

Roland Herzog

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Personal Information

Date of Birth July 31, 1974
Place of Birth Hannover, Germany
Marital Status Married
Birth Name Griesse
Children one daughter, one son
Citizenship German



Professional Record

Mar 2008 – W3 (full) professor in *Numerical Mathematics and PDEs*
present Technische Universität Chemnitz, Germany

Apr 2017 – Visiting professorship
Aug 2017 University of British Columbia, Vancouver, Canada

Jan 2016 Offer for a W3 (full) professorship in *Mathematical Optimization*
Technische Universität Braunschweig, Germany

Apr 2011 Offer for a W3 (full) professorship in *Optimization and Inverse Problems*
University of Stuttgart, Germany

Aug 2007 Offer for a W3 (full) professorship in *Numerical Mathematics and PDEs*
Technische Universität Chemnitz, Germany (accepted in November 2007)

Aug 2007 Offer for a W2 (associate) professorship in *Continuous Optimization*
RWTH Aachen, Germany

Jul 2007 Offer for a W2 (associate) professorship in *Numerical Methods in Optimal Control*
TU Dresden, Germany

Oct 2006 – W3 (full) replacement professorship in *Numerical Mathematics and PDEs*
Feb 2007 Technische Universität Chemnitz, Germany

Sep 2004 Offer for a W1 (junior) professorship in *Numerical Methods in Optimal Control*
University of Hamburg, Germany

Aug 2004 – Senior Scientist, [Johann Radon Institute for Comp. and Appl. Mathematics \(RICAM\)](#)
Feb 2008 Austrian Academy of Sciences, Linz, Austria (group of Prof. Karl Kunisch)

Mar 2003 – Postdoctoral Research Assistant
Jul 2004 Karl Franzens University Graz, Austria (group of Prof. Karl Kunisch)

- Oct 1999 – Scientific Assistant
Feb 2003 University of Bayreuth, Germany (group of Prof. Hans Josef Pesch)

Education

- Jun 2008 Habilitation at Karl Franzens University Graz, Austria
Title of Habilitation Thesis: *Stability and Sensitivity Analysis in Optimal Control of Partial Differential Equations*
- Feb 2003 Doctorate degree from the University of Bayreuth, Germany
Title of Dissertation: *Parametric Sensitivity Analysis for Control-Constrained Optimal Control Problems Governed by Systems of Parabolic Partial Differential Equations* (Supervisor Prof. Hans Josef Pesch, second supervisor Prof. Fredi Tröltzsch)
- Aug 1999 Diploma with Honors in Applied Mathematics from TU Clausthal, Germany
Title of Thesis: *Optimal and Suboptimal Control of the Navier-Stokes Equations* (Supervisor Prof. Hans Josef Pesch)
- 1996 – 1997 First year Ph.D. program in Mathematics at Tulane University, New Orleans, USA
- 1994 – 1999 Study in Applied Mathematics (Minors: Mechanical Engineering, Fluid Dynamics and Computer Science) at TU Clausthal, Germany

Teaching Experience

- Sep 2018 Short Course for Members of the Research Training Group π^3 , University of Bremen, Germany
Introduction to PDE-Constrained Optimization
- Aug 2014 Gene Golub SIAM Summer School, RICAM Linz, Austria
Optimization subject to Complementarity Constraints
- Apr 2013 Short Course for Members of the International Research Training Group IGDK 1754, TU München, Germany
Introduction to PDE-Constrained Optimization
- Jul 2010 Summer School on Analysis and Numerics of PDE Constrained Optimization, Lambrecht, Germany
Algorithms and Preconditioning for PDE-Constrained Optimization
- Apr 2008 – present Technische Universität Chemnitz, Germany
[Various lectures](#) on Optimization, Optimal Control of PDEs and ODEs, Numerical Methods for PDEs and ODEs, Mathematics for Engineers, Optimization for Engineers
- Mar 2008 Short Course at Middle East Technical University, Ankara, Turkey
Sensitivity Analysis in Optimal Control
- Apr 2007 Short Course at Universidad Autónoma de Aguascalientes, Mexico
Optimalsteuerung von PDEs
- Oct 2006 – Technische Universität Chemnitz, Germany
- Feb 2007 Lecture and tutorial classes in Numerical Methods for ODEs, and Optimal Control of PDEs
- Jan 2006 Short Course at University of Bremen
Infinite-Dimensional Optimization
- 2005 Johannes Kepler University Linz, Austria
Lecture and tutorial classes in Control Theory
- 2004 – 2005 Johannes Kepler University Linz, Austria
Tutorial classes in Real Analysis

- 2003 – 2004 Karl Franzens University Graz, Austria
Occasional stand-in lectures in Numerical Analysis
- 1999 – 2003 University of Bayreuth, Germany
Full time Teaching Assistant for Mathematics for Engineers and advanced courses in applied mathematics, occasional stand-in lectures in Mathematics for Engineers and Optimal Control
- 1997 – 1999 Clausthal University of Technology, Germany
Teaching Assistant for Mathematics for Engineers and Real Analysis
- 1996 – 1997 Tulane University, New Orleans, USA
Teaching Assistant for various Calculus classes, including honors classes
- 1995 – 1996 Clausthal University of Technology, Germany
Teaching Assistant for Real Analysis

Educational Training

- Jan 2018 Workshop on Flipped Classroom Techniques for STEM Education
- Oct 2016 Workshop on Academic Teaching
- Dec 2014 Student Motivation in Academic Teaching
- Nov 2003 English Presentation Skills
- Jun 2002 Didactic Training: Planning a lecture
- Sep 1996 Training for Teaching Assistants, Tulane University

Professional Training

- Nov 2016 Leadership Skills at the University
DHV (German Association of University Professors and Lecturers)

Fellowships

- 1998 – 1999 Fellow of the German National Merit Foundation (Studienstiftung des deutschen Volkes)
- 1996 – 1997 Fellowship Tulane University, New Orleans, USA

Professional Responsibilities

- Apr 2019 – Academic Advisor for Industrial Mathematics, TU Chemnitz
present
- Apr 2019 – Member of the study commission (Studienkommission) of the Degree Program M.Sc.
present Data Science, TU Chemnitz
- May 2018 – Member of the board of examiners (Prüfungsausschuss) of the Degree Program M.Sc.
present Data Science and of the Degree Program Diplom Mathematics, TU Chemnitz
- Apr 2017 – Member of the advisory committee (Fakultätsrat) of the Faculty of Mathematics, TU
present Chemnitz
- Sep 2016 – Member of the board of examiners (Prüfungsausschuss) of the International Degree
present Program M.Sc./Ph.D. Mathematics, TU Chemnitz
- Sep 2016 – Member of the board of examiners (Prüfungsausschuss) of the Degree Program
present B.Sc./M.Sc. Mathematics, TU Chemnitz
- Oct 2015 – Vice Chairman of the board of examiners (Prüfungsausschuss) of the Degree Program
present M.Sc. Finance, TU Chemnitz

- Apr 2015 – Member of the Extended Senate, TU Chemnitz
present
- Apr 2015 – Member of the board of examiners (Prüfungsausschuss) of the Degree Program M.Sc.
present Finance, TU Chemnitz
- Oct 2014 – (Provisional) Academic Advisor for Business Mathematics, TU Chemnitz
Oct 2016
- Sep 2014 – Speaker of the [GAMM activity group on optimization with PDE constraints](#)
Sep 2017
- Apr 2014 – Member of the Council (Beirat) of the Center for Teacher Training, TU Chemnitz
present
- Apr 2014 – Member of the study commission (Studienkommission) of the Center for Teacher
Apr 2016 Training, TU Chemnitz
- Apr 2013 – Member of the Senate Commission on Education and Studies, TU Chemnitz
May 2016
- Apr 2013 – Dean of Studies (Studiendekan) of the Faculty of Mathematics, TU Chemnitz
Mar 2016
- May 2011 – Vice speaker of the [GAMM activity group on optimization with PDE constraints](#)
Sep 2014
- May 2010 – Member of the study commission (Studienkommission) and Academic Advisor for
Mar 2013 Industrial Mathematics, TU Chemnitz
- Dec 2009 – Chairman of the board of examiners (Prüfungsausschuss) of the Faculty of Mathematics,
Mar 2013 TU Chemnitz
- Nov 2009 – Member of the advisory committee (Fakultätsrat) of the Faculty of Mathematics, TU
Mar 2016 Chemnitz
- Sep 2008 – Member of the scientific committee of the Chemnitz FEM Symposium
present
- Oct 2004 – Chairman of the Employees of the Johann Radon Institute for Computational and
Oct 2007 Applied Mathematics

Membership in Professional Societies

- SIAM (Society for Industrial and Applied Mathematics), and member of its activity groups on optimization, imaging and linear algebra
- DMV (German Mathematical Society)
- DHV (German Association of University Professors and Lecturers)
- GAMM (International Association of Applied Mathematics and Mechanics), and member of its activity groups on optimization with PDE constraints, uncertainty quantification, numerical analysis, and mathematical signal and image processing
- MOS (Mathematical Optimization Society)
- Friends of Oberwolfach
- Committee for Mathematical Modeling, Simulation and Optimization (KoMSO)

Involvement in Successful Coordinated Research Proposals

- Oct 2016 – Member of the Steering Committee of DFG Priority Program SPP 1962
present

Mar 2015 Co-Proposer of DFG Priority Program SPP 1962 *Non-Smooth and Complementarity-Based Distributed Parameter Systems: Simulation and Hierarchical Optimization*; coordinator: Michael Hintermüller

Funded Research Projects

- Jan 2017 – present *A Calculus for Non-Smooth Shape Optimization with Applications to Geometric Inverse Problems*
DFG grant (189 700 €) within the Priority Program 1962, together with Stephan Schmidt, Würzburg; investigator: José Vidal-Núñez
- Oct 2016 – present *Optimal Control of Dissipative Solids: Viscosity Limits and Non-Smooth Algorithms*
DFG grant (126 400 €) within the Priority Program 1962, together with Dorothee Knees, Kassel, and Christian Meyer, Dortmund; investigator: Ailyn Stötzner
- Jul 2015 – present *Model Predictive Parameter and State Estimation and Optimal Sensor Placement*
DFG grant (242 400 €) within the Collaborative Research Center SFB/TR 96; investigator: Ilka Riedel
- Apr 2015 – present *Impulse Control Problems and Adaptive Numerical Solution of Quasi-Variational Inequalities in Markovian Factor Models*
DFG grant (350 600 €), together with Thorsten Schmidt; investigator: Jan Blechschmidt
- Nov 2012 – Okt 2017 *Bivalent and Multi-Criteria Optimization of Coupled Simulations of Manufacturing and Loading of Hybrid Structures*
Project within DFG Cluster of Excellence (364 000 €); investigators: Andreas Günnel and Felix Ospald
- Oct 2012 – Sep 2015 *Preconditioned SQP Solvers for Nonlinear Optimization Problems with PDEs*
DFG grant (178 000 €); investigator: Susann Mach
- Jul 2011 – Jun 2015 *Correction Algorithms and High Dimensional Characteristic Diagrams*
DFG grant (264 800 €) within the Collaborative Research Center SFB/TR 96, together with Ulrich Priber, Fraunhofer IWU, Chemnitz, Germany; investigator: Ilka Riedel
- Oct 2009 – Sep 2012 *Optimal Control in Elastoplasticity*
DFG grant (319 600 €) within the Priority Program 1253, together with Christian Meyer, TU Dortmund, Germany; investigators: Gerd Wachsmuth and Frank Schmidt
- Aug 2007 – Dec 2010 *Optimal Control of Stefan Problems with Constraints*
FWF grant (105 431 €), together with Karl Kunisch, Graz, Austria; investigator: Martin Bernauer
- Sep 2005 – Aug 2008 *SSC and SQP for Mixed Constrained Optimal Control Problems*
FWF grant (95 141 €), together with Arnd Rösch, Duisburg-Essen, Germany; investigator: Nataliya Metla

Other Grants

- Aug 2014 *Gene Golub SIAM Summer School* (63 000 €) awarded by SIAM, together with Winnifried Wollner, Esther Klann, Michael Stingl
- Jul 2013 ESF support (17 000 €) for the *3rd European Conference on Computational and Applied Mathematics (EUCCO)*, Chemnitz, Germany
- Jul 2011 DAAD travel grant (2 221 €) to attend the ICIAM meeting, Vancouver, Canada
- Jul 2010 – Jun 2011 DAAD travel grant (4 723 €) for cooperation visits with the group of Andy Wathen, University of Oxford, together with Ekkehard Sachs, Trier, Germany
- Aug 2009 DAAD (German Academic Exchange Service) travel grant (1 465 €) to attend the IFIP TC7 conference, Buenos Aires, Argentina

Reviewer for Habilitation Theses

- 2016 Martin Stoll
Fast Iterative Solvers for Time-Dependent PDE-Constrained Optimization Problems

Dissertation Theses Supervised

- current Jan Blechschmidt, Felix Ospald, Tommy Etling, Ilka Riedel, Eric Legler, Estefanía Loayza
- 2018 Ailyn Stötzner
Optimal Control of Thermoviscoplasticity
- 2014 Andreas Günnel
Numerical Aspects in Optimal Control of Elasticity Models with Large Deformations
- 2011 Gerd Wachsmuth
Optimal Control of Quasistatic Plasticity — An MPCC in Function Space
- 2010 Martin Bernauer
Motion Planning for the Two-Phase Stefan Problem in Level Set Formulation
- 2008 Nataliya Metla
The Sequential Quadratic Programming Method for Elliptic Control Problems with Mixed Control-State Constraints (together with Arnd Rösch, Duisburg-Essen, Germany)

Second Reviewer for Dissertation Theses

- 2019 Georg Müller
Optimal Control of Time-Discretized Contact Problems (supervised by Anton Schiela, University of Bayreuth)
- 2019 Yona Frekers
Investigation of Thermal Boundary Conditions at Contact Interfaces (supervised by Reinhold Kneer, Institute of Heat and Mass Transfer, Faculty of Mechanical Engineering, RWTH Aachen)
- 2018 Niels Goldberg
Homogenisierung und Modellierung des Materialverhaltens kurzfaserverstärkter Thermoplaste (supervised by Jörn Ihlemann, Faculty of Mechanical Engineering, TU Chemnitz)
- 2017 Magne Nordaas
Operator preconditioning for PDE-constrained optimisation and multiscale problems (supervised by Kent-Andre Mardal, University of Oslo)
- 2016 Juri Merger
Optimal Control and Function Identification in Biological Processes (supervised by Alfio Borzi, University of Würzburg)
- 2016 Kathrin Welker
Efficient PDE Constrained Shape Optimization in Shape Spaces (supervised by Volker Schulz, University of Trier)
- 2016 Hans Wulf
Modellierung und Simulation von Selbstorganisationsprozessen in belasteten technischen Gummiwerkstoffen (supervised by Jörn Ihlemann, Faculty of Mechanical Engineering, TU Chemnitz)
- 2015 Moritz Keuthen
Second Order Shape Optimization with Geometric Constraints (supervised by Michael Ulbrich, TU München)

- 2015 Dirk Schellenberg
Identifikation und Optimierung im Kontext technischer Anwendungen (supervised by Jörn Ihlemann, Faculty of Mechanical Engineering, TU Chemnitz)
- 2015 Thomas Betz
Optimal Control of Two Variational Inequalities Arising in Solid Mechanics (supervised by Christian Meyer, TU Dortmund)
- 2015 Max Winkler
Finite Element Error Analysis for Neumann Boundary Control Problems on Polygonal and Polyhedral Domains (supervised by Thomas Apel, University of the Armed Forces, Munich)
- 2013 Markus Kollmann
Efficient Iterative Solvers for Saddle Point Systems arising in PDE-Constrained Optimization Problems with Inequality Constraints (supervised by Walter Zulehner, University of Linz)
- 2012 Dominik Skanda
Robust Optimal Experimental Design for Model Discrimination of Kinetic ODE Systems (supervised by Dirk Lebiedz, University of Freiburg)
- 2012 Armin Rund
Contributions in Optimal Control of Partial Differential Algebraic Equations (supervised by Hans Josef Pesch, University of Bayreuth)
- 2011 Ira Neitzel
Numerical Analysis of PDE Constrained Optimal Control Problems with Pointwise Inequality Constraints on the State and the Control (supervised by Fredi Tröltzsch, TU Berlin)
- 2011 Sabine Repke
Adjoint-Based Optimization Approaches for Stationary Free Surface Flows (supervised by René Pinnau, TU Kaiserslautern)
- 2010 Tyrone Rees
Preconditioning Iterative Methods for PDE Constrained Optimization (supervised by Andy Wathen, University of Oxford)
- 2010 Wolfgang Hess
Geometry Optimization with PDE Constraints and Applications to the Design of Branched Sheet Metal Products (supervised by Stefan Ulbrich, TU Darmstadt)

Master's Theses Supervised

- current Maximilian Bochmann
Finite Element Methods and Iterative Algorithms for Total-Variation Problems
- current Felix Maschke
Constrained Geodesic Regression on Manifolds
- 2018 Robin Herz
Optimal Experimental Design for Bayesian Inversion (together with Oliver Ernst)
- 2018 Hatice Tavli
Variable Metric Bundle Methods for Non-Smooth Non-Convex Optimization Problems
- 2017 Marcus Pelz
Markov Based Prediction of Driving Manoeuvres using Reinforcement Learning
- 2017 Luca Landwehrjohann
Variational Problems with Convexity Constraints (supervised by Gerd Wachsmuth)
- 2017 Annemarie Kühn
Modelling the Dependency Structure of a Portfolio and Impact on Risk Measures (supervised by Dana Uhlig)

- 2017 Friedrich Salzer
Parameter Optimization for Flow Chart Based Acyclic Simulation Models
- 2017 Felix Lacher
Stability of the Semi-Smooth Newton Method (supervised by Gerd Wachsmuth)
- 2017 Florian Modrzik
Text Mining — Presentation of Various Classifiers and their Application to the Assessment of the Ideological Quality of Texts (together with the professorship Wirtschaftsinformatik I)
- 2017 Robert Schiffmann
Error Compensation in Auxiliary Drives of Machine Tools with Rotating Tools
- 2017 Alexander Köwitsch
Shape Optimization of Measurement Devices for Identification Problems in Stationary Fluid Flow
- 2016 Sandy Bitterlich
Numerical Methods for the Solution of Support Vector Machines
- 2016 Nadine Erath
Adapting Distributions in Household Insurance Premium Modelling
- 2016 Toni Kowalewitz
Numerical Methods of Option Pricing in Jump Markets
- 2016 Hussain Obaid
Identification Problems in Heat Conducting Networks
- 2016 Saber Jalilzadeh-Galaeh
Identification of the Topology of Heat Conducting Networks (A Comparison between Continuous and Discrete Optimization Techniques)
- 2015 Christina Schubert
The Traveling Salesman Problem with Range Constraints
- 2015 Tobias Hofmann
Dynamic Price Optimization in E-Commerce
- 2015 [Martin Uhlmann](#)
Dynamic Valve Train Simulation for Four-Cylinder, Four-Stroke Engines (together with the professorship Advanced Powertrains)
- 2014 Martin Uhlig
Optimum Experimental Design for Parameter Identification and Model Discrimination
- 2014 [Stephan Schleicher](#)
Shape Optimization Problems in FEniCS
- 2014 Robert Schaffrath
Calculus of Variations Problems under Convexity Constraints (supervised by Gerd Wachsmuth)
- 2014 Jörn Richter
Modeling of Heat Transfer in the Air Gap of Electrical Machines (together with the professorship Elektrische Energiewandlungssysteme und Antriebe)
- 2014 Niklas Nostitz
Simulation of Contact Forces under the Influence of Adhesion and Surface Roughness
- 2014 Michael Heinz
Parameter Identification for Yield Surfaces in Plane Stress Situations (supervised by Rene Schneider and Gerd Wachsmuth)
- 2013 Stephan Schlömer
Optimal Control of Planned Trajectories

- 2013 [Christopher Robert Pech](#)
Quality and Stability Assessment of Dynamic Object Recognition in Monocular Fish Eye Cameras under Egomotion (together with [intenta GmbH](#))
- 2013 Marcel Nicklas
A Trajectory Planner for Highly Automatic Driving in Dynamic Traffic Environments (together with [IAV GmbH](#))
- 2013 [Rolf Springer](#)
Solution of Hamilton-Jacobi-Bellman Equations on Sparse Grids
- 2013 [Felix Ospald](#)
Implementation of Geometric Multigrid in FEniCS
- 2013 Jens Müller
Methods for Statistical Design of Experiments and Simulation with Applications in Engine Development (together with [IAV GmbH](#))
- 2013 [Jan Blechschmidt](#)
Adaptive Solution of Portfolio Optimization Problems
- 2013 Anna Bauer
Optimization Methods for the Resource Efficient Design of Assembly Lines (together with [Fraunhofer Institute for Machine Tools and Forming Technology](#))
- 2013 Johannes Obermeier
Optimal Control with Sparsity Structures in Polar Coordinates
- 2013 Philipp Menzel
Geometric Methods for Hamiltonian Systems: Theory and Applications
- 2012 [Tommy Etling](#)
Optimum Experimental Design for the Identification of Heat Transfer Coefficients (together with [Lehrstuhl für Wärme- und Stoffübertragung, RWTH Aachen](#))
- 2012 Sarah Stoppe
Numerical Simulation of Plastic Materials under Large Deformations
- 2012 [Ilka Riedel](#)
Open and Closed Loop Control of the Nonlinear Inverse Pendulum
- 2011 Tom Waldenburger
Intersection of Bézier Curves with Applications in Shape Optimization (supervised by Rene Schneider)
- 2011 [Sandra Hartl](#)
Preconditioned Solvers for Stationary Problems in Magnetohydrodynamics
- 2011 Mario Krüger
Shape Optimization of Material Boundaries in Isothermal, Stationary, Incompressible Fluid Flows in Layered Porous Media (supervised by Rene Schneider)
- 2011 [Susann Mach](#)
Primal-Dual Algorithms for Color Image Restoration Problems
- 2011 Marie Müllner
Implementation of a Three-Dimensional Advection Scheme for the COSMO Dynamical Core (together with [Meteo Schweiz](#))
- 2010 [Judith Will](#)
An Optimal Control Problem in Electromagnetic Induction Heating
- 2010 [Eric Schmidl](#)
Simulation and Parameter Optimization of an Electromagnetic Cloaking Device

- 2010 Stefan Wild
Numerical Simulation of Elasticity in FENICS
- 2009 Katharina Urbach
Optimization of the Velocity Profile for Five-Axis Machine Tools (together with [Chiron AG](#))
- 2009 Carolin Kraft
Convex Bodies of Minimal Resistance
- 2009 [Hansjörg Schmidt](#)
Parallelization of Surrogate-Based Optimization Methods (together with [IAV GmbH](#))
- 2008 [Gerd Wachsmuth](#)
Elliptic Optimal Control Problems with Sparsity Constraints
was awarded the thesis prize of the university 2009 and a prize of the DMV students' conference 2009
- 2008 Silvia Wieser
Numerical Solution of Optimal Control Problems using FENICS
- 2007 [Frank Schmidt](#)
Inexact Newton Methods and their Applications in Solving Semilinear PDEs
was awarded a prize of the Förderverein Mathematik zu Chemnitz
- 2007 [Martin Bernauer](#)
A Robustification Approach in Unconstrained Optimization and its Application in Optimal Control
- 2005 Kerstin Brandes
Robustness of optimal solutions for optimal control problems with PDEs

Bachelor's Theses Supervised

- current Manuel Weiß
Modelling and Numerical Simulation Methods for a Pendulum on a Rope
- current Zihan Wang
Solution Techniques for the Radiosity Equation
- current Renée Dornig
k-Means on Riemannian Manifolds
- current Jan-Philipp Pfaue
Linear Optimization on Manifolds
- 2018 Theresa Wagner
Linear Programming to Determine Extremal Loads in Hybrid Engine Drivetrains
- 2017 Felix Maschke
Approximation of Estimated Domains via Level-Set Method
- 2017 Florian Pasch
Topographical Properties of Least-Squares Functions (together with the professorship Solid Mechanics)
- 2016 Felix Queitzsch
Hidden Markov Decision Processes in Finite Time
- 2016 Luca Landwehrjohann
Method for Optimal Placement of Measurement Times in Time-Dependent Systems
- 2016 Marcus Pelz
Uncertainty Quantification in Optimal Control Problems with ODEs (together with Oliver Ernst)

- 2016 Sophie Henning
Numerical Methods for the Solution of a Mean Field Game
- 2016 Robin Herz
Linear Stochastic Optimization Problems and Applications
- 2015 Sandy Bitterlich
Algorithms for Reinforcement Learning
was awarded a prize of the DMV students' conference 2015
- 2015 Eric Huster
Approximation of Measurement Points by Piecewise Euler Spirals
- 2015 [Eric Legler](#)
Toll Optimization as an MPCC
was awarded a prize of the DMV students' conference 2015
- 2014 Alexander Köwitsch
Optimization of a Frame Structure under Dynamical Loads (supervised by Gerd Wachsmuth)
- 2012 Tamara Giering
Digit Recognition by Support Vector Machines
- 2011 Johannes Obermeier
Globalization Approaches for Optimization Problems with 1-Norm-Objectives
- 2010 Stephan Schlömer
Maximal Overhang

Activities as Organizer

- Jun 2019 Organization of a minisymposium on *Advanced Shape Optimization: Non-smoothness and Time-Dependency*
SIAM Conference on Computational Geometric Design, Vancouver, Canada (together with Stephan Schmidt, Würzburg)
- Jun 2019 Co-organization of an international workshop on *Beyond the Discrete: Iterative Methods from the Continuum Perspective*
Hamilton Mathematics Institute, Dublin, Ireland (together with Kirk Soodhalter, Matthias Bolten, Stefan Güttel, John Pearson, Jennifer Pestana)
- Jul 2018 Organization of a minisymposium on *Optimum Experimental Design*
28th IFIP TC7 Conference, Essen, Germany (together with Ekatarina Kostina, Heidelberg)
- Jun 2018 Organization of a minisymposium on *Images and Finite Elements*
SIAM Conference on Imaging Sciences, Bologna, Italy (together with Stephan Schmidt, Würzburg)
- May 2018 Organization of a minisymposium on *Preconditioning for PDE Constrained Optimization*
SIAM Conference on Applied Linear Algebra, Hong Kong, China (together with John Pearson, Edinburgh)
- Oct 2017 Member of the Scientific Committee for the workshop *Optimization of Infinite Dimensional Non-Smooth Distributed Parameter Systems*
Darmstadt, Germany (2017)
- May 2017 Organization of a minisymposium on *Infinite Dimensional Nonsmooth Optimization*
SIAM Conference on Optimization, Vancouver, Canada (together with Christian Meyer, Dortmund)
- Aug 2016 Organization of a session on *Optimal Control of Coupled Systems*
International Conference on Continuous Optimization, Tokyo, Japan

- Oct 2015 – Member of the Scientific Committee for the conference series *European Conference on present Computational Optimization (EUCCO)*
Leuven, Belgium (2016); Trier, Germany (2018)
- Sep 2015 – Member of the Scientific Committee for the GAMM Annual Meeting
Aug 2017 Ilmenau/Weimar, Germany (2017); Munich, Germany (2018)
- Aug 2014 Organization of the Gene Golub SIAM Summer School 2014 on [Simulation, Optimization, and Identification in Solid Mechanics](#)
Linz, Austria (together with Winnifried Wollner, Esther Klann, Michael Stingl)
- Sep 2013 Organization of a minisymposium on *Stability, Sensitivity and Error Analysis for Optimal Control Problems*
26th IFIP TC7 Conference, Klagenfurt, Austria (together with Arnd Rösch, Duisburg-Essen)
- Jul 2013 Organization of the *3rd European Conference on Computational Optimization (EUCCO)*, 115 participants
Chemnitz, Germany (together with Peter Benner, Michael Hinze, Arnd Rösch, Anton Schiela, Volker Schulz)
- Aug 2012 Organization of a session on *Nonsmooth Phenomena in Optimal Control* and a session on *Preconditioning in PDE-Constrained Optimization*
International Symposium on Mathematical Programming (ISMP), Berlin, Germany
- Mar 2012 Co-organization of a section on *Optimization of Differential Equations*
GAMM Annual Scientific Meeting, Darmstadt, Germany (together with Barbara Kaltenbacher, Klagenfurt)
- Nov 2011 Co-organization of an international workshop on [Optimal Control of Partial Differential Equations](#)
Klaffenbach, Germany (together with Christian Meyer, Darmstadt, and Arnd Rösch, Duisburg-Essen)
- Sep 2011 Organization of a minisymposium on *Optimal Control of Nonlinear PDEs and Variational Inequalities*
25th IFIP TC7, Berlin, Germany (together with Arnd Rösch, Duisburg-Essen)
- Jul 2011 Organization of a minisymposium on *Saddle-Point Problems in Large-Scale Optimization*
ICIAM, Vancouver, Canada (together with Andy Wathen, Oxford, UK)
- Jul 2011 Organization of a minisymposium on *Nonlinear Aspects in Optimal Control*
ICIAM, Vancouver, Canada (together with Arnd Rösch, Duisburg-Essen)
- May 2011 Organization of a minisymposium on *Preconditioning in PDE-Constrained Optimization*
SIAM Conference on Optimization, Darmstadt, Germany (together with Martin Stoll, Magdeburg)
- Apr 2011 Organization of a minisymposium on *Sparsity in Inverse Problems and Optimal Control*
GAMM Annual Scientific Meeting, Graz, Austria (together with Dirk Lorenz, Braunschweig)
- Jul 2009 Organization of a minisymposium on *Stability, Sensitivity and Error Analysis for Optimal Control Problems*
24th IFIP TC7 Conference, Buenos Aires, Argentina (together with Arnd Rösch, Duisburg-Essen, and Fredi Tröltzsch, Berlin)
- Apr 2008 Co-organization of a section on *Flow Control*
GAMM Annual Scientific Meeting, Bremen, Germany (together with Andre Thess, Ilmenau)

- Jul 2007 Organization of a minisymposium on *PDE-Constrained Optimization: Numerical Analysis and Scientific Computing*, sponsored by the SIAM Activity Group on Optimization
ICIAM, Zurich, Switzerland (together with Arnd Rösch, Duisburg-Essen)
- Feb 2006 Organization of a special session on *Optimal Control of Applications described by DAEs/PDEs/PDAEs*
MATHMOD, Vienna, Austria (together with Kurt Chudej, Bayreuth)
- Oct 2005 Co-organization of a section on *Control and Optimization Problems in Mechanics* within the Special Semester on Computational Mechanics
RICAM, Linz, Austria (together with Karl Kunisch, Graz, Austria, Ekkehard Sachs, Trier, and Boris Vexler, Linz, Austria)
- May 2005 Organization of a minisymposium on *Numerical Methods in PDE-Constrained Optimization*
SIAM Meeting on Optimization, Stockholm, Sweden (together with Stefan Volkwein, Graz, Austria)
- Mar 2005 Organization of a Young Researchers' Minisymposium on *Computational Optimization with Differential Equations*
GAMM Annual Scientific Meeting, Luxembourg (together with Andrea Walther, Dresden)

Editorial Activities

- Jul 2018 – Editorial board member for *SMAI Journal of Computational Mathematics*
present
- Jan 2018 – Editorial board member for *SIAM Journal on Control and Optimization*
present
 - 2017 Guest editor for *GAMM Reports 40(3–4)*, special issue on *Nonsmooth Models in Continuum Mechanics—Analysis and Optimization*
jointly with Dorothee Knees, Kassel and Christian Meyer, Dortmund
- Jan 2016 – Editorial board member for *SIAM Journal on Numerical Analysis*
present
- Nov 2015 – Editorial board member for *Journal of Optimization Theory and Applications*
present
- Jan 2014 – Editorial board member for *Electronic Transactions on Numerical Analysis*
present
 - 2013 Guest editor for *Computational Optimization and Applications*, special issue associated with the *3rd European Conference on Computational and Applied Mathematics (EUCCO), Chemnitz, Germany*
jointly with Peter Benner, Magdeburg, Michael Hinze, Hamburg, Arnd Rösch, Duisburg-Essen, Anton Schiela, Berlin, and Volker Schulz, Trier
- Nov 2012 – Co-Founder of and editorial board member for the *OPTPDE Problem Collection*
present
- Jun 2012 – Editorial board member for *Optimization Methods and Software*
present
 - 2011 Guest editor for *Control & Cybernetics*, special issue on the occasion of the 60th birthday of Prof. Fredi Tröltzsch
jointly with Christian Meyer, Dortmund, Arnd Rösch, Duisburg-Essen, and Jan Sokolowski, Nancy

Manuscripts Refereed for Journals

My peer reviewing activities can also be found on [Publons](#).

Applicable Analysis
Applied Mathematics and Optimization
Applied Numerical Mathematics (2x)
Advances in Computational Mathematics
Arabian Journal for Science and Engineering
Calcolo
Communications in Mathematical Sciences
Computational and Applied Mathematics (3x)
Computational Methods in Applied Mathematics (2x)
Computational Optimization and Applications (8x)
Computers and Fluids
Control and Cybernetics (2x)
Electronic Transactions on Numerical Analysis (2x)
ESAIM Control, Optimisation and Calculus of Variations (2x)
European Journal of Applied Mathematics
GAMM Mitteilungen
IEEE Transactions on Automatic Control
IET Systems Biology
IMA Journal on Numerical Analysis (3x)
IMA Journal of Mathematical Control and Information
International Journal of Computer Mathematics (2x)
International Journal for Numerical Methods in Engineering
Inverse Problems (7x)
Inverse Problems and Imaging
Journal of Applied Mathematics and Mechanics (6x)
Journal of Computational Mathematics
Journal of Computational Physics
Journal of Differential Equations
Journal of Industrial and Management Optimization (2x)
Journal of Mathematical Analysis and Applications
Journal of Optimization Theory and Applications (7x)
Journal of Scientific Computing (4x)
Mathematical and Computer Modelling of Dynamical Systems (2x)
Mathematical Control and Related Fields (3x)
Mathematical Methods in the Applied Sciences (2x)
Mathematical Programming
Mathematical Programming Computation
Nonlinear Analysis: Real World Applications
Nonlinear Analysis: Modelling and Control
Numerical Algorithms (2x)
Numerische Mathematik
Optimization (3x)
Optimization and Engineering
Optimization Methods and Software (4x)
Optimal Control Applications and Methods
Pure and Applied Functional Analysis
SIAM Journal on Control and Optimization (10x)

SIAM Journal on Matrix Analysis and Applications
SIAM Journal on Numerical Analysis (2x)
SIAM Journal on Optimization (9x)
SIAM Journal on Scientific Computing (8x)

Publications

Publications in Journals

1. R. BERGMANN AND R. HERZOG: *Intrinsic formulation of KKT conditions and Constraint Qualifications on Smooth Manifolds*, SIAM Journal on Optimization, to appear
2. M. HERRMANN, R. HERZOG, S. SCHMIDT, J. VIDAL-NÚÑEZ AND G. WACHSMUTH: *Discrete Total Variation with Finite Elements and Applications to Imaging*, Journal of Mathematical Imaging and Vision 61(4), 411–431, 2019
3. R. HERZOG, J. PEARSON AND M. STOLL: *Fast Iterative Solvers for an Optimal Transport Problem*, Advances in Computational Mathematics, 45(2), 495–517, 2019
4. R. HERZOG, I. RIEDEL AND D. UCIŃSKI: *Optimal Sensor Placement for Joint Parameter and State Estimation Problems in Large-Scale Dynamical Systems with Applications to Thermo-Mechanics*, Optimization and Engineering, 19(3), 591–627, 2018
5. S.-J. KIMMERLE, M. GERDTS AND R. HERZOG: *An Optimal Control Problem for a Rotating Elastic Crane-Trolley-Load System*, IFAC Papers Online, 51(2), p.272–277, 2018
6. R. HERZOG AND A. STÖTZNER: *Hadamard Differentiability of the Solution Map in Thermoviscoplasticity*, Pure and Applied Functional Analysis, to appear
7. P. BENNER, R. HERZOG, N. LANG, I. RIEDEL AND J. SAAK: *Comparison of Model Order Reduction Methods for Optimal Sensor Placement for Thermo-Elastic Models*, Engineering Optimization, 51(3), p.465–483, 2019
8. T. ETLING AND R. HERZOG: *Optimum Experimental Design by Shape Optimization of Specimens in Linear Elasticity*, SIAM Journal on Applied Mathematics, 78(3), p.1553–1576, 2018
9. M. HERRMANN, R. HERZOG, H. KRÖNER, S. SCHMIDT AND J. VIDAL-NÚÑEZ: *Analysis and an Interior Point Approach for TV Image Reconstruction Problems on Smooth Surfaces*, SIAM Journal on Imaging Sciences, 11(2), p.889–922, 2018
10. S.-J. KIMMERLE, M. GERDTS AND R. HERZOG: *Optimal Control of an Elastic Crane-Trolley-Load System—A Prototype for Optimal Control of Coupled ODE-PDE Systems*, Mathematical and Computer Modeling of Dynamical Systems, 24(2), p.182–206, 2018
11. R. HERZOG AND K. SOODHALTER: *A modified implementation of MINRES to monitor residual subvector norms for block systems*, SIAM Journal on Scientific Computing, 39(6), p.A2645–A2663, 2017
12. R. HERZOG AND W. WOLLNER: *A Conjugate Direction Method for Linear Systems in Banach Spaces*, Journal of Inverse and Ill-Posed Problems, 25(5), p.553–572, 2017
13. R. HERZOG, C. MEYER AND A. STÖTZNER: *Existence of Solutions of a Thermoviscoplastic Model and Associated Optimal Control Problems*, Nonlinear Analysis: Real World Applications, 35, p.75–101, 2017

14. R. HERZOG AND F. OSPALD: *Parameter Identification for Short Fiber-Reinforced Plastics using Optimal Experimental Design*, International Journal for Numerical Methods in Engineering, 110(8), p.702–725, 2017
15. J.C. DE LOS REYES, R. HERZOG AND C. MEYER: *Optimal Control of Static Elastoplasticity in Primal Formulation*, SIAM Journal on Control and Optimization, 54(6), p.3016–3039, 2016
16. J. MERGER, A. BORZÌ AND R. HERZOG: *Optimal Control of a System of Reaction-Diffusion Equations Modeling the Wine Fermentation Process*, Optimal Control Applications and Methods, 38(1), p.112–132, 2017
17. R. HERZOG AND S. MACH: *Preconditioned Solution of State Gradient Constrained Elliptic Optimal Control Problems*, SIAM Journal on Numerical Analysis 54(2), p.688–718, 2016
18. A. GÜNNEL AND R. HERZOG: *Optimal Control Problems in Finite Strain Elasticity by Inner Pressure and Fiber Tension*, Frontiers in Applied Mathematics and Statistics 2(4), 2016
19. E. CASAS, R. HERZOG AND G. WACHSMUTH: *Analysis of Spatio-Temporally Sparse Optimal Control Problems of Semilinear Parabolic Equations*, ESAIM Control, Optimisation and Calculus of Variations 23(1), p.263–295, 2017
20. R. HERZOG AND E. SACHS: *Superlinear Convergence of Krylov Subspace Methods for Self-Adjoint Problems in Hilbert Space*, SIAM Journal on Numerical Analysis 53(3), p.1304–1324, 2015
21. R. HERZOG, J. OBERMEIER AND G. WACHSMUTH: *Annular and Sectorial Sparsity in Optimal Control of Elliptic Equations*, Computational Optimization and Applications 62(1), p.157–180, 2015
22. R. HERZOG AND I. RIEDEL: *Sequentially Optimal Sensor Placement in Thermoelastic Models for Real Time Applications*, Optimization and Engineering 16(4), p.737–766, 2015
23. A. GÜNNEL, R. HERZOG AND E. SACHS: *A Note on Preconditioners and Scalar Products in Krylov Subspace Methods for Self-Adjoint Problems in Hilbert Space*, Electronic Transactions on Numerical Analysis 41, p.13–20, 2014
24. R. HERZOG, C. MEYER AND G. WACHSMUTH: *B- and Strong Stationarity for Optimal Control of Static Plasticity with Hardening*, SIAM Journal on Optimization 23(1), p.321–352, 2013
25. R. HERZOG, K. KUNISCH AND J. SASS: *Primal-Dual Methods for the Computation of Trading Regions under Proportional Transaction Costs*, Mathematical Methods of Operations Research 77(1), p.101–130, 2013
26. R. HERZOG, C. MEYER AND G. WACHSMUTH: *C-Stationarity for Optimal Control of Static Plasticity with Linear Kinematic Hardening*, SIAM Journal on Control and Optimization 50(5), p.3052–3083, 2012
27. E. CASAS, R. HERZOG AND G. WACHSMUTH: *Approximation of Sparse Controls in Semilinear Equations by Piecewise Linear Functions*, Numerische Mathematik 122(4), p.645–669, 2012
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29. R. HERZOG, G. STADLER AND G. WACHSMUTH: *Directional Sparsity in Optimal Control of Partial Differential Equations*, SIAM Journal on Control and Optimization 50(2), p.943–963, 2012

30. M. BERNAUER AND R. HERZOG: *Implementation of an X-FEM Solver for the Classical Two-Phase Stefan Problem*, Journal of Scientific Computing 52(2), p.271–293, 2012
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35. M. BERNAUER AND R. HERZOG: *Optimal Control of the Classical Two-Phase Stefan Problem in Level Set Formulation*, SIAM Journal on Scientific Computing, 33(1), p.342–363, 2011
36. R. HERZOG AND K. KUNISCH: *Algorithms for PDE-Constrained Optimization*, GAMM Reports 33(2), p.163–176, 2010
37. R. HERZOG AND E. SACHS: *Preconditioned Conjugate Gradient Method for Optimal Control Problems with Control and State Constraints*, SIAM Journal on Matrix Analysis and Applications, 31(5), p.2291–2317, 2010
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39. M. BERNAUER AND R. GRIESSE: *A Robustification Approach in Unconstrained Quadratic Optimization*, Mathematical Programming Series A, 128(1–2), p.231–252, 2009
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44. R. GRIESSE AND D. WACHSMUTH: *Sensitivity Analysis and the Adjoint Update Strategy for Optimal Control Problems with Mixed Control-State Constraints*, Computational Optimization and Applications, 44(1), p.57–81, 2009
45. R. GRIESSE AND D. LORENZ: *A Semismooth Newton Method for Tikhonov Functionals with Sparsity Constraints*, Inverse Problems, 24(3), 035007 (19pp), 2008 (elected one of the Highlights 2008 by the editorial board)

46. J.C. DE LOS REYES AND R. GRIESSE: *State-Constrained Optimal Control of the Three-Dimensional Stationary Navier-Stokes Equations*, Journal of Mathematical Analysis and Applications, 343(1), p.257–272, 2008
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49. K. BRANDES AND R. GRIESSE: *Quantitative Stability Analysis of Optimal Solutions in PDE-Constrained Optimization*, Journal of Computational and Applied Mathematics, 206(2), p.809–826, 2007
50. R. GRIESSE AND B. VEXLER: *Numerical Sensitivity Analysis for the Quantity of Interest in PDE-Constrained Optimization*, SIAM Journal on Scientific Computing, 29(1), p.22–48, 2007
51. R. GRIESSE AND K. KUNISCH: *Optimal Control for a Stationary MHD System in Velocity-Current Formulation*, SIAM Journal on Control and Optimization, 45(5), p.1822–1845, 2006
52. A. BORZÌ AND R. GRIESSE: *Distributed Optimal Control of Lambda-Omega Systems*, Journal of Numerical Mathematics 14(1), p.17–40, 2006
53. R. GRIESSE: *Lipschitz Stability of Solutions to Some State-Constrained Elliptic Optimal Control Problems*, Journal of Analysis and its Applications, 25(4), p.435–444, 2006
54. R. GRIESSE, M. HINTERMÜLLER AND M. HINZE: *Differential Stability of Control Constrained Optimal Control Problems for the Navier-Stokes Equations*, Numerical Functional Analysis and Optimization 26(7–8), p.829–850, 2005
55. C. BÜSKENS AND R. GRIESSE: *Parametric Sensitivity Analysis of Perturbed PDE Optimal Control Problems with State and Control Constraints*, Journal of Optimization Theory and Applications 131(1), p.17–35, 2006
56. A. BORZÌ AND R. GRIESSE: *Experiences with a Space-Time Multigrid Method for the Optimal Control of a Chemical Turbulence Model*, International Journal for Numerical Methods in Fluids 47(8–9), p.879–885, 2005
57. R. GRIESSE AND S. VOLKWEIN: *A Primal-Dual Active Set Strategy for Optimal Boundary Control of a Reaction-Diffusion System*, SIAM Journal on Control and Optimization 44(2), p.467–494, 2005
58. R. GRIESSE: *Parametric Sensitivity Analysis in Optimal Control of a Reaction-Diffusion System—Part I: Solution Differentiability*, Numerical Functional Analysis and Optimization 25(1–2), p.93–117, 2004
59. R. GRIESSE: *Parametric Sensitivity Analysis in Optimal Control of a Reaction-Diffusion System—Part II: Practical Methods and Examples*, Optimization Methods and Software 19(2), p.217–242, 2004
60. R. GRIESSE AND A. WALTHER: *Parametric Sensitivities for Optimal Control Problems using Automatic Differentiation*, Optimal Control Applications and Methods 24(6), p.297–314, 2003
61. R. GRIESSE AND A. WALTHER: *Evaluating Gradients in Optimal Control — Continuous Adjoints versus Automatic Differentiation*, Journal of Optimization Theory and Applications 122(1), p.63–86, 2004

Submitted Publications and Preprints

62. R. BERGMANN, M. HERRMANN, R. HERZOG, S. SCHMIDT, J. VIDAL-NÚÑEZ: *Total Variation of the Normal Vector Field as Shape Prior with Applications in Geometric Inverse Problems*
63. T. ETLING, R. HERZOG, E. LOAYZA AND G. WACHSMUTH: *First and Second Order Shape Optimization based on Restricted Mesh Deformations*
64. T. ETLING, R. HERZOG AND M. SIEBENBORN: *Optimum Experimental Design for Interface Identification Problems*

Book Chapters

65. J. BLECHSCHMIDT AND R. HERZOG: *Improving Policies for Hamilton-Jacobi-Bellman Equations by Postprocessing*, in: *De Gruyter Radon Series on Computational and Applied Mathematics*, 2018
66. C. NAUMANN, I. RIEDEL, U. PRIBER AND R. HERZOG: *Correction Algorithms and High-Dimensional Characteristic Diagrams*, in: *Thermo-energetic Design of Machine Tools, Lecture Notes in Production Engineering*, p.159–174, Springer, Berlin, 2015
67. R. HERZOG, C. MEYER AND G. WACHSMUTH: *Optimal Control of Elastoplastic Processes: Analysis, Algorithms, Numerical Analysis and Applications*, in: *Trends in PDE Constrained Optimization*, Volume 165 of *International Series of Numerical Mathematics*, p.27–41, Springer, Berlin, 2014
68. R. HERZOG, A. RÖSCH, S. ULBRICH AND W. WOLLNER: *OPTPDE: A Collection of Problems in PDE-Constrained Optimization*, in: *Trends in PDE Constrained Optimization*, Volume 165 of *International Series of Numerical Mathematics*, p.539–543, Springer, Berlin, 2014

Publications in Proceedings

69. J. P. BERGMANN, M. BIELENIN, R. HERZOG, J. HILDEBRAND, I. RIEDEL, K. SCHRICKER, C. TRUNK AND K. WORTHMANN: *Prevention of solidification cracking during pulsed laser beam welding*, *Proceedings of the GAMM 2017 Annual Scientific Meeting (PAMM)*, 17(1), p.405–406, 2017
70. F. OSPALD AND R. HERZOG: *Topology Optimization for Injection Molding of Short Fiber-Reinforced Plastics*, *Proceedings of the GAMM 2017 Annual Scientific Meeting (PAMM)*, 17(1), p.337–338, 2017
71. R. HERZOG AND I. RIEDEL: *Optimale Sensorplatzierung und Online-Zustands- und Parameter-Identifikation*, *Proceedings of the 5th Colloquium of SFB/Transregio 96*, 2017
72. R. HERZOG AND K. SOODHALTER: *Iterative Solution of Optimality Systems in Optimal Control*, in: *Adaptive Methods for Control Problems Constrained by Time-Dependent PDEs, Control and Analysis for Interfaces and Free Boundaries*, Report No. 01/2017, Oberwolfach Reports 14(1), 2017
73. F. OSPALD AND R. HERZOG: *SIMP Based Topology Optimization for Injection Molding of SFRPs*, *Proceedings of the World Congress on Structural and Multidisciplinary Optimization*, p.850–861, 2017
74. F. OSPALD AND R. HERZOG: *Optimal Experimental Design to Identify the Average Stress-Strain Response in Short Fiber-Reinforced Plastics*, *Proceedings of the GAMM 2016 Annual Scientific Meeting (PAMM)*, 16(1), p.673–674, 2016
75. J. GLÄNZEL, R. HERZOG, S. IHLENFELDT, A. MEYER AND R. UNGER: *Simulation-based correction approach for thermo-elastic workpiece deformations during milling process*, *Proceedings of the 7th HPC 2016 — CIRP Conference on High Performance Cutting*, *Procedia CIRP*, 46, p.103–106, 2016

76. R. HERZOG, I. RIEDEL, B. KAUSCHINGER AND S. SCHROEDER: *Parameteridentifikation in thermo-elastischen Systemen*, Proceedings of the 4th Colloquium of SFB/Transregio 96, 2016
77. S. HANNUSCH, R. HERZOG, M. HOFMANN, J. IHLEMANN, L. KROLL, A. MEYER, F. OSPALD, G. RÜNGER, R. SPRINGER, M. STOCKMANN AND L. ULKE-WINTER: *Efficient Simulation, Optimization, and Validation of Lightweight Structures*, Proceedings of the 2nd International MERGE Technologies Conference for Lightweight Structures (IMTC 2015), Chemnitz, 2015
78. R. HERZOG AND I. RIEDEL: *Comparison of Two Suboptimal Sensor Placement Strategies in Thermo-Elastic Models*, Proceedings of the GAMM 2014 Annual Scientific Meeting (PAMM), 14(1), p.881–882, 2014
79. A. GÜNNEL AND R. HERZOG: *Optimal Control of Large Deformation Elasticity by Fiber Tension*, Proceedings of the GAMM 2014 Annual Scientific Meeting (PAMM), 14(1), p.879–880, 2014
80. R. HERZOG AND O. RHEINBACH: *Scalability of a FETI-DP Method for Optimal Control Problems*, Proceedings of the GAMM 2014 Annual Scientific Meeting (PAMM), 14(1), p.837–838, 2014
81. R. HERZOG AND O. RHEINBACH: *FETI-DP Methods for Optimal Control Problems*, in: Domain Decomposition Methods in Science and Engineering XXI, Rennes, France, June 25–29, 2012, Volume 98 of *Lecture Notes in Computational Science and Engineering*, Springer, Berlin, 2014
82. E. CASAS, R. HERZOG AND G. WACHSMUTH: *Approximation of Sparse Controls in Semilinear Elliptic Equations*, in: Large-Scale Scientific Computing, Proceedings of the 8th International Conference *Large-Scale Scientific Computing*, Sozopol, Bulgaria, June 6–10, 2011, Volume 7116 of *Lecture Notes in Computer Science*, Springer, Berlin, 2012
83. M. BERNAUER, R. HERZOG AND K. KUNISCH: *Optimal Control of the Two-Phase Stefan Problem in Level Set Formulation*, in: New Directions in Simulation, Control and Analysis for Interfaces and Free Boundaries, Report No. 07/2010, Oberwolfach Reports 7(1), 2010
84. R. GRIESSE AND K. KUNISCH: *A Semismooth Newton Method for Solving Elliptic Equations with Gradient Constraints*, in: Optimal Control of Coupled Systems of PDE, Report No. 13/2008, Oberwolfach Reports 5(1), p.603–605, 2008
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86. R. GRIESSE AND A.J. MEIR: *Modeling of an MHD Free Surface Problem Arising in CZ Crystal Growth*, in: Proceedings of the 5th IMACS Symposium on Mathematical Modelling (5th MATHMOD), I. Troch, F. Breitenecker (eds), ARGESIM Report 30, Vienna, 2006
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89. R. GRIESSE AND S. VOLKWEIN: *Parametric Sensitivity Analysis for Optimal Boundary Control of a 3D Reaction-Diffusion System*, in: Large-Scale Nonlinear Optimization, G. Di Pillo, M. Roma (eds), Proceedings of the Workshop *Large Scale Nonlinear Optimization*, Erice, 2004, Volume 83 of *Nonconvex Optimization and its Applications*, Springer, Berlin, 2006

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91. R. GRIESSE AND A. WALTHER: *Using AD-generated Derivatives in Optimal Control of an Industrial Robot*, in: Progress in Industrial Mathematics at ECMI 2002, Volume 5, p.127–132, 2004
92. R. GRIESSE: *A Reduced SQP Algorithm for the Optimal Control of Semilinear Parabolic Equations — and its Application to Reaction-Diffusion Systems*, in: Proceedings of the 20th IFIP TC7 Conference, p.239–253, 2003
93. R. GRIESSE: *Some Aspects for Instantaneous Boundary Control of Backward-facing Step Flow*, in: Proceedings of the GAMM 2000 Annual Scientific Meeting, Zeitschrift für Angewandte Mathematik und Mechanik 81 (S2), p.251–252, 2001

Further Documents

94. R. HERZOG, C. MEYER AND G. WACHSMUTH: *Optimale Steuerung in der Elastoplastizität*, GAMM-Rundbrief 02/2012, p.16–20, 2012
95. R. GRIESSE: *Stability and Sensitivity Analysis in Optimal Control of Partial Differential Equations*, Cumulative Habilitation Thesis, Karl Franzens University Graz, Austria, 2008
96. R. GRIESSE: *The RICAM Information Leaflet* (Information for Incoming Ph.D. Students, Postdocs, and Visiting Scientists), 2005
97. R. GRIESSE: *Parametric Sensitivity Analysis for Control-Constrained Optimal Control Problems Governed by Systems of Parabolic Partial Differential Equations*, Dissertation, University of Bayreuth, 2003
98. R. GRIESSE: *Optimale und suboptimale Steuerung der Navier-Stokes-Gleichungen* (in German), Diploma Thesis, TU Clausthal, 1999

Presentations

Invited/Plenary Conference Talks

1. *Optimization and Inverse Problems on Manifolds*, Workshop on Numerical Methods for Optimal Control and Inverse Problems (OCIP), Munich, Germany, March 2019
2. *Total Variation Image Reconstruction on Surfaces*, 4th Conference on Optimization Methods and Software, Havana, Cuba, December 2017
3. *Preconditioning Techniques for Nonlinear Optimal Control Problems*, Austrian Numerical Analysis Days, Linz, Austria, May 2015
4. *Optimal Control of Static Elastoplasticity in Primal and Dual Formulations*, Workshop on Modeling, Analysis and Computing in Nonlinear PDEs, Chateau Liblice, Czech Republic, September 2014
5. *PDE-Constrained Optimization — A Linear Algebra Perspective*, SIAM Conference on Applied Linear Algebra, Valencia, Spain, June 2012
6. *On Optimal Control Problems with Sparsity Terms*, SIGOPT International Conference on Optimization, Lambrecht, Germany, June 2011
7. *Semismooth Newton Methods for Portfolio Optimization Problems*, 1st Latin American Workshop on Optimization and Control, Quito, Ecuador, July 2008

8. *Stability and Sensitivity Analysis in PDE-Constrained Optimization*, Czech-French-German Conference on Optimization, Heidelberg, Germany, September 2007
9. *Optimal Control Challenges in Magnetohydrodynamics*, Simposium Internacional de Optimización y Ecuaciones Diferenciales, Universidad Autónoma de Aguascalientes, Mexico, April 2007
10. *Finite Elements for Magnetohydrodynamics and its Optimal Control*, FEM Symposium, Chemnitz, September 2006
11. *Optimal Control in Magnetohydrodynamics*, New Trends in Simulation and Control of PDEs, WIAS, Berlin, September 2005

Conference Talks in Minisymposia

12. *Total variation of the normal as a prior in geometric inverse problems*, GAMM Annual Scientific Meeting, Vienna, Austria, February 2019
13. *Intrinsic KKT Conditions on Smooth Manifolds*, EUCCO, Trier, Germany, September 2018
14. *An Optimum Experimental Design Problem for Interface Identification*, IFIP TC7 Conference, Essen, Germany, July 2018
15. *Discrete Total Variation with Finite Elements*, SIAM Conference on Imaging Sciences, Bologna, Italy, June 2018
16. *Total Variation Image Reconstruction on Smooth Surfaces*, SIAM Conference on Optimization, Vancouver, Canada, May 2017
17. *Solution of Structured Saddle-Point Systems with Applications in Optimal Control*, EUCCO, Leuven, Belgium, August 2016
18. *Formulations and Algorithms for Continuous Optimum Experimental Design Revisited*, EUCCO, Leuven, Belgium, August 2016
19. *Solution of Structured Saddle-Point Systems with Minres*, ICCOPT, Tokyo, Japan, August 2016
20. *A Conjugate Direction Method for Linear Systems in Banach Space*, European Congress of Mathematics, Berlin, Germany, July 2016
21. *Preconditioned Solution of Nonlinear Optimal Control Problems by Trust-Region SQP Methods*, DMV Annual Meeting, Hamburg, September 2015
22. *First- and Second-Order Optimality Conditions for Optimal Control Problems with Directional Sparsity Constraints*, AIMS, Madrid, Spain, July 2014
23. *Optimal Control of Elastoplastic Processes*, 21st International Symposium on Mathematical Programming (ISMP), Berlin, Germany, August 2012
24. *On the Preconditioning of Linear Systems arising in Trust-Region Methods*, GAMM Annual Scientific Meeting, Darmstadt, Germany, March 2012
25. *Analysis of an Elliptic Control Problem with Non-Differentiable Cost Functional*, ICIAM 2011, Vancouver, Canada, July 2011
26. *A Preconditioned Conjugate Gradient Method for Optimal Control Problems with Control and State Constraints*, SIAM Conference on Optimization, Darmstadt, Germany, May 2011

27. *A Preconditioned Conjugate Gradient Method for Optimal Control Problems with Control and State Constraints*, 2nd IMA Conference on Numerical Linear Algebra and Optimisation, Birmingham, UK, September 2010
28. *Optimal Control Problems with Directional Sparsity*, IFIP TC7 (System Modelling and Optimization), Buenos Aires, Argentina, August 2009
29. *An SQP Method for Semilinear Optimal Control Problems with Mixed Constraints*, ENUMATH 2007, Graz, Austria, September 2007
30. *Update Strategies for Perturbed Nonsmooth Equations*, IFIP TC7 (System Modelling and Optimization), Cracow, Poland, July 2007
31. *KKT Systems in Optimal Control of Magnetohydrodynamics*, ICIAM 2007, Zurich, Switzerland, July 2007
32. *Mathematical Methods in MHD Flow Control*, GAMM Annual Scientific Meeting (within ICIAM), Zurich, Switzerland, July 2007
33. *Elliptic Optimal Control Problems with Mixed Constraints*, DMV Annual Meeting, Bonn, September 2006
34. *Preconditioning of Linear Systems Arising in the Optimal Control of Magnetohydrodynamics*, GAMM-SIAM Conference on Applied Linear Algebra, Düsseldorf, Germany, July 2006
35. *Optimal Control in Magnetohydrodynamics*, MAFELAP, Uxbridge, Great Britain, June 2006
36. *Postcorrection Strategies for Perturbed Nonsmooth Equations*, High Performance Scientific Computing, Hanoi, Vietnam, March 2006
37. *Modeling of an MHD Free Surface Problem Arising in CZ Crystal Growth*, MATHMOD Vienna, Austria, February 2006
38. *Optimal Control in Magnetohydrodynamics*, ÖMG/DMV (Austrian/German Mathematical Society) Annual Meeting, Klagenfurt, September 2005
39. *Optimal Control in Magnetohydrodynamics*, IFIP TC7 (System Modelling and Optimization), Turin, Italy, July 2005
40. *Matrix-Free AD-Based Preconditioning of KKT Systems*, GAMM 2005, Luxembourg, March 2005
41. *Parametric Sensitivity Analysis for 3D Reaction-Diffusion Control Problems*, DMV (German Mathematical Society) Annual Meeting, Heidelberg, Germany, September 2004
42. *Parametric Sensitivities for Perturbed Reaction-Diffusion Optimal Control Problems*, EUCCO, Dresden, Germany, March 2004
43. *Post-optimal Parametric Sensitivity Analysis for Control-Constrained Reaction-Diffusion Optimal Control Problems*, SCICADE, Trondheim, Norway, July 2003
44. *Using AD-generated Adjoint in Optimal Control of an Industrial Robot*, Dresden University of Technology, Germany, ECMI (European Consortium of Mathematics in Industry), Jurmala, Latvia, September 2002

Other Conference Talks

45. *SUBMINRES: An Extended Implementation of MINRES to Monitor Residual Subvector Norms*, Workshop Beyond the discrete: iterative methods from the continuum perspective, Dublin, Ireland, June 2019
46. *First and Second Order Shape Optimization Based on Restricted Mesh Deformations*, 11th Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, February 2019
47. *Discrete Total Variation with Finite Elements*, FEM Symposium, Chemnitz, Germany, September 2018
48. *GMRES in the ℓ_∞ -Norm*, SIAM Conference on Applied Linear Algebra, Hong Kong, May 2018
49. *On Optimal Control Problems in Thermoelastoplasticity*, Workshop: Challenges in Optimal Control of Nonlinear PDE-Systems, Oberwolfach, Germany, April 2018
50. *Discrete Total Variation with Finite Elements and Applications in Imaging, Inverse Problems and Optimal Control*, GAMM Annual Scientific Meeting, Munich, Germany, March 2018
51. *An Introduction to Differential Geometry*, 10th Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, February 2018
52. *Preconditioned GMRES Revisited*, International Conference on Preconditioning Techniques for Scientific and Industrial Applications, Vancouver, Canada, July 2017
53. *SUBMINRES: An Extended Implementation of MINRES to Monitor Residual Subvector Norms*, Cascade Rain Meeting, Vancouver, Canada, April 2017
54. *Preconditioned GMRES Revisited*, GAMM Annual Scientific Meeting, Weimar, Germany, March 2017
55. *Preconditioned GMRES revisited with an introduction of Krylov subspace methods*, 9th Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, February 2017
56. *Iterative Solution of Optimality Systems in Optimal Control*, Workshop: Adaptive Methods for Control Problems Constrained by Time-Dependent PDEs, Oberwolfach, Germany, January 2017
57. *Postprocessing for Finite Element Solutions of HJB Equations*, Workshop Numerical methods for Hamilton-Jacobi equations in optimal control and related fields, RICAM Linz, Austria, November 2016
58. *Solution of structured saddle-point systems with applications in optimal control*, IFIP Workshop Optimal Control meets Inverse Problems, Essen, Germany, September 2016
59. *Optimum Experimental Design by Shape Optimization of Specimens in Linear Elasticity*, GAMM Annual Scientific Meeting, Braunschweig, Germany, March 2016
60. *Solution of structured saddle-point systems using Minres: residuals, energies, physics, and preconditioning*, 8th Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, February 2016
61. *A Conjugate Direction Method for Linear Systems in Banach Spaces*, FEM Symposium, Burgstädt, Germany, September 2015
62. *Hamilton-Jacobi-Bellman Quasi-Variational Inequalities in Portfolio Optimization and their Discretization by Finite Elements*, Workshop From Open to Closed Loop Control, Graz, Austria, June 2015

63. *A Conjugate Direction Method in Banach Space*, 7th Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, February 2015
64. *Preconditioning of Trust-Region SQP Methods in PDE-Constrained Optimization*, Workshop of GAMM activity group on optimization with PDE constraints, Dortmund, Germany, September 2014
65. *Optimal Control Problems with Sparsity Constraints*, Workshop of MPI Magdeburg, Ringberg Castle, Germany, June 2014
66. *Old and New Convergence Results for Krylov Subspace Methods in Hilbert Space*, GAMM Annual Scientific Meeting, Erlangen, Germany, March 2014
67. *Old and New Convergence Results for Krylov Subspace Methods in Hilbert Space*, DK/RICAM Workshop on PDE-Constrained Optimization, Linz, Austria, March 2014
68. *Old and New Convergence Results for Krylov Subspace Methods in Hilbert Space*, 6th Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, February 2014
69. *An Introduction to Optimum Experimental Design*, Conference of Mathematical Student Bodies of German-Speaking Universities, Chemnitz, Germany, November 2013
70. *On the Preconditioning of Optimal Control Problems with State Gradient Constraints*, International Conference on Preconditioning Techniques for Scientific and Industrial Applications, Oxford, UK, June 2013
71. *Methods of Optimum Experimental Design*, Meeting of the Interest Group on Experiments, SFB/Transregio 96, Aachen, Germany, April 2013
72. *Tools for the Scientific Workflow*, 5th Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, March 2013
73. *Optimum Experimental Design in Heat Transfer Experiments*, Workshop: Numerical Methods for PDE Constrained Optimization with Uncertain Data, Oberwolfach, Germany, January 2013
74. *Optimum Experimental Design for the Determination of Heat Transfer Coefficients*, Colloquium of SFB/Transregio 96, Chemnitz, Germany, October 2012
75. *An Introduction to Optimum Experimental Design*, Summer School of the International Doctorate Program *Identification, Optimization and Control in Technical Applications*, Pommersfelden, Germany, July 2012
76. *Optimal Control Problems with Directional Sparsity Terms*, Workshop on Numerical Methods for Optimal Control and Inverse Problems, Munich, Germany, March 2012
77. *An Introduction to Optimum Experimental Design*, 4th Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, February 2012
78. *Optimality Conditions in Optimal Control of Elastoplasticity*, Workshop on Control and Optimisation of PDEs, Graz, Austria, October 2011
79. *A Priori Error Estimates for an Elliptic Control Problem with Non-Differentiable Cost Functional*, FEM Symposium, Holzgau, Germany, September 2011
80. *On Nonlinear Optimal Control Problems with an L^1 Norm*, Workshop on Inverse Problems and Optimal Control for PDEs, Warwick, UK, May 2011

81. *Krylov Methods in Hilbert Space*, 3rd Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, March 2011
82. *Four Aspects in Optimal Control of PDEs*, Workshop on Optimization, Design and Control, Oxford, UK, September 2010
83. *Regularization and C-Stationarity for an Optimal Control Problem in Static Plasticity*, Workshop on Optimal Control and Partial Differential Equations, Greifswald, Germany, August 2010
84. *Preconditioning of KKT Systems in PDE-Constrained Optimization*, 2nd Chemnitz Seminar on Optimal Control, Haus im Ennstal, Austria, March 2010
85. *Optimal Control of Variational Inequalities in Plasticity*, Annual Meeting of the DFG Priority Program 1253 (Optimization with Partial Differential Equations), Bad Staffelstein, Germany, October 2009
86. *Preconditioned Conjugate Gradient Method for Optimal Control Problems with Control and State Constraints*, FEM Symposium, Oberwiesenthal, Germany, September 2009
87. *Semismooth Newton Methods for Portfolio Optimization*, Workshop Statistics meets Finance and Insurance, Chemnitz, Germany, September 2009
88. *Elliptic Equations with Gradient Constraints*, 15th South East German Colloquium on Numerical Mathematics, Chemnitz, Germany, May 2009
89. *Introduction to Nonlinear Optimization*, 1st Chemnitz Seminar on Optimal Control, Gerlosberg, Austria, March 2009
90. *Optimal Control of Static Plasticity*, Fourth German Polish Conference on Optimization, Moritzburg, Germany, March 2009
91. *Optimal Control Problems with Directional Sparsity*, Workshop: Optimal Control of Coupled PDE Systems, Oberwolfach, Germany, January 2009
92. *A Semismooth Newton Method for Solving Elliptic Equations with Gradient Constraints*, Workshop: Optimal Control of Coupled PDE Systems, Oberwolfach, Germany, March 2008
93. *A Semismooth Newton Method for Tikhonov Functionals with Sparsity Constraints*, Workshop: Hybrid Imaging, Sparsity, and Mathematical Biology, Obergurgl, Austria, January 2008
94. *Optimal Control for MHD Flows*, Colloquium of SFB 609, Schmochtitz, Germany, September 2007
95. *Optimal Boundary Control of Phase Transitions in a Crystal Growth Process*, Workshop: Optimization Methods, Approximation, and Adaptivity in PDE-Constrained Optimization (DFG Priority Program 1253), RICAM Linz, Austria, March 2007
96. *Control Issues in Magnetohydrodynamics*, Miniworkshop: Control of Free Boundaries, Oberwolfach, Germany, February 2007
97. *Optimal Control in Magnetohydrodynamics*, GAMM Annual Scientific Meeting, Berlin, March 2006
98. *Modeling and Optimal Control in Instationary Magnetohydrodynamics*, Workshop: Control of Complex Fluids, Special Semester on Computational Mechanics, RICAM Linz, Austria, October 2005

99. *Optimal Control in Magnetohydrodynamics*, Workshop: Optimal Control of Coupled PDE Systems, Oberwolfach, Germany, April 2005
100. *Parametric Sensitivity Analysis and Applications*, Workshop: Inverse Problems and 1st Austrian Numerical Analysis Day, Obergurgl, Austria, April 2005
101. *Parametric Sensitivity Analysis for a Perturbed 3D Reaction-Diffusion Problem*, Nonlinear Large Scale Optimization, Erice, Italy, June 2004
102. *A Nonlinear Primal-Dual Active Set Method for Optimal Boundary Control of a 3D Reaction-Diffusion Model*, EUCCO, Dresden, Germany, March 2004
103. *Optimal Control of a Reaction-Diffusion Process*, Workshop: Optimization in Partial Differential Equations and Applications, Heidelberg, Germany, October 2002
104. *Optimal Control of Time-dependent Partial Differential Equations with Strict Terminal Conditions*, Workshop: Adjoints — Analysis and Applications, Děčín, Czech Republic, September 2001
105. *Distributed and Neumann Boundary Control of Reaction-Diffusion Equations*, IFIP TC7 (System Modeling and Optimization), Trier, Germany, July 2001
106. *Neumann Boundary Control of Reaction-Diffusion Equations*, SIAM Optimal Control and Applications, San Diego, July 2001
107. *Calculation of Sensitivity Derivatives for Perturbed Parabolic Optimal Control Problems*, Workshop: Stability and Sensitivity of Continuous Control Problems, Burg, Germany, April 2001
108. *An Adaptive POD Algorithm for Optimal Control Problems of the Heat Equation*, Workshop on POD and its applications, Graz, Austria, May 2000
109. *Instantaneous Control of the Navier-Stokes Equations*, GAMM Annual Scientific Meeting 2000, Göttingen, Germany, April 2000

Colloquium and Seminar Talks

110. *Optimization and Inverse Problems on Manifolds*, University of Göttingen, Germany, May 2019
111. *Data-Driven Imaging and Inverse Problems on Manifolds*, University of Edinburgh, UK, March 2019
112. *Families of Finite Elements and Their Applications*, University of Halle, Germany, February 2019
113. *An Introduction to Optimal Experimental Design with PDEs*, TU Darmstadt, Germany, December 2018
114. *An Introduction to Optimization on Manifolds*, Trinity College, Dublin, November 2018
115. *An Introduction to Optimal Experimental Design with PDEs*, University of Stuttgart, Germany, October 2018
116. *Optimal control in thermoelastoplasticity: analysis, numerics, and applications*, University of Erlangen, Germany, January 2018
117. *Analysis and Algorithms for Optimal Control Problems with Sparsity Terms*, Simon Fraser University, Vancouver, Canada, July 2017

118. *Total Variation Image Reconstruction on Smooth Surfaces*, Simula Research Laboratory, Oslo, Norway, May 2017
119. *Total Variation Image Reconstruction on Smooth Surfaces*, SCAIM Seminar, Vancouver, Canada, April 2017
120. *Large-Scale Optimization Problems and Applications*, Colloquium at TU Ilmenau, Germany, December 2016
121. *Optimization Problems with Partial Differential Equations: from Optimal Control via Parameter Estimation to Shape Optimization*, Colloquium at Karlsruhe Institute of Technology, Germany, June 2016
122. *Optimum Experimental Design by Shape Optimization of Specimens in Linear Elasticity*, Colloquium at University of Duisburg-Essen, Germany, February 2016
123. *Numerical Analysis and Efficient Solution for Optimal Control Problems with Sparsity Terms*, Colloquium at University of Augsburg, Germany, January 2016
124. *Function Space Aspects of Optimal Control Problems*, Colloquium at DTU Lyngby, Denmark, December 2015
125. *Optimum Experimental Design for Models Involving Ordinary and Partial Differential Equations*, Colloquium at TU Braunschweig, Germany, June 2015
126. *An Introduction to Optimum Experimental Design*, Colloquium at University of Hamburg, Germany, June 2015
127. *An Introduction to Optimum Experimental Design*, Colloquium at University of the Armed Forces, Munich, Germany, November 2014
128. *Analysis and Numerical Methods for Optimization Problems in Elastoplasticity*, Colloquium at University of Zurich, Zurich, Switzerland, October 2014
129. *Analysis and Numerics for Optimization Problems in Elastoplasticity*, Colloquium at University of Freiburg, Germany, June 2014
130. *An Introduction to Optimum Experimental Design*, Colloquium at University of Würzburg, Germany, May 2014
131. *An Introduction to Optimum Experimental Design*, Colloquium at University of Paderborn, Germany, May 2014
132. *An Introduction to Optimal Control*, Research Seminar Analysis and Stochastics, Chemnitz, Germany, June 2013
133. *An Introduction to Optimum Experimental Design*, Colloquium at the Institute of Scientific Computing, TU Braunschweig, Germany, May 2013
134. *On Optimal Control Problems with Sparsity Constraints*, Colloquium at the Institute of Computational Mathematics, Linz, Austria, May 2013
135. *PDE-Constrained Optimization — A Linear Algebra Perspective*, Colloquium at Charles University Prague, Czech Republic, February 2013

136. *An Introduction to Optimum Experimental Design*, Colloquium of the Institute of Materials Science and Engineering, Chemnitz, Germany, November 2012
137. *Simulation and Optimization of Macroscopic Mechanical Systems*, Fraunhofer ENAS, Chemnitz, Germany, October 2012
138. *An Introduction to Optimum Experimental Design*, Research Seminar Scientific Computing, Chemnitz, Germany, March 2012
139. *Optimierung — Studieren geht über Probieren*, Open House Day, TU Chemnitz, Germany, January 2012
140. *Optimal Control Problems with L^1 Terms*, Universität der Bundeswehr, München, Germany, June 2011
141. *On the Relation of Preconditioning and Inner Products in Krylov Subspace Methods*, Research Seminar Numerical Mathematics, Chemnitz, Germany, May 2011
142. *On the Relation of Preconditioning and Inner Products in Krylov Subspace Methods*, MPI for Dynamics of Complex Technical Systems, Magdeburg, Germany, February 2011
143. *Optimization with Complementarity Constraints and Applications in Elastoplasticity*, University of Stuttgart, Germany, November 2010
144. *Optimal Control with Partial Differential Equations: an Introduction*, University of Freiburg, Germany, June 2010
145. *Optimal Control Challenges in Magnetohydrodynamics*, University of Kiel, Germany, May 2010
146. *A Preconditioned Conjugate Gradient Method for Optimal Control Problems with Control and State Constraints*, University of Oxford, UK, May 2010
147. *Techniques for Simulation and Optimal Control of Static Plasticity*, University of Heidelberg, Germany, February 2010
148. *Optimization with Partial Differential Equations*, Colloquium at Johannes-Gutenberg University, Mainz, Germany, January 2010
149. *Preconditioned Conjugate Gradient Method for Optimal Control Problems with Control and State Constraints*, Research Seminar Numerical Mathematics, Chemnitz, Germany, January 2010
150. *Sparse Control and Applications*, Colloquium on the occasion of the 60th birthday of Hans Josef Pesch, Bayreuth, Germany, October 2009
151. *Numerical Techniques for Portfolio Optimization Problems with Transaction Costs*, Dresden Mathematical Seminar, TU Dresden, Germany, May 2009
152. *Optimale Steuerung — Studieren geht über Probieren*, Open House Day, TU Chemnitz, Germany, January 2009
153. *Optimal Control of Coupled Systems*, MPI for Dynamics of Complex Technical Systems, Magdeburg, Germany, December 2008
154. *Optimale Steuerung — Studieren geht über Probieren*, Inaugural Lecture, TU Chemnitz, Germany, October 2008

155. *Stability and Sensitivity Analysis in Optimal Control of Partial Differential Equations*, Karl Franzens University Graz, Austria, June 2008
156. *A Semismooth Newton Method for Solving Elliptic Equations with Gradient Constraints*, University of Greifswald, Germany, May 2008
157. *Optimal Control in Magnetohydrodynamics*, Middle East Technical University, Ankara, Turkey, March 2008
158. *Optimal Control Challenges in Magnetohydrodynamics*, University of Regensburg, Germany, July 2007
159. *The SQP Method for Optimal Control Problems with Mixed Control-State Constraints*, University of Trier, Germany, June 2007
160. *Stability and Sensitivity in Optimization with Partial Differential Equations*, TU Kaiserslautern, Germany, June 2007
161. *Coupled Field Problems in Magnetohydrodynamics and Their Optimal Control*, TU Chemnitz, Germany, May 2007
162. *Optimal Control Challenges in Magnetohydrodynamics*, University of Edinburgh, UK, March 2007
163. *Numerical Methods for Large-Scale Optimal Control Problems*, University of Basel, Switzerland, February 2007
164. *Numerical Methods in PDE-Constrained Optimization*, TU Chemnitz, Germany, January 2007
165. *From Finite-Dimensional Optimization to Optimal Control*, RWTH Aachen, Germany, January 2007
166. *Analytical and Numerical Treatment of Optimal Control Problems in Magnetohydrodynamics*, TU Dresden, Germany, January 2007
167. *Continuous Optimization — Applications and Prospects*, TU Kaiserslautern, Germany, July 2006
168. *Numerical Methods in PDE-Constrained Optimization*, TU Darmstadt, Germany, May 2006
169. *Optimal Control in Magnetohydrodynamics*, RICAM Scientific Board Meeting, Linz, Austria, April 2006
170. *Analysis, Numerical Simulation and Optimal Control of Coupled PDE Systems*, University of Münster, Germany, December 2005
171. *A Stokes-MHD Problem*, RICAM Linz, Austria, December 2005
172. *Modeling and Optimal Control in Magnetohydrodynamics*, TU Berlin, Germany, September 2005
173. *Preconditioning of Linear Systems in PDE-Constrained Optimization*, RICAM Linz, Austria, July 2005
174. *Parametric Sensitivity Analysis for Constrained Optimal Control Problems*, ZIB, Berlin, Germany, February 2005
175. *Towards Simulation and Control in Magnetohydrodynamics*, RICAM Linz, Austria, February 2005

176. *Parametric Sensitivity Analysis for 3D Reaction-Diffusion Control Problems*, TU Vienna, Austria, November 2004
177. *Parametric Sensitivity Derivatives of Perturbed Optimal Control Problems*, TU Chemnitz, Germany, June 2004
178. *Recent Advances in Magnetohydrodynamics*, Karl Franzens University Graz, Austria, May 2004
179. *Parametric Sensitivity Derivatives of Constrained Optimal Control Problems*, University of Hamburg, Germany, May 2004
180. *Parametric Sensitivities for Perturbed Reaction-Diffusion Optimal Control Problems*, University of Heidelberg, Germany, March 2004
181. *Automatic Differentiation and Constrained Optimization*, Karl Franzens University Graz, Austria, December 2003
182. *Post-Optimal Sensitivity Analysis for Control-Constrained Optimal Control Problems*, Karl Franzens University Graz, Austria, March 2003
183. *Strongly Regular Generalized Equations and Sensitivity Derivatives for Perturbed Parabolic Control Problems*, Dresden University of Technology, Germany, January 2003
184. *Parametric Optimization and Applications*, University of Jena, Germany, January 2003
185. *Parametric Sensitivity Analysis for Perturbed Reaction-Diffusion Control Problems*, Karl Franzens University Graz, Austria, July 2002
186. *Computation of Sensitivity Derivatives for Perturbed Parabolic Control Problems*, Dresden University of Technology, Germany, December 2001
187. *The Newton-Lagrange Method and Variants for Optimal Control of Time-dependent Partial Differential Equations*, Berlin University of Technology, Germany, September 2001
188. *Optimal Control of a Reaction-Diffusion Process — Comparison of Time Integration Methods*, Dresden University of Technology, Germany, January 2001
189. *The Newton-Lagrange Method for Solving Unconstrained Optimal Control Problems with Partial Differential Equations*, Berlin University of Technology, August 2000
190. *Suboptimal Control Problems for the Navier-Stokes Equations using FEATFLOW*, University of Dortmund, Germany, March 2000

Public Talks

191. *Official Speech at the Finals for the Nation-Wide Round of the 58th German Mathematical Olympiad*, Chemnitz, Germany, May 2019
192. *Current Mathematical Problems within the MERGE Cluster of Excellence*, TU Chemnitz, September 2014
193. *LEGO Models for Reality*, TU Chemnitz, Girls' Day, Germany, April 2013
194. *LEGO Models for Reality*, TU Chemnitz, Technikwoche, Germany, October 2012
195. *Official Speech at the Finals for the 3rd Round of the 48th German Mathematical Olympiad*, Kepler High School, Chemnitz, Germany, February 2009

Volunteer Activities

1992 – 1999 Active Member of the Volunteer Fire Department, Gleidingen, Germany

Foreign Language Skills

German native language
English written and oral fluency
Spanish good knowledge
French good knowledge
Swedish beginning level

Hobbies

Photography
Playing the piano
Latte Art
Marathon race (personal best: 3:24:15, Berlin 2007)

Chemnitz, June 12, 2019