CURRICULUM VITAE

Jens Eisert
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PERSONAL DETAILS

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

ACADEMIC APPOINTMENTS

5/11-	**Full Professor**, Dahlem Center for Complex Quantum Systems, **Freie Universität Berlin**
10/09-09/10	**Fellow** at the **Institute for Advanced Study Berlin** (Wissenschaftskolleg)
5/08-4/11	**Full Professor**, **University of Potsdam**
03/05-5/08	**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** in QOLS, **Imperial College London**
02/01-07/01	**Postdoctoral researcher** in QOLS, **Imperial College London**, supported by the EU

RESEARCH

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

- Entanglement theory
- Non-equilibrium dynamics of complex quantum systems
- Tensor networks descriptions and simulation of quantum many-body systems
- Quantum computation and information
- Quantum optical implementations of quantum information ideas
- Ultra-cold atomic gases in optical lattices
- Decoherence and opto-mechanical systems

Research talks:

- $>$**180 invited talks** at workshops, conferences, and in colloquia

Publications:

- **132** scientific publications, of which
- **49** published in the *Phys. Rev. Lett.*
- **2** in *Nature Physics*, **1** in *Nature* NaV,
- **3** in the *Commun. Math. Phys.*

Citations:

- **5207 citations** according to Web of Science (WoS)
- **8273 citations** according to Google Scholar (GS)
- **h-index 48** (GS), **40** (WoS)
- **25 publications** with $>$100 citations (GS)

AWARDS AND PRIZES

- **ERC Consolidator Award** 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
- **J. W. Fulbright** Scholarship, 1994

MENTIONING IN THE ACADEMIC PRESS AND PUBLIC OUTREACH

- Regular reporting of work in scientific journals: *Nature*, *New Scientist*, *Scientific American*, *Physics News*, *PhysOrg*, *Physics*, *QIP-IRC*, *Quantum Times*, *Complexity digest*, *IST-web page* of the EC, *Science week*, *MIT Technology Review*, *Physics World*, and others
- Coverage of work in *BBC Radio 4*, the *3SAT* science TV channel

PHD

04/98-01/01 **PhD, University of Potsdam**, thesis advisor M. Wilkens,
"Entanglement in Quantum Information Theory"
Final grade: **Summa cum laude** (highest distinction)

EDUCATION

95-98, 91-94 **Albert Ludwigs University Freiburg**, studies in physics
Degree: **Diploma in Physics**
Final grade: **very good** (grading scale: very good, good, satisfactory, sufficient)
Topic of dissertation: *"Quantum Brownian Motion: A Quantum Monte Carlo Approach"*

94–95 **University of Connecticut**, as a J. W. Fulbright Fellow,
postgraduate studies in mathematics and physics
Degree: **Master of Science**, GPA: **3.88** (grading scale: A–4.0, . . . , D –1.0)
Scientific work in applied mathematics/numerical analysis

81–90 **Wilhelm-von-Humboldt**-High-School, Ludwigshafen
Degree: **Abitur**, average mark: **1.0** (grading scale: 1.0, 1.1, 1.2, . . . , 4.0)

RESEARCH FUNDING

- **European Research Council:** ERC Consolidator Award, *"Taming non-equilibrium quantum systems"* (2012)
- **Research Councils of Europe:** EURYI Award (later renamed ERC Starting Grant), *"Multi-particle entanglement in complex quantum systems"* (2004),
- **European Commission (integrated projects):** IP SIQS (2012, quantum simulation), IP QESSENCE (2010, optical quantum information and metrology), IP QAP (2005, quantum information science), the latter two in co-managing position as subproject leader, IP QUIPROCONE (2000, quantum information)
- **European Commission (FET Open):** Strep MINOS (2008, opto-mechanical systems), Strep COMPAS (2008, continuous variable quantum information)
- **German Ministry for Research (BMBF):** QuOReP (2010, quantum optical quantum repeater architectures)
- **German Research Foundation (DFG):** SPP-1116 (2004, physics of ultra-cold atoms), SPP-1078 (1999, quantum information theory)
- **Microsoft research:** Project on linear optical quantum computing (2006)
- **EPSRC:** Project on quantum optical quantum information processing (2004)
- **Alexander-von-Humboldt Foundation:** Feodor-Lynen Scholarship (2001); hosted Markus Aspelmeyer (Bessel programme), Tomaz Prosen (Bessel programme), Michael James Kastoryano (scholarship)
- **DLR:** COST project (2012, thermodynamics on the nano-scale)

EDITORIAL BOARD MEMBERSHIPS AND SERVICES TO THE COMMUNITY

- *Physical Review A* (term 2008-2010)
- *Journal of Physics A*
- *Quantum Information Processing*
- *Quantum Information and Computation*
- Coauthor and lead theory editor of the *2010 road map for quantum information science* of the EU
- Editor of the *Handbook of Quantum Technologies*, planned major European book project

ORGANISATIONAL SKILLS

- **QQQ-Meeting**, regular meeting in the Berlin-Potsdam academic landscape on quantum information, quantum optics, and quantum many-body theory (organizer and co-founder)
- **Summer adademy of the Studienstiftung des deutschen Volkes, Görlitz 2008**, course on quantum information theory, August 2008, jointly with A. Rauschenbeutel, Mainz
- **PAQ07, head of local organizing committee**, major international conference on quantum optics and quantum information, Royal Society London, September 2007
- **Summer adademy of the Studienstiftung des deutschen Volkes, Rot an der Rot 2004**, course on quantum information theory, August 2004, jointly with R. F. Werner
- **Member of many conference scientific boards**
- **IQING 2002**, organizer of an international conference for PhD students and postdocs on quantum information science in theory and experiment
- **IQING 2001**, jointly with C. Simon (Oxford) and 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:** Benjamin Bach, Carina Prunkl, Henrik Wilming, Moritz von Hase, Adrian Steffens, Jonas Hoersch, Mathis Friesdorf, Alexander Kegeles, Holger Bernigau, Inka Benthin, Janet Anders, David Gross, Axel Friedenauer
- **PhD supervision:** Janina Gertis, Christian Gogolin, Martin Kliesch, Anna Wegloop, Mathis Friesdorf, Andrea Mari, Matthias Ohliger, Marcus Cramer, David Gross, Konrad Kieling, Fernando Brandao, Alvaro Feito (the latter two in co-supervision)
- **Postdoctoral researchers:** Earl Campbell, Thomas Barthel, Carlos Riofrio, Michael James Kastoryano, Carlos Pineda, Arnau Riera, Vincent Nesme, Robert Hübener, Niel de Beaudrap, Markus Müller, Dong Yang, Phil Hyllus, Chris Dawson, Marcus Cramer, Kenny Pregnell (co-supervised)
- **Host of Humboldt-Bessel-award winners:** Markus Aspelmeyer, Tomaz Prosen

TEACHING

- Advanced quantum mechanics
- Elementary quantum mechanics
- Statistical physics
- Quantum information theory
- Taming quantum many-body systems
- Advanced quantum information theory
- Mathematical methods

LIST OF PUBLICATIONS

Jens Eisert
Professor of Theoretical Physics

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PUBLICATIONS IN HIGH IMPACT JOURNALS

This list comprises all those publications that have been published in

- *Physical Review Letters*
- *Nature Physics*
- *Nature*
- *Reviews of Modern Physics*
- *Communications in Mathematical Physics*

[1] "Wick's theorem for matrix product states",
R. Hübener, A. Mari, and J. Eisert,
Physical Review Letters **110**, 040401 (2013),
(Lanl e-print arXiv:1207.6537).

[2] "Precisely timing dissipative quantum information processing",
M. J. Kastoryano, M. M. Wolf, and J. Eisert,
Physical Review Letters **110**, 110501 (2013),
(Lanl e-print arXiv:1205.0985).

[3] "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, and I. Bloch,
Nature Physics **8**, 325 (2012),
(Lanl e-print arXiv:1101.2659).

[4] "Positive Wigner functions render classical simulation of quantum computation efficient",
A. Mari and J. Eisert,
Physical Review Letters **109**, 230503 (2012),
(Lanl e-print 1208.3660).

[5] "Quantum measurement occurrence is undecidable",
J. Eisert, M. P. Mueller, and C. Gogolin,
Physical Review Letters **108**, 260501 (2012),
(Lanl e-print arXiv:1111.3965).

[6] "Gaussification and entanglement distillation of continuous variable systems: a unifying picture",
E. T. Campbell and J. Eisert,
Physical Review Letters **108**, 020501 (2012),
(Lanl e-print arXiv:1107.1406).

[7] "Extracting dynamical equations from experimental data is NP hard',
T. S. Cubitt, J. Eisert, and M. M. Wolf,
Physical Review Letters **108**, 120503 (2012),
(Lanl e-print arXiv:1005.0005).

[8] “Cooling by heating”,
A. Mari and J. Eisert,
Physical Review Letters **108**, 120602 (2012),
(Lanl e-print arXiv:1104.0260).

[9] “Thermalization in nature and on a quantum computer,
A. Riera, C. Gogolin, and J. Eisert,
Physical Review Letters **108**, 080402 (2012),
(Lanl e-print arXiv:1102.2389).

[10] “Deciding whether a quantum channel is Markovian is NP-hard”,
T. S. Cubitt, J. Eisert, and M. M. Wolf,
Communications in Mathematical Physics **310**, 383 (2012)
(Lanl e-print arXiv:0908.2128).

[11] “A dissipative quantum Church-Turing theorem”,
M. Kliesch, T. Barthel, C. Gogolin, M. Kastoryano, and J. Eisert,
Physical Review Letters **107**, 120501 (2011),
(Lanl e-print arXiv:1105.3986).

[12] “Entangled inputs cannot make imperfect quantum channels perfect”,
F. G. S. L. Brandao, J. Eisert, M. Horodecki, and D. Yang,
Physical Review Letters **106**, 230502 (2011),
(Lanl e-print arXiv:1010.5074).

[13] “Absence of thermalization in non-integrable systems”,
C. Gogolin, M. P. Mueller, and J. Eisert,
Physical Review Letters **106**, 040401 (2011),
(Lanl e-print arXiv:1009.2493).

[14] “Experimental implementation of the optimal linear-optical controlled phase gate”,
K. Lemr, A. Cernoch, J. Soubusta, K. Kieling, J. Eisert, and M. Dusek,
Physical Review Letters **106**, 013602 (2011),
(Lanl e-print arXiv:1007.4797).

[15] “Preparing the bound instance of quantum entanglement”,
J. DiGuglielmo, A. Samblowski, B. Hage, C. Pineda, J. Eisert, and R. Schnabel,
Physical Review Letters **107**, 240503 (2011),
(Lanl e-print arXiv:1006.4651).

[16] “Directly estimating non-classicality”,
A. Mari, K. Kieling, B. Melholt Nielsen, E.S. Polzik, and J. Eisert,
Physical Review Letters **106**, 010403 (2011),
(Lanl e-print arXiv:1005.1665).

[17] “Concentration of measure for quantum states with a fixed expectation value”,
M. Mueller, D. Gross, and J. Eisert,
Communications in Mathematical Physics **303**, 785 (2010),
(Lanl e-print arXiv:1003.4982).

[18] “Holographic quantum states”,
T. J. Osborne, J. Eisert, and F. Verstraete,
Physical Review Letters **105**, 260401 (2010),
(Lanl e-print arXiv:1005.1268).

[19] “Solving frustration-free spin systems”,
N. de Beaudrap, M. Ohliger, T. J. Osborne, and J. Eisert,
Physical Review Letters **105**, 060504 (2010),
(Lanl e-print arXiv:1005.3781).

[20] “Real-space renormalization yields finite correlations”,
T. Barthel, M. Kliesch, and J. Eisert,
Physical Review Letters **105**, 010502 (2010),
(Lanl e-print arXiv:1003.2319).

[21] “Quantum state tomography via compressed sensing”,
D. Gross, Y.-K. Liu, S.T. Flammia, S. Becker, and J. Eisert,
Physical Review Letters **105**, 150401 (2010),
(Lanl e-print arXiv:0909.3304).

[22] “Area laws for the entanglement entropy”,
J. Eisert, M. Cramer, and M. B. Plenio,
Reviews of Modern Physics **82**, 277 (2010),
(Lanl e-print arXiv:0808.3773).

[23] “Most quantum states are too entangled to be useful as computational resources”,
D. Gross, S. Flammia, and J. Eisert,
Physical Review Letters **102**, 190501 (2009),
(Lanl e-print arXiv:0810.4331).

[24] “Entanglement combing”,
D. Yang and J. Eisert,
Physical Review Letters **103**, 220501 (2009),
(Lanl e-print arXiv:0907.4757).

[25] “Gently modulating opto-mechanical systems”,
A. Mari and J. Eisert,
Physical Review Letters **103**, 213603 (2009).
(Lanl e-print arXiv:0911.0433).

[26] “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, and I. A. Walmsley,
Nature Physics **5**, 29 (2009),

(Lanl e-print arXiv:0807.2444).

[27] “Supersonic quantum communication”,
D. Gross and J. Eisert,
Physical Review Letters **102**, 240501 (2009),

(Lanl e-print arXiv:0808.3581).

[28] “Entangled families”,
M. Aspelmeyer and J. Eisert,
Nature **455**, 180 (2008).

[29] “Assessing non-Markovian dynamics”,
M. M. Wolf, J. Eisert, T. S. Cubitt, and J.I. Cirac,
Physical Review Letters **101**, 150402 (2008),

(Lanl e-print arXiv:0711.3172).

[30] “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).

[31] “Quenching, relaxation, and a central limit theorem for quantum lattice systems”,
M. Cramer, C. Dawson, J. Eisert, and T. J. Osborne,
Physical Review Letters **100**, 030602 (2008),

(Lanl e-print cond-mat/0703314).

[32] “Unifying simulation methods of quantum many-body systems”,
C.M. Dawson, J. Eisert, and T. J. Osborne
Physical Review Letters **100**, 130501 (2008),

(Lanl e-print arXiv:0705.3456).

[33] “Do mixtures of bosonic and fermionic atoms adiabatically heat up in optical lattices?”,
M. Cramer, S. Ospelkaus, C. Ospelkaus, K. Bongs, K. Sengstock, and J. Eisert,
Physical Review Letters **100**, 140409 (2008),

(Lanl e-print arXiv:0707.3633).

[34] “Percolation, renormalization, and quantum computing with non-deterministic gates”,
K. Kieling, T. Rudolph, and J. Eisert,
Physical Review Letters **99**, 130501 (2007),

(Lanl e-print quant-ph/0611140).

[35] “Covariance matrices and the separability problem”,
O. Gühne, P. Hyllus, O. Gittsovich, and J. Eisert,
Physical Review Letters **99**, 130504 (2007),

(Lanl e-print quant-ph/0611282).

[36] “Novel schemes for measurement-based quantum computation”,
D. Gross and J. Eisert,
Physical Review Letters **98**, 220503 (2007),

(Lanl e-print quant-ph/0609149).

[37] “Statistics dependence of the entanglement entropy”,
M. Cramer, J. Eisert, and M. B. Plenio,
Physical Review Letters **98** (2007),

(Lanl e-print quant-ph/0611264).

[38] “Creating and probing macroscoping entanglement with light”,
M. Paternostro, D. Vitali, S. Gigan, M. S. Kim, C. Brukner, J. Eisert, and M. Aspelmeyer,
Physical Review Letters **99**, 250401 (2007),

(Lanl e-print quant-ph/0609210).

[39] “Gaussian quantum marginal problem”,
J. Eisert, T. Tyc, T. Rudolph, and B. Sanders,
Communications in Mathematical Physics **280**, 263 (2007),

(Lanl e-print quant-ph/0703225).

[40] “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).

[41] “General entanglement scaling from time evolution”,
J. Eisert and T. J. Osborne,
Physical Review Letters **97**, 150404 (2006),

(Lanl e-print quant-ph/0603114).

[42] “Optimizing linear optics quantum gates”,
J. Eisert,
Physical Review Letters **95**, 040502 (2005),

(Lanl e-print quant-ph/0409156).

[43] “Entropy, entanglement, and area: analytical results for harmonic lattice systems”,
M. B. Plenio, J. Eisert, J. Dreissig, and M. Cramer,
Physical Review Letters **94**, 060503 (2005),

(Lanl e-print quant-ph/0409156).

[44] “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).

[45] “Towards mechanical entanglement in nano-electromechanical devices”,
J. Eisert, M. B. Plenio, S. Bose, and J. Hartley,
Physical Review Letters **93**, 190402 (2004),
(Lanl e-print quant-ph/0311113).

[46] “Inhomogeneous Bose-Fermi mixtures in cubic lattices”.
M. Cramer, J. Eisert, and F. Illuminati,
Physical Review Letters, **93**, 190405 (2004),
(Lanl e-print cond-mat/0310705).

[47] “The entangling power of passive optical elements”,
M. M. Wolf, J. Eisert, and M. B. Plenio,
Physical Review Letters **90**, 047904 (2003),
(Lanl e-print quant-ph/0206171).

[48] “The entanglement cost under operations preserving the positivity of partial transpose”,
K. Audenaert, M. B. Plenio, and J. Eisert,
Physical Review Letters **90**, 027901 (2003),
(Lanl e-print quant-ph/0207146).

[49] “Distilling Gaussian states with Gaussian operations is impossible”,
J. Eisert, S. Scheel, and M. B. Plenio,
Physical Review Letters **89**, 137903 (2002),
(Lanl e-print quant-ph/0204052).

[50] “Quantum and classical correlations in quantum Brownian motion”,
J. Eisert and M. B. Plenio,
Physical Review Letters **89**, 137902 (2002),
(Lanl e-print quant-ph/0111016).

[51] “Conditions for the local manipulation of Gaussian states”,
J. Eisert and M. B. Plenio,
Physical Review Letters **89**, 097901 (2002),
(Lanl e-print quant-ph/0109126).

[52] “Reply: Quantum games and quantum strategies”,
J. Eisert, M. Wilkens, and M. Lewenstein,
Physical Review Letters **87**, 069802 (2001).

[53] “The asymptotic relative entropy of entanglement”,
K. Audenaert, J. Eisert, E. Jane, M. B. Plenio, S. Virmani, and B. de Moor,
Physical Review Letters **87**, 217902 (2001),
(Lanl e-print quant-ph/9912080).

[54] “Catalysis of entanglement manipulation for mixed states”,
J. Eisert and M. Wilkens,
Physical Review Letters **85**, 437 (2000),

(Lanl e-print quant-ph/9912080).

[55] “Classical information and distillable entanglement”,
J. Eisert, T. Felbinger, P. Papadopoulos, M. B. Plenio, and M. Wilkens,
Physical Review Letters **84**, 1611 (2000),

(Lanl e-print quant-ph/9907021).

[56] “Quantum games and quantum strategies”,
J. Eisert, M. Wilkens, and M. Lewenstein,
Physical Review Letters **83**, 3077 (1999),

(Lanl e-print quant-ph/9806088).

SUBMITTED WORK AND PREPRINTS

[57] “Rapid mixing implies exponential decay of correlations”,
M. Kastoryano and J. Eisert,

(Lanl e-print arXiv:1303.6304).

[58] “Area laws for thermal free fermions”,
H. Bernigau, M. J. Kastoryano, J. Eisert,

(Lanl e-print arXiv:1301.5646).

[59] “Rapid mixing implies exponential decay of correlations”,
M. Kastoryano and J. Eisert,

(Lanl e-print arXiv:1303.6304).

[60] “Entanglement of nano-electromechanical oscillators by Cooper-pair tunneling”,
S. Walter, J. Carl Budich, J. Eisert, and B. Trauzettel,

(Lanl e-print arXiv:1210.0665).

[61] “Continuous-variable quantum compressed sensing”,
M. Ohliger, Vi. Nesme, D. Gross, Y.-K. Liu, and J. Eisert,

(Lanl e-print arXiv:1111.0853).

[62] “Noise-driven quantum criticality”,
J. Eisert and T. Prosen,

(Lanl e-print arXiv:1012.5013).

REGULAR REFEREED PAPERS

[63] "Continuous-variable entanglement distillation and non-commutative central limit theorems", E. T. Campbell, M. G. Genoni, and J. Eisert, *Physical Review A* **87**, 042330 (2013),

(Lanl e-print arXiv:1211.54830).

[64] "Efficient and feasible state tomography of quantum many-body systems", M. Ohliger, V. Nesme, and J. Eisert, *New Journal of Physics* **15** 015024 (2012),

(Lanl e-print arXiv:1204.5735).

[65] "Opto- and electro-mechanical entanglement improved by modulation", A. Mari and J. Eisert, *New Journal of Physics* **14**, 075014 (2012),

(Lanl e-print arXiv:1111.2415).

[66] "Recursive quantum detector tomography", L. Zhang, A. Datta, H. B. Coldenstrodt-Ronge, X.-M. Jin, J. Eisert, M. B. Plenio, and I. A. Walmsley, *New Journal of Physics* **14**, 115005 (2012).

(Lanl e-print arXiv:1207.3501).

[67] "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).

[68] "Efficient measurement-based quantum computing with continuous-variable systems", M. Ohliger and J. Eisert, *Physical Review A* **85**, 062318 (2012),

(Lanl e-print arXiv:1112.2641).

[69] "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).

[70] "Information propagation for interacting particle systems", N. Schuch, S. K. Harrison, T. J. Osborne, and J. Eisert, *Physical Review A* **84**, 032309 (2011),

(Lanl e-print arXiv:1010.4576).

[71] "The optimal unitary dilation for bosonic Gaussian channels", F. Caruso, J. Eisert, V. Giovannetti, and A. S. Holevo, *Physical Review A* **84**, 022306 (2011),

(Lanl e-print arXiv:1009.1108).

[72] “Continuity bounds on the quantum relative entropy - II”,
K. M. R. Audenaert and J. Eisert,
Journal of Mathematical Physics **52**, 112201 (2011),
(Lanl e-print arXiv:1105.2656).

[73] “Unitary circuits for strongly correlated fermions”,
C. Pineda, T. Barthel, and J. Eisert,
Physical Review A **81**, 050303(R) (2010),
(Lanl e-print arXiv:0905.0669).

[74] “Limitations of quantum computing with Gaussian cluster states”,
M. Ohliger, K. Kieling, and J. Eisert,
Physical Review A **82**, 042336 (2010),
(Lanl e-print arXiv:1004.0081).

[75] “A quantum central limit theorem for quantum lattice systems”,
M. Cramer and J. Eisert,
New Journal of Physics **12**, 055020 (2009),
(Lanl e-print arXiv:0911.2475).

[76] “Entanglement quantification from incomplete measurements: Applications using photon-number-resolving weak homodyne detectors”,
G. Puentes, A. Feito, A. Datta, J. Eisert, M. B. Plenio, and I. A. Walmsley,
New Journal of Physics **12**, 033042 (2010),
(Lanl e-print arxiv.org:0911.2482).

[77] “Ground states of frustration-free spin Hamiltonians satisfy an area law”,
N. de Beaudrap, T. J. Osborne, and J. Eisert,
New Journal of Physics **12**, 095007 (2010).

[78] “Quantum computational webs”,
D. Gross and J. Eisert,
Physical Review A **82**, 040303(R) (2010),
(Lanl e-print arXiv:0810.2542).

[79] “Contraction of fermionic operator circuits and the simulation of strongly correlated fermions”,
T. Barthel, C. Pineda, and J. Eisert,
Physical Review A **80**, 042333 (2009),
(Lanl e-print arXiv:0907.3689).

[80] “A renormalization algorithm with graph enhancement”,
R. Hübener, C. Kruszynska, L. Hartmann, W. Dür, F. Verstraete, J. Eisert, and M. B. Plenio,
Physical Review A **79**, 022317 (2009),
(Lanl e-print arXiv:0802.1211).

[81] “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).

[82] “On photonic controlled phase gates”,
K. Kieling, J. L. O’Brien, and J. Eisert,
New Journal of Physics **12**, 013003 (2009),
(Lanl e-print arXiv:0909.2057).

[83] “A proposed testbed for detector tomography”,
H. Coldenstrodt-Ronge, J. S. Lundeen, A. Feito, B. J. Smith, W. Mauerer, Ch. Silberhorn, J. Eisert,
M. B. Plenio, and I. A. Walmsley,
Journal of Modern Optics **56**, 432 (2009),
(Lanl e-print arXiv:0807.2444).

[84] “Measuring measurement: Theory and practice”,
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D. Gross and J. Eisert,
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D. Gross, J. Eisert, N. Schuch, and D. Perez-Garcia
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D. Gross, K. Kieling, and J. Eisert,
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M. Hein, J. Eisert, and H.J. Briegel,
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R. A. Gonzales, J. Eisert, I. Koltracht, M. Neumann, and G. Rawitscher,
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CONTRIBUTIONS TO BOOKS

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Eds. D. Bruss and G. Leuchs
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H. Wiseman and J. Eisert,
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K. Audenaert, J. Eisert, and M. B. Plenio,

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Eds. E. Polzik, N. Cerf, and G. Leuchs,

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K. Kieling and J. Eisert,

invited book chapter of "Percolation and Breakdown",

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J. I. Cirac, J. Eisert, G. Giedke, M. Lewenstein, M. B. Plenio, R. F. Werner, and M. M. Wolf,

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LIST OF TALKS

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CONFERENCE TALKS

[T1] "Sampling complexities in quantum physics",
invited speaker, QCCC meeting, Munich, October 2013

[T2] "Tensor network approaches to complex quantum systems",
invited speaker, Autumn School on Correlated Electrons: Emergent Phenomena in Correlated Matter, Juelich, September 2013

[T3] "Condensed matter meets quantum information",
invited speaker, Quantum 17, Rostock, September 2013

[T4] "Thermalization and equilibration in quantum theory",
invited speaker, Mathematical Horizons for Quantum Physics, Singapore, September 2013

[T5] "Phase-'transitions' in optical lattice systems",
invited speaker, Dynamics of Complex Quantum Systems, Windsor, UK, August 2013

[T6] "Very slow quenches",
invited speaker, Frontiers of Quantum and Mesoscopic Thermodynamics - FQMT13, Prague, Czech Republic, July 2013

[T7] "Dynamical quantum simulation with cold atoms",
invited speaker, From quantum matter to quantum information, Vancouver, Canada, June 2013

[T8] "The ironic situation of linear optical boson sampling",
invited speaker, Central European Workshop on Quantum Optics, Stockholm, Sweden, June 2013

[T9] "Boson sampling revisited",
invited speaker, Quantum Information Workshop, Sopot, Poland, May 2013

[T10] "Learning much from little: Progress in quantum compressed sensing",
invited speaker, Workshop on the Mathematical Methods of Quantum Tomography, Toronto, Canada, February 2013

[T11] "Quantum simulations with cold atoms",
invited speaker, Pushing the Boundaries with Cold Atoms, Stockholm, January 2013

[T12] "Thermal area laws",
invited speaker, Entanglement Spectra in Complex Quantum Wavefunctions, Dresden, November 2012

[T13] "Quantum simulation with cold atoms",
invited speaker, Quantum Simulations Bilbao '12, Bilbao, Spain, October 2012

[T14] "Quantum measurement occurrence is undecidable",
invited speaker, Quantum physics and logic, Brussels, Belgium, October 2012

[T15] "Quantum information view on thermalisation",
invited speaker, Holographic thermalisation, Leiden, Netherlands, October 2012

[T16] "Quantum information meets statistical mechanics",
invited speaker, Quantum Information meets Statistical Mechanics, Innsbruck, Austria, September 2012

[T17] "Equilibration and thermalisation",
invited speaker, KITP Workshop on Quantum Dynamics in Far from Equilibrium Thermally Isolated Systems, Santa Barbara, August 2012

[T18] "Quantum simulation",
invited speaker, Central European Workshop on Quantum Optics, Sibiu, Rumania, July 2012

[T19] "Precisely timing dissipative quantum information processing",
invited speaker, Quantum Information Workshop Seefeld 2012, Seefeld, Austria, June 2012

[T20] "Quantum state tomography via compressed sensing",
invited speaker, New Directions in Quantum Statistics, Nottingham, UK, June 2012

[T21] "Precisely timing dissipative quantum information processing",
invited speaker, New Developments in the Theory of Open Quantum Systems, Torun, Poland, June 2012

[T22] "Dissipative quantum information processing",
invited speaker, QISW 2012, Oxford, UK, March 2012

[T23] "Quantum simulations with ultra-cold atoms",
invited speaker, New quantum states of matter in and out of equilibrium, Firenze, Italy, May 2012

[T24] "New perspectives in research on tensor network states",
invited speaker, Networking tensor networks, Benasque, Spain, May 2012

[T25] "Continuous-variable entanglement distillation",
invited speaker, Continuous Variable Quantum Information Processing 2012, Frederiksdal, Denmark, April 2012

[T26] "ERC project",
Project presentation, Brussels, Belgium, April 2012

[T27] "Quantum effects in opto-mechanical systems",
invited speaker, Minos reporting workshop, Brussels, Belgium, March 2011

[T28] "Precisely timing dissipative quantum information processing",
invited speaker, Operator structures in quantum information theory, Banff, Canada, February 2012

[T29] "Subproject 3",
invited speaker, Q-Essence reporting workshop, Bingen, April 2012

[T30] "Quantum simulations",
SIQS planning meeting, Munich, January 2012

[T31] "Continuous-variable quantum computing",
invited speaker, COQUIT Workshop 2012, Munich, February 2012

[T32] "Directly estimating entanglement",
invited speaker, Workshop on Quantum Tomography, Singapore, November 2011

[T33] "Dynamical quantum simulations",
invited speaker, QIPC Workshop, ETH Zurich, Switzerland, September 2011

[T34] "Apparent equilibration and thermalisation in quantum many-body systems",
invited speaker, Quantum Information and Foundations of Thermodynamics, ETH Zurich, Switzerland, August 2011

[T35] "Cold atoms in non-equilibrium",
invited speaker, Dynamics and Simulation of Ultra-Cold Matter, Windsor, UK, August 2011

[T36] "Taming the non-equilibrium",
invited speaker, Frontiers of Quantum and Mesoscopic Thermodynamics, Prague, July 2011

[T37] "Quantum compressed sensing",
Benasque Workshop on Quantum Information, Benasque, Spain, June 2011

[T38] "Gaussification and entanglement distillation of continuous variable systems: a unifying picture",
invited speaker, 18th Central European Workshop on Quantum Optics, Madrid, Spain, May 2011

[T39] "Subproject 3",
invited speaker, Q-Essence reporting workshop, Warsaw, Poland, April 2010

[T40] "Benchmarking of quantum repeaters",
invited speaker, QuOReP workshop, Bad Honnef, March 2011

[T41] "Equilibration and thermalisation in quantam many-body systems",
invited speaker, Stellenbosch Workshop on Statistical Physics, Stellenbosch, South Africa, March 2011

[T42] "Equilibration and thermalisation of closed systems",
invited speaker, SQuInT, Boulder, USA, February 2011

[T43] "Classical and quantum embedding problems",
invited speaker, New Trends in Quantum Dynamics and Quantum Entanglement, Trieste, Italy, February 2011

[T44] "Quantum effects in opto-mechanical systems",
invited speaker, Minos reporting workshop, Paris, France, February 2011

[T45] "Taming the non-equilibrium",
invited speaker, Simons Conference on New Trends in Quantum Computation, Stony Brook, USA, November 2010

[T46] "Tensor networks",
invited speaker, Simons Conference on New Trends in Quantum Computation, Stony Brook, USA, November 2010

[T47] "Quantum compressed sensing",
invited speaker, Workshop on Quantum Information and Computation, Nordita, Stockholm, October 2010

[T48] "Speed limits in lattice models",
invited speaker, Hamiltonian and Gaps, Cambridge, UK, September 2010

[T49] "Taming the non-equilibrium",
invited speaker, Quo Vadis BEC 2010, Max Planck Institute for the Physics of Complex Systems, Dresden, August 2010

[T50] "A quantum information approach to open quantum systems",
invited speaker, GROUP28: The XXVIII International Colloquium on Group-Theoretical Methods in Physics, Newcastle, UK, July 2010

[T51] "Compressed sensing approach to quantum tomography",
invited speaker, QCMC, Brisbane, Australia, July 2010

[T52] "Subproject 3",
invited speaker, Q-Essence reporting workshop, Oxford, UK, July 2010

[T53] "Quantum and classical embedding problems",
invited speaker, Quantum Information and Quantum Entanglement, Max Planck Institute for Mathematics in the Sciences, Leipzig, July 2010

[T54] "Quantum and classical embedding problems",
invited speaker, 42 Symposium on Mathematical Physics, Torun, Poland, June 2010

[T55] "Describing quantum many-body systems using tensor networks",
invited speaker, Quantum Information Concepts for Condensed Matter Problems, Max Planck Institute for the Physics of Complex Systems, Dresden, June 2010

[T56] "To compute with the continuous",
invited speaker, CV-QIP'10: 7th Workshop on Continuous-Variable Quantum Information Processing, Herrsching, June 2010,

[T57] "Learning much from little: New ideas of systems identification in quantum optics",
invited speaker, 17th Central European Workshop on Quantum Optics, St Andrews, Scotland, June 2010,

[T58] "Quantum information activities in Potsdam",
invited speaker, Quantum information theory, Reisensburg meeting, Reisensburg, May 2010

[T59] "Describing quantum many-body systems in terms of tensor networks",
invited speaker, Emergence and Entanglement, International Conference, Perimeter Institute, Waterloo, May 2010

[T60] "New perspectives in quantum optics",
SFB planning meeting, Berlin, April 2010

[T61] "Why and when and where to quantum many-body systems relax to or do not",
invited speaker, Complex Quantum Systems, Singapore, March 2010

[T62] "New perspectives in quantum optics",
SFB planning meeting, Hannover, February 2010

[T63] "Complex quantum systems",
invited speaker, 46th Winter School of Theoretical Physics, Ladek Zdroj, Poland, February 2010

[T64] "Free evolution, fermions and frustration",
invited speaker, Workshop on Tensor Networks 2010, Garching, January 2010

[T65] "Complex quantum systems",
Excellence initiative workshop, Berlin, January 2010

[T66] "Quantum many-body systems",
invited speaker,

1. Area laws, hardness of simulation, and tensor networks.
2. Non-equilibrium dynamics: Relaxation and faster-than-sound quantum communication
3. Quantum computing and quantum many-body systems".

II Paraty Quantum Information School and Workshop, Paraty, Brasil, August 2009

[T67] "Simulating fermionic systems",
invited speaker, Quantum Marginals and Density Matrices, Fields Institute, Toronto, Canada, July 2009

[T68] "To measure noise and to squeeze",
invited speaker, Quantum Optics of Nano- and Micromechanical Systems, Heraeus Workshop, July 2009

[T69] "Too entangled to be useful?",
invited speaker, 4th Feynman Festival, Olomouc, Czech Republic, June 2009

[T70] "Measuring measurement",
invited speaker, CLEO/Europe-EQEC 2009, Munich, June 2009,

[T71] "Quenching, relaxation, and entanglement in systems of cold atoms in optical lattices",
invited speaker, International Conference on Quantum Engineering, ETH Zurich, Monte Verita, Switzerland, June 2009

[T72] "Too entangled to be useful?",
invited speaker, 5th Central European Quantum Information Processing Workshop (CEQIP09), Telc, Czech Republic, June 2009

[T73] "Lieb-Robinson bounds",
invited speaker, Quantum Information Theory Workshop, Benasque, Spain, June 2009

[T74] "Certifying non-Markovian dynamics in opto-mechanical systems",
invited speaker, Central European Workshop on Quantum Optics (CEWQO 2009), Turku, Finland, May 2009

[T75] "Quantum many-body systems",
invited speaker,

1. Area laws and simulation
2. Non-equilibrium dynamics
3. Quantum computing.

2009 QUROPE School, Cortona, Italy, May 2009

[T76] "Quantum many-body systems: Quantum computation and efficient simulation",
invited speaker, March Meeting of the APS, Pittsburgh, USA, March 2009

[T77] "Quantum networks",
invited speaker, QAP Review meeting, Gotenburg, Sweden, March 2009

[T78] "Lieb Robinson bounds",
invited speaker, A2 Meeting, Potsdam, December 2008

[T79] "Too entangled to be useful?",
invited speaker, Difficult Problems in Quantum Information Theory, MIT Center for Extreme Quantum Information, Cambridge USA, November 2008

[T80] "On the role of entanglement in quantum computing",
invited speaker, New Frontiers in Quantum Information Science, Heraeus Conference, November 2008,

[T81] "Almost all states are too entangled to be resources for measurement-based quantum computing", **invited speaker**, Tensor Networks Workshop, Madrid, October 2008

[T82] "Perspectives of quantum information applications in optical lattices", **invited speaker**, Quo vadis BEC? Heraeus Conference, Bad Honnef, October 2008

[T83] "Quenching, relaxation, and a central limit theorem for quantum lattice models", **invited speaker**, Quantum Coherence and Decoherence Workshop, Benasque, Spain, September 2008

[T84] "Quenching and relaxation: A quantum simulation approach", **invited speaker**, Quantum/Classical Control in Quantum Information: Theory and experiments, QUROPE Workshop, Otranto, Italy, September 2008

[T85] "Too entangled to be useful?", **invited speaker**, QICS Workshop on Foundational Structures for Quantum Information and Computation, Obergurgl, September 2008

[T86] "Decoherence without environments", **invited speaker**, Quantum Decoherence and Quantum Information Science, Lorentz Center, Leiden, August 2008

[T87] "Quenching and relaxation in quantum lattice models", **invited speaker**, Frontiers of Quantum and Mesoscopic Thermodynamics 2008 (FQMT'08), Prague, July 2008

[T88] "Quenching, non-equilibrium-dynamics, and entanglement in systems of cold atoms in optical lattices", **invited speaker**, 4th Central European Quantum Information Processing Workshop (CEQIP08), Telc, Czech Republic, June 2008

[T89] "New models for measurement-based quantum computing", **invited speaker**, Quantum Information and Graph Theory: Emerging connections, Perimeter Institute, Waterloo, Canada, May 2008

[T90] "New models for measurement-based quantum computing", QQQ Meeting, Berlin, May 2008

[T91] "Quenching, relaxation, and information transfer inlattice systems", **invited speaker**, Classical and Quantum Information Theory, Santa Fe, New Mexico USA, March 2008

[T92] "Quantum circuits to describe strongly correlated lattice models", **invited speaker**, Efficient classical simulation of strong correlated systems, workshop, Frühjahrstagung of the German Physical Society, Berlin, February 2008

[T93] "Quantum networks", **invited speaker**, QAP Review meeting, Paris, February 2008

[T94] "New ideas of quantum computing with measurements", **invited speaker**, Theoretical Quantum Computation Workshop 2008 (TQC08), Tokyo, February 2008

[T95] "Decoherence without environments, decoherence without time evolution", **invited speaker**, Quantum Systems Workshop Conference, KU Lueven, Belgium, December 2007

[T96] "Flow approach to the simulation of quantum many-body systems",
invited speaker, Quantum control and quantum many-body systems, Garching, Germany, October 2007

[T97] "Decoherence without heat baths",
invited speaker, Quantum Mechanics: Foundations and Open Systems, Turku, Finland, October 2007

[T98] "Quantum computing by measurements",
invited speaker, Photons, Atoms and Qubits, London, UK, September 2007

[T99] "Computer science of many-body systems",
invited speaker, Computational Complexity of Quantum Hamiltonian Systems, keynote speaker, Leiden, Belgium, July 2007

[T100] "Relaxation and randomness",
invited speaker, International Workshop on Randomization in Quantum Systems, Waterloo, Canada, June 2007

[T101] "Entanglement theory",
invited speaker, Benasque Workshop on Quantum Information, Benasque, Spain, June 2007

[T102] "Squeezing and entanglement",
invited speaker, International Conference on Squeezed States and Uncertainty Relations, Bradford, UK, April 2007

[T103] "Quantum effects in mesoscopic devices",
invited speaker, International Conference on Continuous-Variable Quantum Information Processing, St Andrews, UK, April 2007

[T104] "Quantum information and many-body systems",
invited speaker, Quantum Information and Many-Body Quantum Systems, Pisa, Italy, March 2007

[T105] "Quantum networks",
invited speaker, QAP Review meeting, Oxford, UK, February 2007

[T106] "Lieb Robinson bounds in many-body systems",
invited speaker, International workshop on Lieb Robinson bounds, Erwin Schrödinger Institute for Mathematical Physics, Wien, AustriaFebruary 2007

[T107] "Entanglement and area",
invited speaker, Snowbird Meeting, Utah, USA, January 2007

[T108] "Computational potency of many-body systems",
invited speaker, International Mathematical Physics Days, Leuven, Belgium, September 2006

[T109] "Entanglement in many-body systems",
invited speaker, Feynman Festival, Maryland, USA, August 2006

[T110] "Entanglement, area, and the difficulty of finding ground states of many-body systems",
invited speaker, QUOXIC, London, August 2006,

[T111] "If we calculate ground states, how much paper do we need?",
invited speaker, Cats, Kets and Cloisters", International workshop, Oxford, UK, July 2006

[T112] "Complexity of describing many-body system",
invited speaker, German-American Frontiers of Science Symposium, Humboldt Foundation, Potsdam, June 2006

[T113] "Quantum-classical transition and quantum information",
invited speaker, International workshop on quantum-classical transition and quantum information, Benasque, Spain, June 2006

[T114] "Complexity of many-body systems",
invited speaker, Workshop on theory and technology in quantum information, communication, computation, and cryptography, Trieste, Italy, June 2006

[T115] "Minimal resources for linear optical one-way computing",
invited speaker, International Conference on Quantum Optics, Minsk, Belarus, May 2006

[T116] "Estimating entanglement in Gaussian and non-Gaussian states",
invited speaker, International Conference on Continuous-Variable Quantum Information Processing, Copenhagen, Denmark, May 2006

[T117] "Criticality, gaps, and the simulation of many-body systems",
invited speaker, EPSRC meeting, Loughborough, UK, May 2006

[T118] "Entropy-area laws in critical bosonic systems",
invited speaker, Symposium on the simulation of many-body systems, IQOQI, Innsbruck, Austria, May 2006

[T119] "Ultimate limits of linear optical computing",
invited speaker, International workshop on linear optical quantum information processing, Baton Rouge, USA, April 2006

[T120] "Classical complexity of DMRG",
invited speaker, International workshop: Quantum Information Theory, Sydney, Australia, February 2006

[T121] "Perspectives of optical quantum state manipulation",
invited speaker, QAP, kick off meeting, Paris, France, February 2006

[T122] "Quantum information approach to decoherence theory",
invited speaker, International workshop on open Quantum Systems, Cuernavaca, Mexico, December 2005

[T123] "Efficiently simulating many body systems",
invited speaker, International workshop: Minerva, Eilat, Israel, October 2005

[T124] "Linear optics quantum gates",
invited speaker, International workshop: SPIE Photonics, San Diego, USA, August 2005

[T125] "Entanglement in quantum many-body systems",
invited speaker, International Workshop on Quantum Information Theory, York, England, July 2005

[T126] "Entanglement area theorems",
invited speaker, Benasque Workshop on Quantum Information, Benasque, Spain, June 2005

[T127] "Optimizing linear optics quantum gates",
invited speaker, Abschlußkolloquium QIV, Bad-Honnef, June 2005

[T128] "Optimizing linear optics quantum gates",
March meeting of the German Physical Society, Berlin, March 2005

[T129] "Linear optics meets convex optimization",
invited speaker, International workshop: Quiprolo II, Bristol, England, March 2005

[T130] "Entanglement and area",
invited speaker, International workshop 3rd Asia Pacific Workshop on Quantum Information Science - APWQIS - 3, Singapore, January 2005

[T131] "Harmonic graph states",
invited speaker, International workshop on graph states, Innsbruck, December 2004

[T132] "Optimizing success probabilities of linear optics quantum gates",
invited speaker, Fourth International Workshop: Classical and Quantum Interference, Olomouc, October 2004

[T133] "Decoherence and quantum noise",
invited speaker, Stochastic Resonance: New Horizons in Physics and Engineering, Max Planck Institute for Complex Systems, Dresden, October 2004

[T134] "Non-adiabatic generation of long-range correlations in many-body systems",
invited speaker, International Workshop on Entanglement and Transfer of Quantum Information, Department of Applied Mathematics and Theoretical Physics, Cambridge, UK, September-October 2004

[T135] "Geometric entropy in free scalar fields",
invited speaker, Fifth International QIPC Workshop, Rome, Italy, September 2004

[T136] "Exact decoherence in open quantum systems is generic",
invited speaker, Control of Quantum Coherence, International WE Heraeus seminar, Bad Honnef, July 2004

[T137] "Manipulating continuous-variable entanglement with linear optics",
invited speaker, ICQO 2004, international conference on quantum optics, Minsk, Belarus, May 2004

[T138] "Towards mechanical entanglement in nano-electromechanical systems",
invited speaker, International SPIE Conference, Gran Canaria, Spain, May 2004

[T139] "Entanglement in infinite-dimensional quantum systems",
invited speaker, International DFG Workshop Hirschegg, Hirschegg, March 2004

[T140] "The few and the many",
invited speaker, CVQIP, International ESF conference on continuous-variable quantum information, Veilbronn, April 2004

[T141] "Exact decoherence in open quantum systems is generic",
March meeting of the German Physical Society, Munich, March 2004

[T142] "Multi-particle entanglement in graph states",
March meeting of the German Physical Society, Munich, March 2004

[T143] "From reversibility to irreversibility in quantum state transformations and back again",
invited speaker, TOE, International workshop on thermodynamics of entanglement, Cambridge, UK, Department of Applied Mathematics and Theoretical Physics, March 2004

[T144] "Non-adiabatically generated entanglement in nanomechanical resonators",
March meeting of the German Physical Society, Regensburg, March 2004

[T145] "Exact decoherence in open quantum systems is generic",
March meeting of the German Physical Society, Regensburg, March 2004

[T146] "Entanglement in systems with canonical coordinates",
invited speaker, Kolloquium des DFG-Schwerpunktprogramms Quanteninformationsverarbeitung, Bad Honnef, January 2004

[T147] "Optimally estimating properties of Gaussian states",
invited speaker, Third International Workshop: Classical and Quantum Interference, Olomouc, Tschechien, October 2003

[T148] "Secure quantum cryptography with all-optical means",
QIPC Meeting, Oxford, UK, July 2003

[T149] "Entanglement of the harmonic chain",
invited speaker, A2 meeting, Braunschweig, April 2003

[T150] "Secure quantum cryptography with all-optical means",
invited speaker, 2nd continuous variables quantum information processing conference, Aix-en-Provence, France, April 2003

[T151] "From reversibility to irreversibility and back again: on asymptotic entanglement transformations in quantum mechanics",
March meeting of the German Physical Society, Hannover, March 2003

[T152] "State transformations for pure Gaussian states",
March meeting of the German Physical Society, Hannover, March 2003

[T153] "Feasible quantum cryptography over large distances",
March meeting of the German Physical Society, Hannover, March 2003

[T154] "Quantum Information with quantum systems with canonical coordinates",
invited speaker, General theory of information transfer and combinatorics, Bielefeld, November 2002

[T155] "Quantum and classical correlations in quantum Brownian motion",
invited speaker, Branes, gravity, condensed matter, and non-linear quantum mechanics: new interfaces, London, UK, September 2002

[T156] "Quantum and classical correlations in quantum Brownian motion",
invited speaker, Quantum composite systems 2002, Ustron, Poland, September 2002

[T157] "Four stories on Gaussian quantum states",
invited speaker, International conference on quantum information, Oviedo, Spain, July 2002

[T158] "Feasible manipulation of Gaussian states",
invited speaker, Continuous-variable quantum information processing, Brussels, Belgium, April 2002

[T159] "Quantum Brownian motion without quantum correlations",
March meeting of the German Physical Society, Regensburg, March 2002

[T160] "Conditions for the local manipulation of Gaussian quantum states",
March meeting of the German Physical Society, Osnabrück, March 2002

[T161] “Quantification of entanglement in infinite-dimensional quantum systems”,
March meeting of the German Physical Society, Osnabrück, March 2002

[T162] “Criteria for the local manipulation of Gaussian quantum states”,
invited speaker, Quantum Entropies: Dynamics and Information, Trieste, Italy, December 2001

[T163] “State manipulation of Gaussian quantum states”,
IQING-meeting, informal quantum information gathering, London, UK, October 2001

[T164] “Gaussian quantum states”,
invited speaker, A2 meeting, Universität Braunschweig, November 2001

[T165] “The asymptotic relative entropy of entanglement”,
invited speaker, Quantum Information: Theory, Experiment and Perspectives, Gdansk, Poland, July 2001

[T166] “Manipulation of quantum states”,
invited speaker, Theory of quantum gases and quantum coherence, Salerno, Italy, June 2001

[T167] “Regularized relative entropy of entanglement”,
March meeting of the German Physical Society, Berlin, March 2001

[T168] “On the irreversibility of asymptotic state manipulation”,
A2 meeting, Braunschweig, November 2000

[T169] “Entanglement-assisted local quantum operations”,
Benasque Center for Science, Benasque, Spain, July 2000,

[T170] “Catalysis of entanglement manipulation for mixed states”,
March meeting of the German Physical Society, Bonn, March 2000

[T171] “Quanteninformation und Spieltheorie”,
March meeting of the German Physical Society, Bonn, March 2000

[T172] “Klassische Information und destillierbare Verschränkung”,
March meeting of the German Physical Society, Bonn, March 2000

[T173] “Catalysis of state transformations”,
A2 meeting, Braunschweig, November 1999

[T174] “Loss of classical information and entanglement”,
A2 meeting, Magdeburg, April 1999

[T175] “Quantum games and quantum strategies”,
March meeting of the German Physical Society, Heidelberg, March 1999

[T176] “Distillable entanglement and classical information”,
A2 meeting, Braunschweig, February 1999

[T177] “On the additivity of entanglement measures”,
A2 meeting, Potsdam, November 1998

TALKS IN SEMINARS AND IN COLLOQUIA

[C1] “A quantum information view on equilibration and thermalisation”,
invited speaker (R. Raussendorf), Seminar, UBC Vancouver, Canada, September 2012

[C2] “Taming the non-equilibrium”,
invited speaker (I. Lesanovsky), Departmental colloquium, University of Nottingham, January 2012

[C3] “Taming the non-equilibrium”,
invited speaker (T. Calarco), Departmental colloquium, University of Nottingham, November 2011

[C4] “Quantenrechnen ohne Rechnen”,
invited speaker (P. Brouwer), Inauguration lecture, FU Berlin, July 2011

[C5] “Taming the non-equilibrium”,
invited speaker (M. Oberthaler), Center for Quantum Dynamics Colloquium, University of Heidelberg, November 2010

[C6] “Absolute randomness”,
invited speaker (L. Guiliani), WiKo Colloquium, Berlin, July 2010

[C7] “Quantenrechnen nur durch Auslesen”,
invited speaker (O. Benson), departmental colloquium, Humboldt University Berlin, October 2009

[C8] “Quantenrechnen ohne Rechnen”,
invited speaker (G. Alber), departmental colloquium, University of Darmstadt, June 2009

[C9] “Relaxation in non-equilibrium dynamics of cold atoms in optical lattices”,
invited speaker (J. von Delft), condensed matter colloquium, Ludwigs-Maximilians-Universität Munich, February 2009

[C10] “Simulation von Quanten-Vielteilchensystemen”,
invited speaker (G. Schön), seminar, Universität Karlsruhe, August 2007

[C11] “Komplexität von Quanten-Vielteilchensystemen”,
invited speaker (A. Rüdiger), seminar, Universität Konstanz, June 2007

[C12] “Computational potency of quantum many-body systems”,
invited speaker (A. Winter), seminar, University of Bristol, May 2007

[C13] “Novel models for quantum computing”,
invited speaker (A. Ekert), DAMPT seminar, University of Cambridge, February 2007

[C14] “Simulation von Vielteilchensystemen: Eine Perspektive der Quanteninformation”,
invited speaker (W. Zimmermann), colloquium, Universität Bayreuth, December 2006

[C15] “Quantum optics komplexer Systeme”,
invited speaker (H. W. Diehl), colloquium, Universität Essen-Duisburg, December 2006

[C16] “Simulating many-body systems”,
invited speaker (J. P. Keating), University of Bristol, November 2006,

[C17] “Complexity of quantum systems”,
invited speaker (A. Fring), mathematics colloquium, City University of London, November 2006

[C18] “Complex quantum systems”,
invited speaker (G. Wunner), colloquium, Universität Stuttgart, July 2006

[C19] “Three short stories on quantum information science”,
invited speaker (A. Zeilinger), colloquium, Universität Wien, May 2006

[C20] “Computer science perspective on linear optical computing”,
invited speaker (S. Abramski), computer science colloquium, University of Oxford, February 2006

[C21] “Drei Geschichten zu Verschränkung, Kohärenz und Dekohärenz”,
invited speaker (F. Schmidt-Kaler), colloquium, Universität Ulm, December 2006

[C22] “Linear optics quantum gates”,
invited speaker (G. Mahler), theory seminar, University of Stuttgart, November 2005

[C23] “Optimally preparing linear optics cluster states”,
invited speaker (H. J. Briegel), theory seminar, University of Innsbruck, October 2005

[C24] “Single-copy entanglement in critical quantum systems”,
invited speaker (J. I. Latorre), condensed matter theory seminar, University of Barcelona, September 2005

[C25] “Entanglement in many-body systems”,
invited speaker (D. Gottesman), seminar, Perimeter Institute, August 2005

[C26] “Convex optimization meets quantum information”,
invited speaker (A. Ekert), seminar, Cambridge University, February 2005

[C27] “Complex quantum systems”,
invited speaker (J. Schmiedmayer), colloquium, Universität Heidelberg, January 2005

[C28] “Estimating properties of states of light”,
invited speaker (I. A. Walmsley), seminar, University of Oxford, May 2004

[C29] “Generic exact decoherence in open quantum systems”,
invited speaker (H. J. Briegel), seminar, University of Innsbruck, May 2004

[C30] “Manipulating entangled quantum states of light”,
invited speaker (M. Fleischhauer), theory seminar, University of Kaiserslautern, January 2004

[C31] “Estimating entanglement and squeezing”,
invited speaker (U. Leonhardt), colloquium, University of St Andrews, December 2003

[C32] “Continuous-variable entanglement”,
invited speaker (M. S. Kim), colloquium, Queen’s University Belfast, September 2003

[C33] “Continuous-variable entanglement”,
invited speaker (H. J. Briegel), seminar, Ludwig-Maximilians-Universität Munich, June 2003

[C34] “Feasible quantum privacy amplification”,
invited speaker (M. Fleischhauer), seminar, University of Kaiserslautern, May 2003

[C35] “Feasible quantum privacy amplification”,
invited speaker (R. Schack), mathematics seminar, Royal Holloway College London, February 2003

[C36] “How to distill entanglement with optical elements and photon detectors only”,
invited speaker (I. A. Walmsley), quantum optics seminar, University of Oxford, February 2003

[C37] “The story of the preparation and distribution of entangled continuous-variable states over large distances”,
invited speaker (J. Preskill), quantum optics and quantum information colloquium, California Institute of Technology, January 2003

[C38] “Quantum information science”,
invited speaker (H. Loschelder), award speech for Michelson Prize, University of Potsdam, June 2002

[C39] “News from the Gaussian world”,
invited speaker (C. Simon), seminar, University of Oxford, June 2002

[C40] “A no-go-theorem for the feasible distillation of Gaussian states”,
invited speaker (H. J. Briegel), seminar, Ludwig-Maximilians-Universität Munich, March 2002

[C41] “Gaussian quantum states: manipulation and distillation”,
invited speaker (E. Hinds), seminar, University of Sussex Brighton, February 2002

[C42] “State transformations for continuous variables”,
invited speaker (V. Vedral), seminar, Imperial College London, January 2002

[C43] “Manipulation of Gaussian quantum states”,
invited speaker (H. J. Briegel), seminar, Ludwig-Maximilians-Universität Munich, December 2001

[C44] “Quantum computing”,
invited speaker (C. Panos), seminar, University of Thessaloniki, December 2001

[C45] “Asymptotic relative entropy of entanglement”,
invited speaker (C. Simon), seminar, University of Oxford, April 2001

[C46] “Quantum information and game theory”,
invited speaker (H. J. Briegel), seminar, Ludwig-Maximilians-Universität Munich, June 2000

[C47] “Teleportation and dense coding”,
seminar, University of Potsdam, April 1999

[C48] “Decoherence and the appearance of a classical world in quantum theory”,
seminar, University of Potsdam, April 1998

[C49] “Quantum Brownian Motion”,
seminar, University of Freiburg, February 1998