Curriculum Vitae

Alexander Martin

January 15, 2025

1   Education

1988	Masters in Mathematics and Economics at the University of Augsburg
1992	Ph.D. at the Berlin University of Technology
1998	Habilitation at the Berlin University of Technology

2   Professional Activities

1988 – 1991	Collaborator at the University of Augsburg
1991 – 1998	Collaborator at the Zuse Institute Berlin (ZIB)
1998 – 2000	Deputy head of the Department "Optimization" at ZIB
2000 – 2006	Full professor (C4) at the Department Mathematics at the Technische Universität Darmstadt
2006 – 2010	Full professor (W3) at the Department Mathematics at the Technische Universität Darmstadt
2010 – 2023	Full professor (W3) at the Department Mathematics (until 2020) and the Department of Data Science (from 2021 on) at the Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)
2015 – 2019	Head of Analytics Department at Fraunhofer IIS/SCS
2019 – today	Director at Fraunhofer IIS
2023 – today	Full professor (W3) at the Department Liberal Arts and Sciences at the University of Technology Nuremberg (UTN)

Currently, I am the head of the Lab "Analytics and Optimization" at the University of Technology (UTN), which currently consists of three postdocs and 9 PhD students.

3   Awards

o   Offer for Professorship (C4) for Discrete Optimization at Technische Universität Darmstadt, 1999. (Accepted)

o   Offer for Professorship (W3) for Operations Research at University of Karlsruhe, 2006. (Declined)

- o Offer for Professorship (W3) for "Economy, Discrete Optimization, Mathematics (EDOM)" (in German "Wirtschaftsmathematik") at University of Erlangen-Nuremberg, 2010. (Accepted)

- o Offer for Professorship (W3) for "Mathematical Optimization" at TU Berlin including a leading position at the Zuse Institute Berlin, 2016. (Declined)

- o Offer for Professorship (W3) for "Analytics and Optimization" at the University of Technology Nuremberg (UTN), 2023. (Accepted)

- o Member of the Grants Committee on Research Training Groups of the German Research Foundation (DFG), 2019 – 2024.

- o Honory appointment to the BMBF advisory board "Mathematics", 2007 – 2010, 2010 – 2013, 2013 – 2016, and 2017 – 2020.

- o Third Prize of the "Hessischen Kooperationspreis 2007" for a very innovative and successful cooperation between Hessian companies and universities, jointly with P. Lietz.

- o Best Paper Award at the conference "Energy Finance 2010", Essen, for the contribution *On clearing coupled day-ahead electricity markets*, jointly with J. Müller and S. Pokutta.

- o EURO Excellence in Practice Award 2016 for "Evaluating Gas Network Capacities" jointly with T. Koch, B. Hiller, M. Pfetsch, L. Schewe, D. Bargmann, M. Ebbers, A. Fügenschuh, B. Geißler, R. Gollmer, U. Gotzes, Ch. Hayn, N. Heinecke, H. Heitsch, R. Henrion, J. Humpola, I. Joormann, V. Kühl, T. Lehmann, R. Lenz, H. Leövey, R. Mirkov, A. Möller, A. Morsi, A. Pelzer, W. Römisch, J. Rövekamp, M. Schmidt, R. Schultz, R. Schwarz, J. Schweiger, K. Spreckelsen, C. Stangl, M. Steinbach, I. Wegner-Specht, B. Willert.

- o Rosenbrock Prize for the best paper published in the journal *Optimization and Engineering* in 2019 jointly with R. Burlacu, H. Egger, M. Gugat, M. Pfetsch, L. Schewe, M. Sirvent, and M. Skutella for the paper "Maximizing the storage capacity of gas networks: a global MINLP approach".

4 Academic Visits

October 1989	Center for Operations Research and Econometrics, Université Catholique de Louvain, Louvain-la-Neuve, Belgium.
Jan. – Apr. 1994	Center for Research on Parallel Computing and Rice University, Houston, USA.
Jan. – May 1997	Center for Research on Parallel Computing and Rice University, Houston, USA.
October 2002	Institute for Mathematics and its Applications (IMA), University of Minnesota, Minneapolis, USA.
October 2005	Institute for Mathematics and Statistics, University of São Paulo, Brazil.

5 Refereeing Activities

5.1 Journals

I am currently or have been, respectively,

- Managing Editor for the journal *Mathematical Methods of Operations Research*, 2008 – 2014,
- Co-Editor for the EMS series in *Industrial and Applied Mathematics*, 2013 – today,
- Area Editor for "Discrete Optimization" of the journal *Operations Research Letters*, jointly with Ch. Helmberg, 2007 – 2013,
- Associate Editor for the journal *Optimization Methods and Software*, 2008 – 2015,
- Associate Editor for the journal *of Optimization Theory and Applications*, 2016 – 2020,
- Associate Editor for the journal *Discrete Optimization*, 2009 – 2018,
- Associate Editor for the journal *Mathematical Programming C*, 2008 – 2020,
- Associate Editor for the journal *Vietnam Journal of Mathematics*, 2011 – today,
- Area Coordinator for the electronic preprint site *Optimization Online*, see www.optimization-online.org, 2010 – today,
- Member of the Advisory Board of the journal *EURO Journal on Computation Optimization*, 2011 – today.

Furthermore I have been acting as a referee among others for the following journals: Annals of Operations Research, Discrete Optimization, European Journal of Operational Research, INFORMS Journal on Computing, International Transactions in Operational Research ITOR, Management Science, Mathematical Methods of Operations Research, Mathematical Programming, Networks, Operations Research, Operations Research Letters, Optimization Methods & Software, SIAM Journal on Discrete Mathematics, SIAM Journal on Optimization, Zeitschrift für Operations Research.

5.2   Doctoral Theses, Habilitations, and Master Theses

I have advised or refereed the following number of PhD theses and habilitations:

- 39 own finished theses,
- 9 currently running theses,
- 48 external theses,
- 6 foreign theses.

In addition, every year quite a number of students have finished and finish their Diploma, Master, or Bachelor theses in our group.

5.3   Further

Furthermore, I have been refereeing for various national and international proposals submitted to the German Science Foundation (DFG), the Federal Ministry of Education and Research (BMBF) as well as similar or equivalent institutions in Germany and abroad. I am also a member of the Grants Committee on Research Training Groups of the German Research Foundation (DFG) since 2019.

6 Academic Self-Administration

2002 – 2004	Dean of Student affairs of the department of Mathematics at TU Darmstadt
2006 – 2008	Dean of the department of Mathematics at TU Darmstadt
2007	Member of the senate of TU Darmstadt
2008 – 2010	Vice president of TU Darmstadt
2011 – 2013	Member of the Board of the Faculty of Science at FAU
2021 – 2023	Deputy Head of the Department of Data Sciences
2023 – today	Founding Vice president of University of Technology Nuremberg

In addition, I have been member of various committees and engaged in several search committees for faculty positions and strategic planning committees on the department and university level.

7 Membership in Scientific Boards and Teaching related Committees

I am currently or have been engaged in the following scientific boards and teaching related committees:

o Web Editor of Mathematical Programming Society (MPS), 2001 – 2007.

o Member of the Board of the INFORMS Computing Society (ICS), 2004 – 2006.

o Member of the advisory board of the "Gesellschaft für Operations Research (GOR)", 2004 – 2018.

o Member of the committee for quality management systems of ASIIN for study programs ("AK Systeme"), 2008 – 2014.

o Member of the Standing Committee on Applied Mathematics of the European Mathematical Society (EMS), 2010 – 2017.

o Member of the committee for mathematical modeling, simulation, and optimization (KoMSO), 2012 – today.

o Member of the Meeting Committee of the European Mathematical Society (EMS), 2017 – today.

o Member of the managing board of the "Gesellschaft für Operations Research (GOR)", 2019 – 2024.

o Member of the Bavarian Expert Committee on AI – Data Science, 2019 – today.

o Member of the Bavarian Council for Artificial Intelligence, 2020 – today.

o President of the "Gesellschaft für Operations Research (GOR)", 2023 – 2024.

8 Third-Party Funds

My experiences with third-party funds are based on the following cooperations (sorted by sponsor):

German Science Foundation (DFG)

- *Decomposition Methods for integer-continuous optimal control*, jointly with S. Prokutta within the Transregio SFB TRR 154 "Mathematical Modelling, Simulation and Optimization using the Example of Gas Networks" (2022 – 2026).

- *Multidimensional auction design with mixed- integer network constraints,* jointly with Y. Giannakopoulos within the Transregio SFB TRR 154 "Mathematical Modelling, Simulation and Optimization using the Example of Gas Networks" (2022 – 2026).

- *Multilevel mixed-integer nonlinear optimization for gas markets,* jointly with V. Grimm and J. Grübel within the Transregio SFB TRR 154 "Mathematical Modelling, Simulation and Optimization using the Example of Gas Networks" (2022 – 2026).

- Speaker of Cooperate Research Centre Transregio SFB TRR 154 "Mathematical Modelling, Simulation and Optimization using the Example of Gas Networks" (2014 – 2018, 2018 – 2022, 2022 – 2023).

- *Decomposition Methods for integer-continuous optimal control*, jointly with G. Leugering and M. Schmidt within the Transregio SFB TRR 154 "Mathematical Modelling, Simulation and Optimization using the Example of Gas Networks" (2018 – 2022).

- *Adaptive MIP-Relaxations for MINLPs*, jointly with L. Schewe within Transregio SFB TRR 154 "Mathematical Modelling, Simulation and Optimization using the Example of Gas Networks" (2018 – 2022).

- *Decomposition Methods for integer-continuous optimal control*, jointly with G. Leugering within the Transregio SFB TRR 154 "Mathematical Modelling, Simulation and Optimization using the Example of Gas Networks" (2014 – 2018).

- *Adaptive MIP-Relaxations for MINLPs*, jointly with L. Schewe within Transregio SFB TRR 154 "Mathematical Modelling, Simulation and Optimization using the Example of Gas Networks" (2014 – 2018).

- *Optimization of process chains under uncertainty*, jointly with U. Lorenz, within the CRC 805 "Control of uncertainty of load carrying systems in mechanical engineering" at TU Darmstadt, speaker: H. Hanelska (2009 – 2010).

- *Optimal combination of active and passive components via mixed integer semidefinite programming*, jointly with S. Ulbrich within the CRC 805 "Control of uncertainty of load carrying systems in mechanical engineering" at TU Darmstadt, speaker: H. Hanelska (2009 – 2010).

- *Hybrid dynamical transport systems on networks*, jointly with J. Lang, G. Leugering (2006 – 2008).

- *Mathematical models for an automatic development of optimal sheet metal products with bifurcations*, jointly with S. Ulbrich within the CRC 666 "Integral Sheet Metal Design with Higher Order Bifurcations" at TU Darmstadt, speaker: P. Groche (2005 – 2010).

- *Optimal branchings of sheet metal designs in compliance with production constraints* within the CRC 666 "Integral Sheet Metal Design with Higher Order Bifurcations", at TU Darmstadt, speaker: P. Groche (2005 – 2009).

- *Semidefinite and polyhedral relaxations for graph partitioning problems*, jointly with C. Helmberg (2004 – 2007).

- *Optimal grid partitioning for block structured grids in parallel fluid dynamic computations* within the Graduate School 'Modeling, Simulation and Optimization within Engineering Applications', speaker: M. Schäfer (2002 – 2006).

Federal Ministries and States

- Federal Ministry of Education and Research (BMBF) joint project "KI-gestütztes Operationssaal-Management" (KIOM), jointly with OrgaCard (coordinating partner) and clinical partners (2023-2025)

- Federal Ministry of Economic Affairs and Climate Action (BMWK) joint project "Künstliche Intelligenz zur Prozessprognose und -optimierung im Kombinierten Verkehrsterminal" (KIProKV), jointly with Fraunhofer IIS (coordinating partner) (2023-2026)

- Federal Ministry of Education and Research (BMBF) joint project „Verbundprojekt: Agile Netzsteuerung zur Erhöhung der Resilienz der Kritischen Infrastruktur Wasserversorgung (aKtIv)", jointly with Lisa Broß (speaker, Wasserversorgung Rheinhessen-Pfalz GmbH), Fraunhofer IIS, RWTH Aachen (2022-2026)

- Federal Ministry of Education and Research (BMBF) joint project „EKSSE: Energieeffiziente Koordination und Steuerung des Schienenverkehrs in Echtzeit.", jointly with Fraunhofer IIS (Optimization & Process Intelligence), TU Berlin, VAG, Hamburger Hochbahn (2022-2026)

- Federal Ministry of Economic Affairs and Climate Action (BMWK) joint project „Verbundvorhaben ESM-Regio: Mehrsektorale gekoppelte Energiesystem-modellierung auf regionaler Ebene, Teilvorhaben: Modellierung und Simulation der Sektoren Gas, Verkehr und Wärme inklusive lernender Optimierung für die Gesamtsystemsteuerung, Lebenszyklus sowie Aufbau einer Datenplattform", jointly with Reinhard German (speaker, FAU), Energieagentur Nordbayern, Stadtwerke Bayreuth, Hochschule Coburg, Bayern Innovativ GmbH (2021-2025)

- "Center For Analytics – Data – Applications (ADA-Lovelace-Center)" (speaker), jointly with A. Heuberger, supported by the Bavarian ministry for Economic Affairs, Regional Development, and Energy within the framework *Bayern Digital II* (2018 – 2024).

- Federal Ministry of Education and Research (BMBF) joint project "Site-related modeling, simulation, and optimization of solar supply, power flow and control of power distribution networks taking supply uncertainties into account", jointly with V. Schmidt (speaker), F. Liers, C. Weber, Deutscher Wetterdienst, Main Donau Netzgesellschaft (2018 – 2021).

- Federal Ministry of Economics and Technology (BMWi) joint project "Methods and Models for Energy Transformation and Integration Systems (METIS)", jointly with D. Stolten (speaker), A. Praktiknjo, L. Schewe (2018 – 2022).

- Energie Campus Nürnberg (EnCN), speaker of the focal area "Simulation" jointly with R. German (2011 – 2016); member of the focal area "Energy Market Design", jointly with V. Grimm (speaker) and five additional scientists (2017 – 2022).

- Federal Ministry of Education and Research (BMBF) joint project "Combined Optimization, Simulation, and Grid Analysis of Germany's Electrical Power Systems in the European Context (KOSiNeK)", jointly with R. German (speaker), M. Luther, Bayern Innovativ (2016 – 2019).

- Federal Ministry of Education and Research (BMBF) joint project "Energy Management System Water Supply (E-Wave)" (speaker), jointly with O. Kolb, J.

Lang, G. Leugering, G. Steinebach, Rheinisch-Westfälische Wasserwerksgesellschaft GmbH, Siemens AG (2014 – 2018).

- Federal Ministry of Education and Research (BMBF) joint project "Energy efficient mobility (E-MOTION)" (speaker), jointly with R. Borndörfer, A. Fügenschuh, Ch. Helmberg, B. Press, U. Zimmermann, Deutsche Bahn AG, Lufthansa Systems (2013 – 2016).

- Bavarian Ministry of Business and Media, Energy and Technologies (StMWi) joint project Prototype Smart Grid Solar in Hof and Arzberg jointly with ZAE Bayern (speaker) and 15 additional partners (2012 – 2015).

- *Process Efficiency Information and Optimizing System (PEIOS) for increasing the efficiency of clarification plants*, supported by the Bavarian ministry for Economics, Infrastructures, Traffic, and Technology, jointly with APE Engineering GmbH (2012 – 2017).

- Federal Ministry of Education and Research (BMBF) joint project "Lify cycle oriented optimization for a resource and energy efficient infrastructure" (speaker), jointly with E. Bänsch, G. Leugering, M. Stingl, Bilfinger und Berger AG (2010 – 2013).

- BMBF joint project "Complex optimization strategies for mobilty and transportion railways", jointly with U. Zimmermann (speaker), R. Borndörfer, C. Helmberg, U. Clausen, Deutsche Bahn AG (2010 – 2013).

- Federal Ministry of Economics and Technology (BMWi) joint project "Technical capacities of gas networks", jointly with M. Grötschel (speaker), M. Pfetsch, W. Römisch, R. Schultz, M. Steinbach (2009 – 2012).

- BMWi joint project "Cross-linked renewable energy concepts in colonies and rural areas", jointly with M. Hegger (speaker), J. Dettmar (2009 – 2012).

- Principal Investigator of the graduate school "Computational Engineering" within the excellence initiative, speaker: M. Schäfer (2008 – 2010).

- Principal Investigator of the LOEWE centre "Adaptronik Research, Innovation, Application (AdRIA)" supported by the state of Hesse, speaker: H. Hanselka (2008 – 2010).

- BMBF joint project "Discret-continuous optimization of dynamic water systems" (speaker), jointly with K. Klamroth, J. Lang, M. Ostrowski, M. Oberlack, G. Leugering, Hessenwasser GmbH & Co.KG, Siemens AG, Steinhardt GmbH Wassertechnik (2007 – 2009).

- BMBF joint project "Optimization of integrated wagon and locomotive scheduling in freight transport", jointly with U. Zimmermann (speaker), R. Borndörfer, C. Helmberg, U. Clausen, Deutsche Bahn AG (2007 – 2009).

- BMBF joint project "Decentralized regenerative energy supply", jointly with R. Schultz (speaker), I. Erlich, Ch. Weber, E. Handschin, W. Römisch, H.-J. Wagner (2005 – 2008).

- BMBF joint project *Mixed integer optimization for operative gas management*, jointly with R. Schultz, M. Steinbach (2000 – 2003).

Industry Projects

- *Nodus Sp. Z o.o.*, Development of a mixed-integer optimization-based algorithm for the integrated train timetabling, wagon rotation and locomotive scheduling (2023 – 2025).

- *OrgaCard Siema & Alt GmbH*, Optimal planning of logistic processes in hospitals (2019 – 2023).

- *VAG Verkehrs-Aktiengesellschaft Nürnberg*, Optimizing the subways' schedule to minimize the energy consumption (2017 – 2023).

- *Martin Bauer GmbH & Co. KG*, Optimiziation of Tea Recipes (2018 – 2022).

- *SAP AG & Co. KG, ZIB*, Development of software products (2010 – 2023).

- *Continental Automotive GmbH*, Mathematical models and methods for life cycle assessments in the automotive industry (2016 – 2019).

- *BASF SE*, Developing of software in the context of CHEMASIM (2016 – 2017).

- *Gurobi GmbH*, Planning and developing software and mathematical models (2015 – 2016).

- *Siemens AG*, Developing MINLP solution methods for bilevel programs using MIP techniques (2013 – 2015).

- *Cluster Energietechnik including 14 additional partners*, Energy system analysis for the energy change in Bavaria, jointly with R. German, M. Luther (2012 – 2016).

- *Deutsches Zentrum für Luft- und Raumfahrt e.V*, Studies on the topic "Modeling of uncertainties in the context of ATM" (2011 – 2015).

- *Deutsche Börse AG*, Discrete Optimization for IT-applications (2010 – 2013).

- *Bremer Straßenbahn AG (BSAG)*, Consulting in optimization methods for the public mass transport at Bremer Straßenbahn AG, jointly with Exactus GmbH (2010 – 2013).

- *Open Grid Europe GmbH (former EON.Gastransport)*, Development of mathematical methods for the optimization of gas transport networks (2009 – 2013).

- *Siemens AG*, Interfaces for linear programming (2008 – 2014).

- *DB Regio AG*, Mathematical evaluation of scheduling models (2008 – 2010).

- *Linde AG, devision Linde Gas*, Facility location and supply chain management problems (2008 – 2014).

- *Deutsche Bahn AG*, Optimization of integrated wagon and locomotive scheduling in freight transport (2008 – 2010).

- *ZIB*, Next Generation Constrained Integer Progamming Solver (2007 – 2009).

- *DEV Systemtechnik GmbH*, Design of switching networks (2007 – 2010).

- *Siemens AG*, Development of a software package for MINLPs (2007 – 2010).

- *Schenk RoTec GmbH*, Balancing axle-elastic rotors (2007).

- *Lufthansa AG, ECAD GmbH*, Planning flight schedules of "Direct Services" (2007).

- *ECAD GmbH*, Development of tools for analyzing large networks (2007).

- *Wincor Nixdorf International GmbH*, Stochastic modeling and optimal charging of automatic teller machines (2006 – 2007).

- *Ingenieurbüro Steinigeweg Planungs GmbH & Co KG*, Modelling the energy consumption in public buildings (2003 – 2008).

- *BPI-Consulting und ZIV*, Scheduling of school buses in rural areas (2001 – 2007).

- *Ruhrgas AG*, Optimization of gas networks (1999 – 2003).

- *E-Plus Service GmbH & Co. KG*, Frequency assignment and facility location problems (1998 – 2000).
- *Telenor (Norway)*, Design of ATM networks (1994 – 1995).
- *Siemens AG*, Design of electronic circuits (1989 – 1992).

Others

- *Reduced Order Modelling, Simulation and Optimization of Coupled systems (ROMSOC)*, supported by the EU within H2020-MSCAITN-2017-765374, speaker V. Mehrmann (TU Berlin) (2017 – 2021).
- *Robust Optimization of ATM Planning Processes by Modelling of Uncertainty Impact (RobustATM)*, supported by the EU within SESAR WP-E Eurocontrol FP7, jointly with DLR (2013 – 2016).
- *Uncertainty Models for Optimal and Robust ATM Schedules*, supported by the EU within SESAR WP-E Complex World FP7, jointly with DLR (2012 – 2015).
- *Packing problems with additional side constraints*, supported by DAAD within PROBRAL 2005, jointly with C. Ferreira, University of S̃ao Paulo (2005 – 2007).
- *Development of mathematical algorithms for the verification and control of 3-stage switching networks*, supported by the "Arbeitsgemeinschaft industrieller Forschungsvereinigungen OTTO VON GUERICKE e.V. (AiF)" and DEV Systemtechnik GmbH (2006 – 2008).
- *Momentum - Models and Simulations for Network Planning and Control of UMTS*, supported by the EU within the EC-IST FP5 program with the title Momentum IST-2000-28088, jointly with E-Plus, Uni Lissabon, Siemens, TNO, ZIB (2000 – 2003).

9   Teaching Experience

at the University of Augsburg (1986 – 1990):
- Exercises to *Linear Algebra I and II*,
- Exercises to *Optimization I*,
- Seminar on *Network-Flows*.

at the Berlin University of Technology (1995 – 1999):
- Lectures on *Multi-commodity Flow Problems*,
- Lectures on *Numerical Aspects for the Solution of Integer Programs*,
- Lectures on *Graph and Network Algorithms*.

at Rice University, Houston, USA (1997):
- Lectures on *Polyhedral Methods in Integer Programming*.

at the University of Trier (1997 – 1998):
- Lectures to *Operations Research II*,
- Exercises to *Operations Research II*,
- Seminar *Relaxations of Combinatorial Optimization Problems*.

at the Technische Universität Darmstadt (2000 – 2010):

- o Lectures on *Discrete Optimization I and II*,
- o Lectures on *Algorithmic Discrete Mathematics*,
- o Lectures on *Introduction to Optimization*,
- o Lectures on *A Selection of Discrete Optimization Problems*,
- o Lectures on *Linear Algebra I and II*,
- o Lectures on *Graphs and Algorithms*,
- o Lectures on *Computer Oriented Mathematics*,
- o Lectures on *Mathematics for Civil Engineering I and II*,
- o Project-Lectures on *Integral Sheet Metal Designs*,
- o Project-Seminars on *Bus Scheduling Problems, Protein Folding, and Optimizing the frontage of buildings with Bilfinger-Berger*,
- o Seminars on *Online-Optimization, Optimization in Telecommunication, Protein Folding, Mixed Integer Nonlinear Optimization* and others.

at the Friedrich-Alexander-Universität Erlangen-Nürnberg (2010 – 2023):

- o Lectures on *Discrete Optimization 1, 2, and 3*,
- o Lectures on *Combinatorial Optimization*,
- o Lectures on *Advanced Mathematics for Economists*,
- o Lectures on *Numerical Aspects of Linear and Integer Programming*,
- o Project-Seminar on various topics such as *Management of Construction Sites at Deutsche Bahn, Lifecycle Oriented Optimization of Buildings, Protein Folding, Minimizing Energy Peak Loads in Railway Systems*.

10   Organization of Meetings and Scientific Talks

10.1   Organization of Meetings

- o Workshop *Computational Integer Programming*, Berlin, November 1997 (jointly with R.E. Bixby, M. Grötschel).

- o Section *Discrete and Combinatorial Optimization* at the International Symposium on Operations Research 2001, Duisburg, September 2001 (jointly with P. Brukker).

- o Workshop *Discrete Convex Geometry* in honour of Jürgen Bokowski's 60. Birthday, Darmstadt, February 2002 (jointly with J. Bokowski).

- o BMBF-Workshop *Verkehr, Transport, Logistik und Energiewirtschaft*, Bad Vilbel, June 2003 (jointly with R. Schultz, M. Steinbach).

- o Section *Telecommunication and Information Technology* at the International Symposium on Operations Research 2003, Heidelberg, September 2003.

- o Workshop *Mathematics in the Supply Chain*, Oberwolfach, April 2004 (jointly with R.E. Bixby, D. Simchi-Levi, U. Zimmermann).

- o Section on *Combinatorial Optimization* at International Symposium on Operations Research 2005, Bremen, September 2005 (jointly with J. Kallrath)

- o Section on *Optimization* at the GAMM 2006, Berlin, March 2006, (jointly with M. Hintermüller)

- o Cluster on *Mixed Integer Programming* at the International Symposium on Mathematical Programming 2006, Rio de Janeiro, Brasil, August 2006.

- BMBF Annual Meeting *Regenerative Erneuerbare Energieversorgung*: Inovative Modellierung und Optimierung, Darmstadt, October, 2006.

- Section on *Discrete and Combinatorial Optimization* at the International Symposium on Operations Research 2007, Saarbrücken, September 2007.

- Member of the Organizing Committee of the SIAM Conference on Optimization, Boston, USA, May 2008.

- Workshop "What a Pivot", honoring the 65th birthday of Prof. Robert E. Bixby, Erlangen, September 2010 (jointly with W. Cook).

- Member of the Organizing Committee of the SIAM Conference on Optimization, Darmstadt, Germany, May 2010.

- Member of the Programming Committee of the INOC 2011 International Network Optimization Conference, Hamburg, June 2011.

- Member of the Programming Committee of APMOD 2012, International Conference on Applied Mathematical Optimization and Modelling, Paderborn, March 2012.

- Cluster *Optimization in Energy Systems* at the International Symposium on Mathematical Programming 2012, Berlin, August 2012.

- Member of the Programming Committee of IEEE SG-TEP 2012, IEEE International Conference on Smart Grid Technology, Economics and Policies, Nürnberg, December 2012.

- Section on *Discrete and Combinatorial Optimization, Graphs and Networks* at International Symposium on Operations Research 2005, Aachen, September 2014.

- Member of the Programming Committee of the SESAR Innovation Days 2015, 2017, 2017, EUROCONTROL.

- Member of the Programming Committee of the 18th French-German-Italian Conference on Optimization, Paderborn, September 2017.

- Section on *Business Analytics, Artificial Intelligence and Forecasting* at the International Symposium on Operations Research 2017, Berlin, September 2017.

- AIP-IIS-MLGT Workshop, Atlanta, March 2018 (jointly with S. Pokutta and M. Sugiyama).

- Member of the Programming Committee of the 19th French-German-Swiss Conference on Optimization 2019, Nizza, September 2019.

- Member of the Programming Committee of the 20th French-German-Portuguese Conference on Optimization 2022, Lisbon, May 2022.

- Member of the Programming Committee of the 21st French-German-Spain Conference on Optimization 2024, Gijón, June 2024.

- Member of the Programming Committee of the 10th International Conference on Industrial and Applied Mathematics (ICIAM) Tokyo, August 2023.

- Organization *Conference on Optimization and Machine Learning in Industry* within the ADA-Lovelace-Center, Nuremberg, March 2023.

- Member of the Programming Committee of the International Symposium on Operations Research, Munich, September 2024.

10.2   Scientific Talks since 2010 (A Selection)

15.03.10	*Operational Management of Water Supply Networks by Mixed Integer Programming* Workshop "Mathematics and Industry", Bejing, China
09.06.10	*Diskret-kontinuierliche Optimierung dynamischer Wasserver- und -entsorgungssysteme* BMBF-Statusseminar, Kaiserslautern
22.07.10	*Besser geht immer! Oder doch nicht? Einblicke in die Mathematik der Optimierung* Inaugural lecture at the University Erlangen-Nuremberg
08.11.10	*Das Potential exakter Methoden* Workshop "Kapazitätsberechnung", Bundesnetzagentur, Bonn
22.06.11	*A Scenario Tree Based Decomposition for Multistage Stochastic Programs* MIP 2011, Waterloo, Canada
22.11.11	*Mathematische Optimierungsverfahren für reale Gasnetze* 9. Fachtagung "Optimierung in der Energiewirtschaft", Nürtingen
20.04.12	*Technische Kapazitäten in Gasnetzen: Von der Simulation zur Optimierung* Workshop "Herausforderungen der energiewirtschaftlichen Optimierung", Karlsruhe
26.09.12	*Solving MINLPs by Discretization Techniques with Applications in Energy Optimization* The 2nd Sino-German Workshop on Optimization, Modeling, Methods and Applications in Industry and Management, Bejing, China
03.12.12	*May Mixed Integer Programming help to solve MINLPs? A Case Study from Gas Network Optimization* ETH Zurich
15.03.13	*Challenges in Gas Network Optimization* Workshop "Energy and Mathematical Optimization", BASF, Ludwigshafen
07.05.13	*Energiemanagement – Wie 'smart' managen wir Energie wirklich?* Challenge Workshop: Mathematische Modellierung und Optimierung zukünftiger Energienetze, Heidelberg
25.06.13	*Kapazitätsmaximierung* Workshop "Langfristige Kapazitätsplanung", Berlin
14.10.13	*Mixed Integer Programming in Energy Management* ISAM TopMath Autumn School 2013, Munich
18.12.13	*Energy System Analysis – A Case Study* Energy-Symposium, Tchech Academy of the Sciences (ASCR), Prague
03.03.14	*Techniques from Mixed Integer Linear Programming to solve Mixed Integer Nonlinear Programs* Magdeburg Lectures on Optimization and Control, Magdeburg
10.04.14	*Das Potential mathematischer Optimierung und ihre Bedeutung für die Ingenieurwissenschaften* 1. Workshop "Operations Research in den Ingenieurwissenschaften", Asselheim

21.05.14	*Reduktion und Prozessverbesserung durch Mathematik: Suffizienzansätze durch Diskrete Optimierung* Kongress "Besser, anders, weniger – Suffizienz in der Baukultur", Darmstadt
02.06.14	*May MIP Techniques help to solve MINLPs* Mixed Integer Nonlinear Programming 2014, Carnegie Mellon University, Pittsburgh, USA
09.09.14	*Mixed Integer Programming for Energy Networks* School on "Graph Theory, Algorithms and Applications" at the "International School of Mathematics – Guido Stampacchia", Erice, Sicily
14.11.14	*Solving network problems including physical transport* Workshop on Combinatorial Optimization, Oberwolfach
10.08.15	*Mathematical modeling, simulation, and optimization using the example of gas networks* ICIAM 2015, Bejing
09.10.15	*Life cycle optimization for civil engineering* Sommerschule "Combinatorial optimization at work", Berlin
22.10.15	*Towards a hierarchy of consistent models for network problems with physical transport* Workshop on Mixed Integer Nonlinear Programming Optimization, Oberwolfach
02.11.15	*Optimiert ist nicht optimal: Energiekosten senken durch intelligente Planung* Vortragsreihe "Wissenschaft auf AEG", Nuremberg
11.05.16	*Progress and Challenges in Network Optimization* Conference "The Digital Future", Berlin
21.10.16	*Combinatorial Optimization Problems with Physical Constraints* "BMS Friday Colloquium", Berlin
10.01.17	*Challenging Problems in Mathematics and Industry* Workshop on Optimization and Data-intensive High Performance Computing, Tokyo, Japan
26.02.17	*Network Flow Problems with Physical Constraints* International Conference on Network Optimization, Lisboa, Portugal
06.03.17	*Mixed Integer Programming for Energy Networks* Shell Lecture, CAAM Colloquium, Rice University, Houston TX, USA
07.09.17	*Network Flow Problems with Physical Transport* International Symposium on Operations Research 2017, Berlin
11.07.19	*Data Analytics, AI and Optimization for an (energy) efficient supply* Workshop "Energy.Digital: Artificial Intelligence driving the energy transition", Nuremberg
30.07.19	*Simulation based mixed integer programming* Second Conference on Discrete Optimization and Machine Learning 2019, RIKEN Center for Advanced Intelligence Project, Tokyo, Japan

22.10.19	*Success and Benefits by Exploiting Data with Mathematical Optimization and AI* F+E Congress Munich
19.11.19	*AI in Logistics* Logistics Forum Nuremberg
11.10.21	*Data analytics and optimization in production and logistics* KLAIM Conference 2021, Kaiserslautern
23.10.21	*Data analytics and optimization in production and logistics* CKI Conference 2021, Nuremberg
20.05.22	*Innovationskultur & Transformation* Impetus talk and panel-discussion at Datev Software Campus Summit 2022, Nuremberg
15.06.22	*Mixed-Integer Optimization with PDE-Constraints* Advances in Calculus of Variation 2022, Napoli
28.06.22	*Hydrogen: Enabling the transformation of the energy system - Focus on Germany and Bavaria.* Presentation in the Bavarian Parliament with delegates from Quebec, Munich
13.09.22	*Mixed Integer Optimization Problems on Networks with PDE Constraints.* Plenary talk at the DMV Annual Meeting 2022, Berlin
21.11.22	*Mixed Integer Optimization Problems on Networks with PDE Constraints.* Colloquium of the Research Training Group AdONE, Munich
26.06.23	*Mixed Integer Optimization Problems on Networks with PDE Constraints.* Colloquium of the Research Training Group ALOP, Trier

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