] “Two-dimensional characterization of spatially entangled photon pairs”,
M. Ostermeyer, D. Korn, D. Puhmann, C. Henkel, J. Eisert,
Journal of Modern Optics **56**, 1829 (2009).
- [292] “Multi-mode bosonic Gaussian channels”,
F. Caruso, J. Eisert, V. Giovannetti, A. S. Holevo,
New Journal of Physics **10**, 083030 (2008),
(Lanl e-print arXiv:0902.4384).
- [293] “Locality of dynamics in general harmonic quantum systems”,
M. Cramer, A. Serafini, J. Eisert,
in “Quantum Information and Many-Body Quantum Systems” special issue, March 2007,
(Lanl e-print arXiv:0803.0890).
- [294] “Unifying several separability conditions using the covariance matrix criterion”,
O. Gittsovich, O. Gühne, P. Hyllus, J. Eisert,
Physical Review A **78**, 052319 (2008),
(Lanl e-print arXiv:0803.0757).
- [295] “Probing local relaxation of cold atoms in optical superlattices”,
A. Flesch, M. Cramer, I. P. McCulloch, U. Schollwöck, J. Eisert,
Physical Review A **78**, 033608 (2008),
(Lanl e-print arXiv:0808.3779).
- [296] “Correlated entanglement distillation and the structure of the set of undistillable states”,
F. G. S. L. Brandao, J. Eisert,
Journal of Mathematical Physics **49**, 042102 (2008),
(Lanl e-print arXiv:0709.3835).
- [297] “Quantum Margulis expanders”,
D. Gross, J. Eisert,
Quantum Information and Computation **8**, 722 (2008),
(Lanl e-print arXiv:0710.0651).
- [298] “Measurement-based quantum computation beyond the one-way model”,
D. Gross, J. Eisert, N. Schuch, D. Perez-Garcia
Physical Review A **76**, 052315 (2007),
(Lanl e-print arXiv:0706.3401).

-
- [299] “A general linear-optical quantum state generator”,
N. M. VanMeter, P. Lougovski, B. Uskov, K. Kieling, J. Eisert, J. P. Dowling,
Physical Review A **76**, 063808 (2007),
(Lanl e-print quant-ph/0612154).
- [300] “Cluster state preparation using gates operating at arbitrary success probabilities”,
K. Kieling, D. Gross, J. Eisert,
New Journal of Physics **9**, 200 (2007),
(Lanl e-print quant-ph/0703045).
- [301] “Experimental feasibility of continuous-variable optical entanglement distillation”,
J. Eisert, M. B. Plenio, D.E. Browne, S. Scheel, A. Feito,
Optics and Spectroscopy **103**, 181 (2007),
(Lanl e-print quant-ph/0604163).
- [302] “Quantitative entanglement witnesses”,
J. Eisert, F. Brandao, K. M. R. Audenaert,
New Journal of Physics **9**, 46 (2007),
(Lanl e-print quant-ph/0607167).
- [303] “Potential and limits to cluster state quantum computing using probabilistic gates”,
D. Gross, K. Kieling, J. Eisert,
Physical Review A **74**, 042343 (2006),
(Lanl e-print quant-ph/0605014).
- [304] “Minimal resources for linear optical one-way computing”,
K. Kieling, D. Gross, J. Eisert,
Journal of the Optical Society of America, B **24**, 184 (2007),
(Lanl e-print quant-ph/0601190).
- [305] “Evenly distributed unitaries: on the structure of unitary designs”,
D. Gross, K. Audenaert, J. Eisert,
Journal of Mathematical Physics **48**, 052104 (2007),
(Lanl e-print quant-ph/0611027).
- [306] “Graph states”,
M. Hein, W. Dür, J. Eisert, R. Raussendorf, M. Van den Nest, H.-J. Briegel,
Nuovo Cimento (2007),
(Lanl e-print quant-ph/0602096).
- [307] “Optimal entanglement witnesses for continuous-variable systems”,
P. Hyllus and J. Eisert,
New Journal of Physics **8**, 51 (2006),
(Lanl e-print quant-ph/0510077).
- [308] “Correlations, spectral gap, and entanglement in harmonic quantum systems on generic lattices”,
M. Cramer and J. Eisert,
New Journal of Physics **8**, 71 (2006),
(Lanl e-print quant-ph/0509167).

-
- [309] “Half the entanglement in critical systems is distillable from a single specimen”,
R. Orus, J. I. Latorre, J. Eisert, M. Cramer,
Physical Review A **73**, 060303(R) (2006),
(Lanl e-print quant-ph/0509023).
- [310] “Feed-forward and its role in conditional linear optical quantum dynamics”.
S. Scheel, W. J. Munro, J. Eisert, K. Nemoto, P. Kok,
Physical Review A **73**, 034301 (2006),
(Lanl e-print quant-ph/0509075).
- [311] “Single-copy entanglement in critical spin chains”,
J. Eisert, M. Cramer,
Physical Review A **72**, 042112 (2005),
(Lanl e-print quant-ph/0506250).
- [312] “An entanglement-area law for general bosonic harmonic lattice systems”,
M. Cramer, J. Eisert, M. B. Plenio, J. Dreissig,
Physical Review A **73**, 012309 (2006),
(Lanl e-print quant-ph/0505092).
- [313] “Continuity bounds on the relative entropy”,
K. Audenaert, J. Eisert,
Journal of Mathematical Physics **46**, 102104 (2005),
(Lanl e-print quant-ph/0503218).
- [314] “Optical generation of matter qubit graph states”,
S.C. Benjamin, J. Eisert, T. Stace,
New Journal of Physics **7**, 194 (2005),
(Lanl e-print quant-ph/0506110).
- [315] “Classical information capacity of a class of quantum channels”,
M. M. Wolf, J. Eisert,
New Journal of Physics **7**, 93 (2005),
(Lanl e-print quant-ph/0412133).
- [316] “Quantifying multi-photon entanglement”.
G.A. Durkin, C. Simon, J. Eisert, D. Bouwmeester,
Physical Review A **70**, 062305 (2005),
(Lanl e-print quant-ph/0402053).
- [317] “Multiplicativity of maximal output purities of Gaussian channels under Gaussian inputs”.
A. Serafini, J. Eisert, M. M. Wolf,
Physical Review A **71**, 012320 (2005),
(Lanl e-print quant-ph/0406065).
- [318] “Distillation of continuous-variable entanglement with optical means”,
J. Eisert, D. Browne, S. Scheel, M. B. Plenio,
Annals of Physics (NY) **311**, 431 (2004),
(Lanl e-print quant-ph/0307106).

-
- [319] “Hierarchies of efficient approximations in entanglement theory”,
J. Eisert, P. Hyllus, O. Gühne, M. Curty,
Physical Review A **70**, 062317 (2004),
(Lanl e-print quant-ph/0407135).
- [320] “Multi-particle entanglement in graph states”,
M. Hein, J. Eisert, H.J. Briegel,
Physical Review A **69**, 062311 (2004),
(Lanl e-print quant-ph/0307130).
- [321] “Dynamics and manipulation of entanglement in coupled harmonic systems with many degrees of freedom”,
M. B. Plenio, J. Hartley, J. Eisert,
New Journal of Physics **6**, 36 (2004),
(Lanl e-print quant-ph/0402004).
- [322] “Introduction to the theory of continuous-variable entanglement”,
J. Eisert, M. B. Plenio,
International Journal of Quantum Information **1**, 479 (2003),
(Lanl e-print quant-ph/0312071).
- [323] “Entanglement measures and non-local state distinguishability”,
J. Eisert, K. Audenaert, M. B. Plenio,
Journal of Physics A **36**, 5605 (2003),
(Lanl e-print quant-ph/0212007).
- [324] “Mixtures of bosonic and fermionic atoms in optical lattices”,
A. Albus, F. Illuminati, J. Eisert,
Physical Review A **68**, 023606 (2003),
(Lanl e-print cond-mat/0304223).
- [325] “Driving non-Gaussian states to Gaussians with linear optics”,
D. Browne, J. Eisert, S. Scheel, M. B. Plenio,
Physical Review A **67**, 062320 (2003),
(Lanl e-print quant-ph/0211173).
- [326] “Entanglement transformations of pure Gaussian states”,
G. Giedke, J. Eisert, J. I. Cirac, M. B. Plenio,
Quantum Information and Computation **3**, 211 (2003),
(Lanl e-print quant-ph/0301038).
- [327] “Hot entanglement in a simple dynamical model”,
S. Scheel, J. Eisert, P. L. Knight, M. B. Plenio,
Journal of Modern Optics **50**, 881 (2003),
(Lanl e-print quant-ph/0207120).
- [328] “Quantification of entanglement in infinite-dimensional quantum systems”,
J. Eisert, C. Simon, M. B. Plenio,
Journal of Physics A **35**, 3911 (2002),
(Lanl e-print quant-ph/0112064).

-
- [329] “Entanglement of infinite oscillator chains”,
K. Audenaert, J. Eisert, M. B. Plenio, R.F. Werner,
Physical Review A **66**, 042327 (2002),
(Lanl e-print quant-ph/0205025).
- [330] “The Schmidt measure as a tool for quantifying multi-particle entanglement”,
J. Eisert, H.-J. Briegel,
Physical Review A **64**, 022306 (2001),
(Lanl e-print quant-ph/9912080).
- [331] “Quantum games”,
J. Eisert, M. Wilkens,
Journal of Modern Optics **47**, 2543 (2000),
(Lanl e-print quant-ph/0004076).
- [332] “Optimal local implementation of non-local quantum gates”,
J. Eisert, K. Jacobs, P. Papadopoulos, M. B. Plenio,
Physical Review A **62**, 052317 (2000),
(Lanl e-print quant-ph/0005101).
- [333] “A comparison of entanglement measures”,
J. Eisert, M. B. Plenio,
Journal of Modern Optics **46**, 145 (1999),
(Lanl e-print quant-ph/9807034).
- [334] “Integral equation method for the continuous spectrum radial Schrödinger equation”,
R. A. Gonzales, J. Eisert, I. Koltracht, M. Neumann, G. Rawitscher,
Journal of Computational Physics **134**, 134 (1997).

PREPRINTS

- [335] “Mind the gaps: The fraught road to quantum advantage”,
J. Eisert, J. Preskill,
(Lanl e-print arXiv:2510.19928).
- [336] “How hard is it to verify a classical shadow?”,
G. Karaiskos, D. Rudolph, J. Jakob Meyer, J. Eisert, S. Gharibian,
(Lanl e-print arXiv:2510.08515).
- [337] “Stability of digital and analog quantum simulations under noise”,
J. Rao, J. Eisert, T. Guaita,
(Lanl e-print arXiv:2510.08467).
- [338] “Clifford testing: algorithms and lower bounds”,
M. Hinsche, Z. Bao, P. van Dordrecht, J. Eisert, J. Briet, J. Helsen,
(Lanl e-print arXiv:2510.07164).
- [339] “Variational optimization of projected entangled-pair states on the triangular lattice”,
J. Naumann, J. Eisert, P. Schmoll,
(Lanl e-print arXiv:2510.04907).

-
- [340] “Computational relative entropy”,
J. Jakob Meyer, A. Raza, J. Rizzo, L. Leone, S. Jerbi, J. Eisert,
(Lanl e-print arXiv:2509.20472).
- [341] “Emergent statistical mechanics in holographic random tensor networks”,
S. Qasim, J. Eisert, A. Jahn,
(Lanl e-print arXiv:2508.16570).
- [342] “Energy-independent tomography of Gaussian states”,
L. Bittel, F. A. Mele, J. Eisert, A. A. Mele,
(Lanl e-print arXiv:2508.14979).
- [343] “Artificial intelligence for representing and characterizing quantum systems”,
Y. Du, Y. Zhu, Y.-H. Zhang, M.-H. Hsieh, P. Rebentrost, W. Gao, Y.-D. Wu, J. Eisert, G. Chiribella, D. Tao, B. C. Sanders,
(Lanl e-print arXiv:2509.04923).
- [344] “Classical simulation of noisy quantum circuits via locally entanglement-optimal unravelings”,
S. Cichy, P. K. Faehrmann, L. Bittel, J. Eisert, H. Pashayan,
(Lanl e-print arXiv:2508.05745).
- [345] “Quantum circuit simulation with a local time-dependent variational principle”,
A. Sander, M. Fröhlich, M. Ali, M. Eigel, J. Eisert, M. Hintermüller, C. B. Mendl, R. M. Milbradt, R. Wille,
(Lanl e-print arXiv:2508.10096).
- [346] “Unifying communication paradigms in delegated quantum computing”,
F. Wiesner, J. Eisert, A. Pappa,
(Lanl e-print arXiv:2506.21988).
- [347] “Hardware-tailored logical Clifford circuits for stabilizer codes”,
E. J. Kuehnke, K. Levi, J. Roffe, J. Eisert, D. Miller,
(Lanl e-print arXiv:2505.20261).
- [348] “Quantum computing and artificial intelligence: status and perspectives”,
G. Acampora, A. Ambainis, N. Ares, L. Banchi, P. Bhardwaj, D. Binosi, G. A. D. Briggs, T. Calarco, V. Dunjko, J. Eisert, O. Ezratty, P. Erker, F. Fedele, E. Gil-Fuster, M. Gaerttner, M. Granath, M. Heyl, I. Kerenidis, M. Klusch, A. Frisk Kockum, R. Kueng, M. Krenn, J. Laessig, A. Macaluso, S. Maniscalco, F. Marquardt, K. Michielsen, G. Munoz-Gil, D. Muessig, H. Poulsen Nautrup, S. A. Neubauer, E. van Nieuwenburg, R. Orus, J. Schmiedmayer, M. Schmitt, P. Slusallek, F. Vicentini, C. Weitenberg, F. K. Wilhelm,
(Lanl e-print arXiv:arXiv:2505.23860).
- [349] “Robust and efficient estimation of global quantum properties under realistic noise”,
Q. Zhang, D. Qin, Z. You, F. Xu, J. Eisert, Y. Zhou,
(Lanl e-print arXiv:2507.13237).
- [350] “The abelian state hidden subgroup problem: Learning stabilizer groups and beyond”,
M. Hinsche, J. Eisert, J. Carrasco,
(Lanl e-print arXiv:2505.15770).
- [351] “The non-Clifford cost of random unitaries”,
L. Leone, S. F. E. Oliviero, A. Hamma, J. Eisert, L. Bittel,
(Lanl e-print arXiv:2505.10110).

-
- [352] “Optimal randomized measurements for a family of non-linear quantum properties”,
Z. Du, Y. Tang, A. Elben, I. Roth, J. Eisert, Z. Liu,
(Lanl e-print arXiv:2505.09206).
- [353] “Dynamical codes for hardware with noisy readouts”,
P.-J. H. S. Derks, A. Townsend-Teague, J. Eisert, M. S. Kesselring, O. Higgott, B. J. Brown,
(Lanl e-print arXiv:2505.07658).
- [354] “Optimal randomized measurements for a family of non-linear quantum properties”,
Z. Du, Y. Tang, A. Elben, I. Roth, J. Eisert, Z. Liu,
(Lanl e-print arXiv:2505.09206).
- [355] “Measurement-driven quantum advantages in shallow circuits”,
C. Cao, J. Eisert,
(Lanl e-print arXiv:2505.04705).
- [356] “Coherently mitigating boson samplers with stochastic errors”,
D. Singh, R. J. Marshman, N. Walk, J. Eisert, T. C. Ralph, A. P. Lund,
(Lanl e-print arXiv:2505.00102).
- [357] “Quantum reinforcement learning of classical rare dynamics: Enhancement by intrinsic Fourier features”,
A. Wilms, L. Ohff, A. Skolik, J. Eisert, S. Khatri, D. A. Reiss,
(Lanl e-print arXiv:2504.16258).
- [358] “A complete theory of the Clifford commutant”,
L. Bittel, J. Eisert, L. Leone, A. A. Mele, S. F. E. Oliviero,
(Lanl e-print arXiv:2504.12263).
- [359] “Universal fault-tolerant logic with heterogeneous holographic codes”,
M. Steinberg, J. Fan, J. Eisert, S. Feld, A. Jahn, C. Cao,
(Lanl e-print arXiv:2504.10386).
- [360] “Systematic benchmarking of quantum computers: status and recommendations”,
J. M. Lorenz, T. Monz, J. Eisert, D. Reitzner, F. Schopfer, F. Barbaresco, K. Kurowski, W. van der Schoot, T. Strohm,
J. Senellart, C. M. Perrault, M. Knufinke, Z. Amodjee, M. Giardini,
(Lanl e-print arXiv:2503.04905).
- [361] “Holonomic quantum computation: a scalable adiabatic architecture”,
C. Wassner, T. Guaita, J. Eisert, J. Carrasco,
(Lanl e-print arXiv:2502.17188).
- [362] “Towards efficient quantum algorithms for diffusion probability models”,
Y. Wang, R. Jiang, Y. Fan, X. Jia, J. Eisert, J. Liu, J.-P. Liu,
(Lanl e-print arXiv:2502.14252).
- [363] “Opportunities and limitations of explaining quantum machine learning”,
E. Gil-Fuster, J. R. Naujoks, G. Montavon, T. Wiegand, W. Samek, J. Eisert,
(Lanl e-print arXiv:2412.14753).
- [364] “An unconditional distribution learning advantage with shallow quantum circuits”,
N. Pirnay, S. Jerbi, J.-P. Seifert, J. Eisert,
(Lanl e-print arXiv:2411.15548).

-
- [365] “Learning complexity gradually in quantum machine learning models”,
E. Recio-Armengol, F. J. Schreiber, J. Eisert, C. Bravo-Prieto,
(Lanl e-print arXiv:2411.11954).
- [366] “Simulating quantum chaos without chaos”,
A. Gu, Y. Quek, S. Yelin, J. Eisert, L. Leone,
(Lanl e-print arXiv:2410.18196).
- [367] “Chasing shadows with Gottesman-Kitaev-Preskill codes”,
J. Conrad, J. Eisert, S. T. Flammia,
(Lanl e-print arXiv:2411.00235).
- [368] “More global randomness from less random local gates”,
R. Suzuki, H. Katsura, Y. Mitsuhashi, T. Soejima, J. Eisert, N. Yoshioka,
(Lanl e-print arXiv:2410.24127).
- [369] “Interactive proofs for verifying (quantum) learning and testing”,
M. C. Caro, J. Eisert, M. Hinsche, M. Ioannou, A. Nietner, R. Sweke,
(Lanl e-print arXiv:2410.23969).
- [370] “Extendibility of fermionic states and rigorous ground state approximations of interacting fermionic systems”,
C. Krumnow, Z. Zimborás, J. Eisert,
(Lanl e-print arXiv:2410.08322).
- [371] “Benchmarking bosonic and fermionic dynamics”,
J. Wilkens, M. Ioannou, E. Derbyshire, J. Eisert, D. Hangleiter, I. Roth, J. Haferkamp,
(Lanl e-print arXiv:2408.11105).
- [372] “Experimental measurement and a physical interpretation of quantum shadow enumerators”,
D. Miller, K. Levi, L. Postler, A. Steiner, L. Bittel, G. A. L. White, Y. Tang, E. J. Kuehnke, A. A. Mele, S. Khatri, L. Leone, J. Carrasco, C. D. Marciniak, I. Pogorelov, M. Guevara-Bertsch, R. Freund, R. Blatt, P. Schindler, T. Monz, M. Ringbauer, J. Eisert,
(Lanl e-print arXiv:2408.16914).
- [373] “Full classification of Pauli Lie algebras”,
G. Aguilar, S. Cichy, J. Eisert, L. Bittel,
(Lanl e-print arXiv:2408.00081).
- [374] “Designing fault-tolerant circuits using detector error models”,
P.-J. H.S. Derks, A. Townsend-Teague, A. G. Burchards, J. Eisert,
(Lanl e-print arXiv:2407.13826).
- [375] “Bathing in a sea of candidate quantum spin liquids: From the gapless ruby to the gapped maple-leaf lattice”,
P. Schmoll, J. Naumann, J. Eisert, Y. Iqbal,
(Lanl e-print arXiv:2407.07145).
- [376] “Online learning of quantum processes”,
A. Raza, M. C. Caro, J. Eisert, S. Khatri,
(Lanl e-print arXiv:2406.04250).

-
- [377] “Noise-induced shallow circuits and absence of barren plateaus”,
A. A. Mele, A. Angrisani, S. Ghosh, S. Khatir, J. Eisert, D. Stilck França, Y. Quek,
(Lanl e-print arXiv:2403.13927).
- [378] “Noise-mitigated randomized measurements and self-calibrating shadow estimation”,
E. Onorati, J. Kitzinger, J. Helsen, M. Ioannou, A. H. Werner, I. Roth, J. Eisert,
(Lanl e-print arXiv:2403.04751).
- [379] “Advantage of multi-partite entanglement for quantum cryptography over long and short ranged networks”,
J. Memmen, J. Eisert, N. Walk,
(Lanl e-print arXiv:2312.13376).
- [380] “Hamiltonian truncation tensor networks for quantum field theories”,
P. Schmoll, J. Naumann, A. Nietner, J. Eisert, S. Sotiriadis,
(Lanl e-print arXiv:2312.12506).
- [381] “Advantage of multi-partite entanglement for quantum cryptography over long and short ranged networks”,
J. Memmen, J. Eisert, N. Walk,
(Lanl e-print arXiv:2312.13376).
- [382] “Scalably learning quantum many-body Hamiltonians from dynamical data”,
F. Wilde, A. Kshetrimayum, I. Roth, D. Hangleiter, R. Sweke, J. Eisert,
(Lanl e-print arXiv:2209.14328).
- [383] “A route towards engineering many-body localization in real materials”,
A. Nietner, A. Kshetrimayum, J. Eisert, B. Lake,
(Lanl e-print arXiv:2207.10696).
- [384] “Equivalence in delegated quantum computing”,
F. Wiesner, J. Eisert, A. Pappa,
(Lanl e-print arXiv:2206.07469).
- [385] “Hierarchical sparse recovery from hierarchically structured measurements with application to massive random access”,
B. Groß, A. Flinth, I. Roth, J. Eisert, G. Wunder,
(Lanl e-print arXiv:2105.03169).
- [386] “Learnability of the output distributions of local quantum circuits”,
M. Hinsche, M. Ioannou, A. Nietner, J. Haferkamp, Y. Quek, D. Hangleiter, J.-P. Seifert, J. Eisert, R. Sweke,
(Lanl e-print arXiv:2110.05517).
- [387] “Guaranteed blind deconvolution and demixing via hierarchically sparse reconstruction”,
A. Flinth, I. Roth, B. Groß, J. Eisert, G. Wunder,
(Lanl e-print arXiv:2111.03486).
- [388] “Hierarchical sparse recovery from hierarchically structured measurements”,
B. Groß, A. Flinth, I. Roth, J. Eisert, G. Wunder,
(Lanl e-print arXiv:2005.10379).
- [389] “Tensor network approaches for learning non-linear dynamical laws”,
A. Goeßmann, M. Götze, I. Roth, R. Sweke, G. Kutyniok, J. Eisert,
(Lanl e-print arXiv:2002.12388).

-
- [390] “Towards overcoming the entanglement barrier when simulating long-time evolution”,
C. Krumnow, J. Eisert, O. Legeza,
(Lanl e-print 1904.11999).
- [391] “Towards a mathematical formalism for classifying phases of matter”,
A. Bauer, J. Eisert, C. Wille,
(Lanl e-print arXiv:1903.05413).
- [392] “Performance of hierarchical sparse detectors for massive MTC”,
G. Wunder, I. Roth, R. Fritschek, J. Eisert,
(Lanl e-print arXiv:1806.02754).
- [393] “Hierarchical restricted isometry property for Kronecker product measurements”,
I. Roth, A. Flinth, R. Kueng, J. Eisert, G. Wunder,
(Lanl e-print arXiv:1801.10433).
- [394] “Towards local equilibration in closed interacting quantum many-body systems”,
H. Wilming, M. Goihl, C. Krumnow, J. Eisert,
(Lanl e-print arXiv:1704.06291).
- [395] “Noise-driven criticality”,
J. Eisert, T. Prosen,
(Lanl e-print arXiv:1012.5013).

BOOK CHAPTERS

- [396] “Eine kurze Geschichte des Quantenrechnens von gestern bis morgen”,
J. Eisert, P. K. Fährmann, M. C. Caro,
invited opening chapter for a series on quantum computing in the *Physik Journal*,
(Wiley-VCH, Hoboken, 2023).
- [397] “Quantencomputer heute und in naher Zukunft: eine realistische Perspektive”,
P. K. Fährmann, J. J. Meyer, J. Eisert,
invited book chapter for “Chancen und Risiken von Quantentechnologien: Praxis der zweiten Quantenrevolution
für Entscheider in Wirtschaft und Politik”,
editors A. Wilms, F. Neukart (Springer, Berlin, 2022).
- [398] “Hierarchical compressed sensing”,
J. Eisert, A. Flinth, B. Groß, I. Roth, G. Wunder,
invited book chapter for “Compressed sensing in information processing”,
editors G. Kutyniok, H. Rauhut, R. J. Kunsch (Springer, Berlin, 2022).
(Lanl e-print arXiv:2104.02721).
- [399] “Equilibration times in closed quantum many-body systems”,
H. Wilming, T. R. de Oliveira, A. J. Short, J. Eisert,
invited book chapter for “Thermodynamics in the quantum regime - recent progress and outlook”,
editors F. Binder, L. A. Correa, C. Gogolin, J. Anders, and G. Adesso (Springer, Berlin, 2018).
(Lanl e-print arXiv:1805.06422).

-
- [400] “Multi-partite entanglement”,
M. Walter, D. Gross, J. Eisert,
invited book chapter for “Lectures on quantum information, 2nd edition”,
editors G. Leuchs, D. Bruß (Wiley-VCH, Weinheim, 2019).
(Lanl e-print arXiv:1612.02437).
- [401] “Gaussian quantum channels”,
J. Eisert, M. M. Wolf,
invited book chapter for “Continuous-variable quantum information”,
editors E. Polzik, N. Cerf, G. Leuchs, (Imperial College Press, London, 2007).
(Lanl e-print quant-ph/0505151).
- [402] “Harmonic systems with many degrees of freedom”,
K. Audenaert, J. Eisert, M.B. Plenio,
invited book chapter for “Continuous-variable quantum information”,
editors E. Polzik, N. Cerf, G. Leuchs (Imperial College Press, London, 2007).
- [403] “Nontrivial quantum effects in biology: A skeptical physicist’s view”,
H. M. Wiseman, J. Eisert,
invited book chapter for “Quantum aspects of life”,
editor D. Abbott (World Scientific, Singapore, 2007),
(Lanl e-print arXiv:0705.1232).
- [404] “Multi-partite entanglement”,
D. Gross, J. Eisert,
invited book chapter for “Lectures on quantum information”,
editors G. Leuchs, D. Bruß (Wiley-VCH, Weinheim, 2006).
(Lanl e-print quant-ph/0505149).
- [405] “From discrete to continuous quantum systems”,
J. Eisert,
invited book chapter for “Lectures on quantum information”,
editors G. Leuchs, D. Bruß (Wiley-VCH, Weinheim, 2006).
- [406] “Quantum computation”,
J. Eisert, M. M. Wolf,
invited book chapter for “Handbook of innovative computing”,
editors A. Zomaya, G. Milburn et al.,
Springer (Heidelberg, London, New York, 2006),
(Lanl e-print quant-ph/0401019).