

CURRICULUM VITAE

Personal Data:

Place and date of birth: A picturesque Bavarian village in 1974
Nationality: German
Family status: happily married, two children
Address: Zentrum Mathematik,
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Professional Status:

March '11 - Head of the Chair of Mathematical Physics, TU München, Department of Mathematics
April '08 – '11 Ole Roemer professor at the Niels Bohr Institute, University of Copenhagen
Sep '08 – '12 Adjoint professorship agreement with the Universidad Complutense de Madrid (math. department)
Feb '03- April '08 Assistant at the Max-Planck-Institute of Quantum Optics (Garching). Leading the subgroup 'Quantum Information' in the MPQ Theory division of Prof. Dr. J. Ignacio Cirac.

Education:

May '99 – Jan'03 Ph.D. in Physics (passed with distinction, 1.0), Institute for Mathematical Physics, Technical University of Braunschweig, Thesis title: *The partial transposition in quantum information theory*, Advisor: Prof. Dr. Reinhard F. Werner
April '99 Diploma in Physics (passed with distinction, 1.0), Ruprecht-Karls-University Heidelberg
'98-'99 Diploma thesis in Physics (for the ALEPH collaboration, CERN, Geneva), Institute for High Energy Physics, Heidelberg, Thesis title: *Measuring Electroweak Gauge Boson Couplings with Optimal Observables*, Advisor: Prof. Dr. Alois Putzer
'95-'99 Studying Physics (minor subjects: philosophy, chemistry), Ruprecht-Karls-University, Heidelberg
'93-'95 Studying Physics, Ludwig-Maximilians-University, Munich

Fields of research:

- Quantum Information Theory
- Quantum Spin Systems
- Mathematical Physics

Awards:

- '14: "Goldener Zirkel": teaching award given by the student body of the TUM mathematics department
- Sep '13: "Goldene Kreide": teaching award given by the student body of the TUM physics department
- Award by the *Alfried Krupp von Bohlen und Halbach Foundation*, program: *"Rückkehr deutscher Wissenschaftler aus dem Ausland"*, Mar'11
- *Young Elite Researcher's Award* of the Danish Council for Independent Research, Jan '08
- *QIPC European Young Investigator Award*, Oct '07
- *Ole Roemer professorial fellowship*, Nov'07

Editorships

- *Communications in Mathematical Physics*: editor for "quantum information theory and quantum spin systems" since Jan '14
- *Journal of Mathematical Physics*: editor for quantum information theory since Oct. '15; member of the editorial board since Sep.'11
- *Journal of Physics A*: member of the editorial board since Jan.'14

Other scientific and administrative activities:

- Since April '14: Coordinator of the JTF funded project "Do unprovable truths emerge from physics?" (research groups in Cambridge, UC Madrid and TUM)
- Since Oct '13: Director of Studies ('Studiendekan') at the Department of Mathematics, TUM
- Since Aug '11: Coordinator of the EU CHIST-ERA/BMBF project CQC (research groups at ETH, UC Madrid and TUM)
- '08 - '12: adjoint professorship agreement with the Universidad Complutense de Madrid (UCM)
- Since Sep.'08: member of the scientific advisory committee of the Institute of Interdisciplinary Mathematics, UCM Madrid
- '09 - '13: vice-coordinator of the EU-STREP project QUEVADIS
- Since Jun '10: secretary of the QUIE2T Virtual Institute for Quantum Computation
- Member of program committees of QIP14, ICMP12, QIP11, AQIS10, QIP16

Other Activities:

Sep. '03 – Nov. '05: Studies in professional dance and completed dancing master education for Argentine Tango at the Studio La Milonga Dance Academy, Bremen.

Conferences and workshops organized:

- *Incompatible Quantum Measurements*, TUM, Munich, Sep'13
- *Mathematical Tools in Quantum Information Theory*, Sep '12, Achensee
- *QIT session of ICMP12*, Aug'12, Aalborg
- *COQUIT workshop on quantum errors*, Feb'12, TUM, Munich
- *Quantum Information Theory*, fall'10, Mittag-Leffler Institute, Stockholm
- *Conceptual Foundations of Quantum Theory*, March '10, Malaga
- *Workshop on atomic ensembles*, Jul'09, NBI Copenhagen
- *Frontiers in Quantum Information*, Nov'08, Bad Honnef, Heraeus Seminar
- *Aspects of tensor networks*, Oct'08, UCM, Madrid
- *Entanglement in quantum many-body systems*, Jan'08, ESI, Vienna
- *Quantum Statistics* Nov'06, Erwin Schrödinger-Institute (ESI), Vienna
- *IQING '03*, Munich

Teaching: (only courses that lasted an entire semester)

- 2015: Functional Analysis
 Asymptotic Geometric Analysis
 Complex Analysis
- 2014: Differential Topology
 Complex Analysis
- 2013/14: Analysis 3 for Physicists
 Quantum Effects for Mathematicians
 Seminar on the Kadison Singer Problem
 Seminar on Entropy and Information Theory
- 2013: Analysis 2 for Physicists
 Differential Topology
 Seminar on Uncertainty Relations
 Seminar on Quantum Thermodynamics
- 2012/13: Analysis 3 for Physicists
 Information Theory
 Seminar on Mathematics and Magic
- 2012: Undecidability
 Analysis 2 for Physicists
 Seminar on Mathematics and Magic
- 2011/12: Analysis 1 for Physicists
 Information Theory
 Seminar on Advanced Matrix Analysis
- 2011: Recursion Theory
- 2009/10: Quantum Information Science
- 2009: Quantum Channels and Operations II
- 2008/09: Quantum Information Science
 Quantum Channels and Operations I
- 2007: Convex Analysis and Optimization
- 2006/07: Quantum Information Processing
- 2005/06: Quantum Information Theory

Supervised Ph.D. students:

- *TUM*: Anna Lena Hashagen, Martin Idel, Michael Kech, Daniel Lercher, Alexander Müller-Hermes, Oleg Szehr, Andreas Bluhm, Javier Cuesta
- *University of Copenhagen*: Michael James Kastoryano
- *MPQ (co-supervised)*: Christina Kraus, Christian Schön, Norbert Schuch

Grants / third-party funds:

- Since April '14: John Templeton Foundation grant (390k€)
- Since February '14: Elite Network of Bavaria ExQM (1 PhD position for 5a)
- Since July '12: CHIST-ERA/BMBF project CQC (216k€)
- Since March '11: Elite Network of Bavaria QCCC (2PhD positions for 3a)
- March '11: Alfried Krupp von Bohlen und Halbach Foundation (65k€)
- '09-'13: EU-STREP QUEVADIS (287k€ + 200 000 DKK)
- '09-'13: EU-STREP COQUIT (279k€ + 200 000 DKK)
- '08-'11: Ole Roemer grant (6 500 000 DKK)
- '08-'11: Danish Research Center grant QUANTOP (1 postdoc for 3a)
- Jan '08: Danish Young Elite Researcher's Award (220 000 DKK)