

TECHNICAL PROGRAM

Wednesday, 9:00-10:30

■ WA-27

Wednesday, 9:00-10:30 - HFB|Audimax

Opening Ceremony and Plenary Lecture

Stream: Plenaries

Plenary session

Chair: *Natalia Kliewer*

Chair: *Ralf Borndörfer*

Chair: *Jan Fabian Ehmke*

1 - Green Logistics: Decision Analytics for Sustainable Transportation

Richard Eglese

Wednesday, 11:00-12:30

■ WB-01

Wednesday, 11:00-12:30 - WGS|101

Methods for Robustness

Stream: Optimization under Uncertainty

Parallel session

Chair: *Fabian Mies*

1 - Choosing a set of solutions to hedge against the worst case

André Chassein

2 - Globalized Gamma-Robustness

Andreas Bärmann, Christina Büsing, Lena Maria Hupp, Frauke Liers, Manu Kapolke

3 - Blending robust and stochastic optimization of two-stage problems

Fabian Mies, Britta Peis, Andreas Wierz

■ WB-02

Wednesday, 11:00-12:30 - WGS|102

Modeling Systems I

Stream: Software Applications and Modelling Systems

Parallel session

Chair: *Ingmar Steinzen*

Chair: *Jens Peter Kempkes*

1 - Optimizing in the Cloud - Deploying Optimization Models on the Cloud with Web Services REST API's

Bjarni Kristjansson

2 - Cloud Strategies for Optimization Modeling Software

Robert Fourer

3 - Solving routing and scheduling problems using LocalSolver

Julien Darlay

4 - OPTANO Modeling

Jens Peter Kempkes, Lars Beckmann

■ WB-03

Wednesday, 11:00-12:30 - WGS|103

Location Planning

Stream: Logistics and Freight Transportation

Parallel session

Chair: *Tim Kammann*

1 - Multi-objective capacitated facility location problem: A case study of Tehran earthquake

Mahdi Shavarani

2 - 2-Echelon Optimization Model for Urban E-Grocery Operations

Tim Kammann, Agathe Kleinschmidt, Sören Schindler, Max Leyerer, Marc-Oliver Sonneberg, Michael H. Breitner

3 - Determining the influence of truck appointment systems at container terminals on truck arrival patterns of related logistics nodes

Ann-Kathrin Lange, Anne Schwientek, Carlos Jahn

■ WB-04

Wednesday, 11:00-12:30 - WGS|104

Graphs and Complexity

Stream: Graphs and Networks
Parallel session

Chair: Stephan Schwartz

1 - A Graph Theoretic Approach to Solve Special Knapsack Problems in Polynomial Time

Carolin Rehs, Frank Gurski

2 - The Graph Segmentation Problem

Stephan Schwartz, Leonardo Balestrieri, Ralf Borndörfer

■ WB-05

Wednesday, 11:00-12:30 - WGS|104a

Location of Charging Stations for Electric Vehicles

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: Brita Rohrbeck

1 - Decision Support for Location Planning of Electric Vehicle Recharging Infrastructure

Paul Göpfert, Stefan Bock

2 - Location Planning of E-Taxi Charging Stations

Gregor Godbersen, Rainer Kolisch

3 - Location Planning of Charging Stations for Electric City Buses Considering Battery Ageing Effects

Brita Rohrbeck, Kilian Berthold, Felix Hettich

■ WB-06

Wednesday, 11:00-12:30 - WGS|105

Graphs and Modeling Techniques

Stream: Graphs and Networks
Parallel session

Chair: Jonas Schweiger

1 - Atherosclerosis development as a complex biological phenomenon studied using Petri nets

Kaja Chmielewska, Dorota Formanowicz, Piotr Formanowicz

2 - Strong convex relaxations for the pooling problem

Jonas Schweiger, Claudia D'Ambrosio, Jeff Linderoth, Jim Luedtke

3 - The Most Reliable Flight Itinerary Problem

Jan Fabian Ehmke, Michael Redmond, Ann Campbell

■ WB-07

Wednesday, 11:00-12:30 - WGS|106

New Approaches for Combinatorial Optimization Problems in Manufacturing (i)

Stream: Discrete and Integer Optimization
Parallel session

Chair: Philipp Hungerländer

Chair: Anja Fischer

1 - New Exact Approaches and Heuristics for Row Facility Layout Problems

Kerstin Maier, Philipp Hungerländer

2 - Extensions of the Double Row Facility Layout Problem

Mirko Dahlbeck, Anja Fischer, Thomas Krüger, Uwe Bracht

3 - Optimisation-driven Heuristics

Christina Burt

■ WB-08

Wednesday, 11:00-12:30 - WGS|107

Railway Timetabling

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: Christian Liebchen

1 - Structure-based Decomposition for Pattern-Detection for Railway Timetables

Stanley Schade, Thomas Schlechte, Jakob Witzig

2 - Timetable Sparsification by Rolling Stock Rotation Optimization

Boris Grimm, Markus Reuther, Stanley Schade, Thomas Schlechte

3 - On the Benefit of Preprocessing And Heuristics for Periodic Timetabling

Christian Liebchen

■ WB-09

Wednesday, 11:00-12:30 - WGS|108

Recent Developments in Column Generation (i)

Stream: Discrete and Integer Optimization
Parallel session

Chair: Matthias Walter

1 - Modular Detection of Model Structure in Integer Programming*Michael Bastubbe, Marco Lübbecke***2 - Learning when to use a decomposition***Markus Kruber, Marco Lübbecke, Axel Parmentier***3 - Refining column generation subproblems using Benders' cuts***Jonas Witt, Marco Lübbecke, Stephen Maher***■ WB-10***Wednesday, 11:00-12:30 - WGS|108a***Integer Linear Programming (i)**

Stream: Discrete and Integer Optimization

*Parallel session*Chair: *Gennadiy Averkov***1 - Integrality Gaps of Integer Knapsack Problems: Bounds and Expected Value***Iskander Aliev***2 - Discrete quantitative Helly numbers***Stefan Weltge, Gennadiy Averkov, Bernardo González Merino, Matthias Schymura***3 - Approximation of corner polyhedra with families of intersection cuts***Joseph Paat***■ WB-11***Wednesday, 11:00-12:30 - WGS|005***Liner Shipping Optimization I**

Stream: Logistics and Freight Transportation

*Parallel session*Chair: *Kevin Tierney***1 - The Flexible Ship Loading Problem***Dario Pacino***2 - Stowage planning: A benchmark and a novel heuristic***Rune Larsen, Dario Pacino***3 - The Stochastic Liner Shipping Fleet Repositioning Problem with Uncertain Container Demands***Stefan Kuhleemann, Kevin Tierney***■ WB-12***Wednesday, 11:00-12:30 - WGS|BIB***Business Track I**

Stream: Business Track

*Parallel session*Chair: *Michael Beck***1 - Introduction of optimization systems in public transport companies***Michael Beck***2 - Impact of efficient algorithm implementation on the performance of heuristic optimization***Michael Feichtenschlager***3 - Research in operations - the aircraft maintenance, repair and overhaul market***Michael Frank***■ WB-13***Wednesday, 11:00-12:30 - RVH|I***Forecasting Neural Network Specification**

Stream: Business Analytics, Artificial Intelligence and Forecasting

*Parallel session*Chair: *Sven F. Crone***1 - Visually Supported Parameter Tuning and Feature Engineering for Artificial Neural Networks***Dennis Eilers, Cornelius Köpp, Michael H. Breitner***2 - Learning uncertainty of predictions by neural networks with regression***Pavel Gurevich, Hannes Stuke***■ WB-14***Wednesday, 11:00-12:30 - RVH|II***Class and Score Prediction**

Stream: Business Analytics, Artificial Intelligence and Forecasting

*Parallel session*Chair: *Thomas Setzer***1 - Consumer's sport preference as a predictor for his/her response to brand personality***Friederike Paetz, Regina Semmler-Ludwig***2 - Credit Scoring based on Neural Networks***Ralph Grothmann, Hans Georg Zimmermann***3 - Customer Churn Prediction using Temporal Patterns in Support Contact Data***Katerina Shapoval***■ WB-15***Wednesday, 11:00-12:30 - RVH|III***Modelling and Simulation in the Service Industry**

Stream: Simulation and Statistical Modelling

*Parallel session*Chair: *Lars Ostmeier*

- 1 - **A case study of simulating the surgical process flow in an Indian healthcare setting**
Rakesh Verma, Sudhanshu Singh
- 2 - **Toward an Agent-based Simulation of Incentives and Disincentives for Sharing Frailty-Related Information in Perioperative Care**
Daniel Furstenuau, Felix Balzer, Martin Gersch, Claudia Spies
- 3 - **Evaluating intra-day quantity risk of wind power production**
Lars Ostmeier, Sven Kolkmann, Christoph Weber

■ WB-16

Wednesday, 11:00-12:30 - RBM|1102

Finance I

Stream: Finance
Parallel session

Chair: *Michael H. Breitner*

- 1 - **Decoupled Net Present Value - An Alternative to the Long-Term Asset Value in the Evaluation of Ship Investments?**
Philipp Schrader, Jan-Hendrik Piel, Michael H. Breitner
- 2 - **The Innovator's Dilemma revisited: Investment Timing, Capacity Choice, and Product Life Cycle under Uncertainty**
Stefan Kupfer, Elmar Lukas

■ WB-17

Wednesday, 11:00-12:30 - RBM|2204

Data-driven Healthcare Services

Stream: Health Care Management
Parallel session

Chair: *Melanie Reuter-Oppermann*

- 1 - **Data-based Location, Relocation and Dispatching Approaches for the German EMS System**
Melanie Reuter-Oppermann
- 2 - **Semantic Data Verification by Means of Human-Readable N3 Rules**
Tobias Weller, Maria Maleshkova
- 3 - **Appointment planning data - between desire and reality**
Anne Zander, Melanie Reuter-Oppermann, Stefan Nickel

■ WB-18

Wednesday, 11:00-12:30 - RBM|2215

Scheduling and Sequencing

Stream: Project Management and Scheduling
Parallel session

Chair: *Stefan Bock*

- 1 - **Tabu search algorithms for scheduling tasks with ready times on a single machine with limited availability**
Jakub Pietruczuk, Piotr Formanowicz
- 2 - **A branch and bound procedure for a scheduling problem with fixed delivery departure dates**
David Bachtenkirch, Stefan Bock
- 3 - **A pseudo-polynomial solution approach for optimally solving the acyclic TSP with multiple congestion scenarios and soft due date restrictions**
Stefan Bock

■ WB-19

Wednesday, 11:00-12:30 - RBM|3302

Production and Service Networks

Stream: Production and Operations Management
Parallel session

Chair: *Tristan Becker*

- 1 - **Comprehensive MRP-concept for complex products in global production and supplying networks**
Wilmjakob Herlyn
- 2 - **Service Network Design: Competing on Convenient Locations and Responsive Service Processes**
Pratibha Saini, Cornelia Schoen, Fabian Strohm
- 3 - **Tactical Planning of Modular Production Networks With Reconfigurable Plants**
Tristan Becker, Stefan Lier, Brigitte Werners

■ WB-20

Wednesday, 11:00-12:30 - RBM|4403

Closed Loop Supply Chains

Stream: Supply Chain Management
Parallel session

Chair: *Patricia Rogetzer*

- 1 - **An Integrated Approach for Assessment of Green Suppliers with Interval Type-2 Fuzzy Sets**
Ahmet Çalık, Abdullah Yıldızbaşı, Turan Paksoy, Alexander Kumpf
- 2 - **Coordination of grading in reverse supply chains**
Gerrit Schumacher, Moritz Fleischmann
- 3 - **Sustainable sourcing with recycled materials: A contribution towards circular economy**
Patricia Rogetzer, Lena Silbermayr, Werner Jammerneegg

■ WB-21

Wednesday, 11:00-12:30 - RBM|4404

Technologies of Artificial Creativity

Stream: OR in Engineering
Parallel session

Chair: *Ulf Lorenz*

1 - Beam structure Optimization for Additive Manufacturing*Christian Reintjes, Michael Hartisch, Ulf Lorenz***2 - Modeling variants for the Multiple Traveling Salesmen Problem with Moving Targets***Anke Stieber***3 - Domain Specific Pre-Analysis and Generation of Optimization Problems***Benjamin Saul, Wolf Zimmermann***■ WB-22***Wednesday, 11:00-12:30 - HFB|A***Energy and Mobility**

Stream: Energy and Environment

*Parallel session*Chair: *Magnus Fröhling***1 - Driven by change? EV drivers' acceptance and perceived productivity at Deutsche Post DHL***Stefanie Wolff, Reinhard Madlener***2 - Airline fleet planning with CO2 emission targets under consideration of retrofit options***Karsten Kieckhäfer, Christoph Müller, Thomas Spengler***■ WB-23***Wednesday, 11:00-12:30 - HFB|B***CANCELLED: Game Theory and Economics**

Stream: Game Theory and Experimental Economics

*Parallel session*Chair: *Mark Francis Rogers***■ WB-24***Wednesday, 11:00-12:30 - HFB|C***GOR Dissertation Prize**

Stream: Awards

*Parallel session*Chair: *Peter Letmathe***1 - Anticipation in Dynamic Vehicle Routing***Marlin Wolf Ulmer***2 - Game-theoretic Approaches to Allocation Problems in Cooperative Routing***Igor Kozeletskyi***3 - Methodological Advances and New Formulations for Bilevel Network Design Problems***Pirmin Fontaine***4 - Handling Critical Tasks Online: Deadline Scheduling and Convex-Body Chasing***Kevin Schewior***■ WB-25***Wednesday, 11:00-12:30 - HFB|D***Market Design, Bidding and Market Zones**

Stream: Energy and Environment

*Parallel session*Chair: *Dominik Möst*Chair: *Philipp Hauser***1 - Dynamic programming approach for bidding problems on day-ahead markets***Jérôme De Boeck, Martine Labbé, Étienne Marcotte, Patrice Marcotte, Gilles Savard***2 - Comparative exemplary application of different zonal configuration algorithms for the case of market splitting in Germany***Dirk Hladik, Dominik Möst***3 - Evaluating alternative market designs in electricity markets: a mixed-integer multilevel optimization model and global solution techniques***Thomas Kleinert, Frauke Liers, Martin Schmidt***■ WB-26***Wednesday, 11:00-12:30 - HFB|Senat***Bargaining (i)**

Stream: Game Theory and Experimental Economics

*Parallel session*Chair: *Thomas Neumann***1 - An extended fuzzy approach to multicriteria modelling of bilateral bargaining***Tobias Volkmer, Olga Metzger, Thomas Spengler***2 - Bargaining over waiting time in ultimatum game experiments***Roger Berger***3 - An Experimental Comparison of Ultimatum Bargaining Over Positive, Negative and Mixed Outcomes***Thomas Neumann, Stephan Schosser, Bodo Vogt*

Wednesday, 13:30-15:00

■ WC-01

Wednesday, 13:30-15:00 - WGS|101

Stochastic Integer Programs

Stream: Optimization under Uncertainty
Parallel session

Chair: Tanya Gonser

1 - Some ideas on integrating lift-and-project cuts into decomposition methods for solving two-stage stochastic programming problems with binary first-stage variables

Pavlo Glushko, Achim Koberstein, Csaba Fabian

2 - Reliable single allocation hub location problem under hub breakdowns

Nicolas Kämmerling, Borzou Rostami, Christoph Buchheim, Uwe Clausen

3 - A Branch-and-Bound Approach for Multi-Stage Stochastic Mixed-0-1 Programs

Tanya Gonser, Stefan Nickel, Francisco Saldanha-da-Gama, Iris Heckmann

■ WC-02

Wednesday, 13:30-15:00 - WGS|102

Modeling Systems II

Stream: Software Applications and Modelling Systems
Parallel session

Chair: Mike Steglich

1 - Building and Solving Optimization Models with Python

Kostja Siefen

2 - Embedded Code in GAMS - Using Python as an Example

Lutz Westermann

3 - Optimization Modelling for Data Scientists in IBM Data Science Experience

Sebastian Fink, Hans Schlenker

4 - Implementing and solving decision problems with SolverStudio/Cmpl and CmplServer

Mike Steglich

■ WC-03

Wednesday, 13:30-15:00 - WGS|103

Cancelled: Terminal Operations

Stream: Logistics and Freight Transportation
Parallel session

Chair: Ann-Kathrin Lange

■ WC-04

Wednesday, 13:30-15:00 - WGS|104

Online Optimization

Stream: Graphs and Networks
Parallel session

Chair: Yann Disser

1 - Tight Competitive Analysis for Online TSP on the Line

Miriam Schlöter, Yann Disser, Jan Hackfeld, Christoph Hansknecht, Kevin Schewior, Leen Stougie, Antje Bjelde, Julie Meißner, Maarten Lipmann

2 - Anonymous Graph Exploration with Binoculars

Jérémie Chalopin

3 - Online bipartite matching in offline time

Anna Zych-Pawlewicz, Bartłomiej Bosek, Dariusz Leniowski, Piotr Sankowski

■ WC-05

Wednesday, 13:30-15:00 - WGS|104a

Car Pooling & Sharing

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: Tai-yu Ma

1 - Carpool formation along high-occupancy vehicle lanes

Stefan Schwerdfeger, Nils Boysen, Dirk Briskorn, Konrad Stephan

2 - Optimal Integration of Autonomous Vehicles in Car Sharing

Marcus Kaiser

3 - Dynamic bi-modal ridesharing using optimal passenger-vehicle assignments

Tai-yu Ma

■ WC-06

Wednesday, 13:30-15:00 - WGS|105

Selected Topics

Stream: Graphs and Networks
Parallel session

Chair: Stephan Westphal

1 - On a technique of finding running tracks of specific length in a road network

David Willems, Stefan Ruzika, Oliver Zehner

2 - A simulation-based framework for competitive analysis of online scheduling problems

Martin Dahmen

■ WC-07

Wednesday, 13:30-15:00 - WGS|106

Various Aspects of Discrete Models

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Steffen Goebbels*

- 1 - **Mathematische Optimierung in der Schule**
Alexander Schulte
- 2 - **A Linear Program for Matching Photogrammetric Point Clouds with CityGML Building Models**
Steffen Goebbels, Regina Pohle-Fröhlich, Philipp Kant

■ WC-08

Wednesday, 13:30-15:00 - WGS|107

Public Transportation Planning 1

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: *Anita Schöbel*

- 1 - **Optimizing the Line System of Karlsruhe**
Ralf Borndörfer, Marika Karbstein, Petra Strauß
- 2 - **A Local Search Heuristic for Integrated Train Shunting and Service Scheduling**
Roel van den Broek, Han Hoogeveen, Marjan van den Akker
- 3 - **A heuristic for integrated public transportation planning**
Anita Schöbel, Julius Pätzold, Philine Schiewe, Alexander Schiewe

■ WC-09

Wednesday, 13:30-15:00 - WGS|108

Travelling and Shipping

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Achim Hildenbrandt*

- 1 - **A modified Benders method for the single and multiple allocation p-hub median problem**
Hamid Mokhtar, Mohan Krishnamoorthy, Andreas Ernst
- 2 - **Variants of the Traveling Salesman Problem with additional ordering constraints**
Achim Hildenbrandt

■ WC-10

Wednesday, 13:30-15:00 - WGS|108a

New Solution Approaches for Applications from Real-World Projects (i)

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Anja Fischer*

- 1 - **A comparison of reinforcement learning and heuristics for the Dynamic Container Relocation Problem**
Paul Alexandru Bucur, Philipp Hungerländer
- 2 - **A Mixed-Integer Linear Program for the Traveling Salesman Problem with Structured Time Windows**
Christian Truden, Philipp Hungerländer
- 3 - **On the Slot Optimization Problem in On-Line Vehicle Routing**
Philipp Hungerländer, Andrea Rendl, Christian Truden

■ WC-11

Wednesday, 13:30-15:00 - WGS|005

Liner Shipping Optimization II

Stream: Logistics and Freight Transportation
Parallel session

Chair: *Stefan Guericke*

- 1 - **Towards Dynamic Pricing in Liner Shipping with Accurate Vessel Capacity Models**
Mai Ajspur, Rune Jensen
- 2 - **Uptake Management in Liner Shipping - Industry Challenges and a Solution Approach**
Stefan Guericke

■ WC-12

Wednesday, 13:30-15:00 - WGS|BIB

Business Track II

Stream: Business Track
Parallel session

Chair: *Alexander Bradler*

- 1 - **Strategic network analytics for the postal industry**
Patrick Briest, Ingmar Steinzen
- 2 - **Delivering on delivery: Optimisation and the future of vehicle routing**
Adam West, Paul Hart, Christina Burt
- 3 - **User-centered Smart Data - Decision Analytics for Digital Engineering**
Alexander Bradler, Alexander Paar, Stephan Blankenburg

- 4 - **Designing and optimizing an LNG supply chain using LocalSolver**
Clément Pajean

■ WC-13

Wednesday, 13:30-15:00 - RVH|I

Forecasting Energy and Commodities

Stream: Business Analytics, Artificial Intelligence and Forecasting
Parallel session

Chair: Ralph Grothmann
Chair: Sven F. Crone

- 1 - **Short-term zero flow forecasting in gas networks**
Milena Petkovic
- 2 - **Wind power forecasting using Gaussian process state-space models**
Tobias Jung
- 3 - **Forecasting supplies and demands in gas networks**
Inken Gamrath

■ WC-14

Wednesday, 13:30-15:00 - RVH|II

Analytics in Retail and Digital Commerce I

Stream: Business Analytics, Artificial Intelligence and Forecasting
Parallel session

Chair: Thomas Setzer

- 1 - **Potential Benefits of User Rankings for Predictions of Booksellings**
Nicole Reuss, Klaus Ambrosi
- 2 - **Customer segmentation and market basked analysis for an electronics retailer using machine learning and optimisation methods**
Hlynur Stefánsson, Júlíus Pétur Guðjohnsen, Sigurður Jónsson, Eyjolfur Asgeirsson
- 3 - **Efficiency Analysis of Migros Retail Stores in Turkey Using Data Envelopment Analysis**
Birol Yüceoglu, Işıl Öztürk, Murat Çelebi

■ WC-15

Wednesday, 13:30-15:00 - RVH|III

Advances in Modelling and Simulation Methodologies

Stream: Simulation and Statistical Modelling
Parallel session

Chair: Zhengyu Wang

- 1 - **Galerkin Method for Dynamic Nash Equilibrium Problem with Shared Constraints**
Zhengyu Wang, Stefan Wolfgang Pickl

- 2 - **Hybrid Agent-Based Modeling (HABM) - A Formalism for Combining Agent-Based Modeling and Simulation, Discrete Event Simulation, and System Dynamics**
Joachim Block

- 3 - **Regulating the degree of conservatism: An error flexible single step approach to multiple testing**
Christina Bartenschlager, Jens Brunner

■ WC-16

Wednesday, 13:30-15:00 - RBM|1102

Finance II

Stream: Finance
Parallel session

Chair: Michael H. Breitner

- 1 - **A Generalization for the Duration concepts**
Marius Radermacher
- 2 - **Enhancing the wisdom of the crowd - evidence from social trading**
Christopher Helm, Martin Rohleder
- 3 - **Improving the recovery rate of unsecured debt in multistep workout processes**
Johannes Kriebel, Kevin Yam

■ WC-17

Wednesday, 13:30-15:00 - RBM|2204

Staff Scheduling

Stream: Health Care Management
Parallel session

Chair: Jens Brunner

- 1 - **Duty Rostering for Physicians at a Department of Orthopedics and Trauma Surgery**
Clemens Thielen
- 2 - **Robust Cyclic Apprenticeship Scheduling with an Application in Resident Scheduling**
Sebastian Kraul, Jens Brunner
- 3 - **A Column Generation Approach to Flexible Nurse Scheduling**
Jan Schoenfelder, Markus Seizinger

■ WC-18

Wednesday, 13:30-15:00 - RBM|2215

Scheduling on Parallel Machines

Stream: Project Management and Scheduling
Parallel session

Chair: Marcin Zurowski

1 - Runway Scheduling under Consideration of Winter Operations*Maximilian Pohl, Rainer Kolisch***2 - Explicit modelling of multiple intervals in a constraint generation procedure for multiprocessor scheduling***Emil Karlsson, Elina Rönnberg***3 - Scheduling jobs and maintenance activities subject to job-dependent machine deteriorations***Liliana Grigoriu, Dirk Briskorn***4 - Preemptive scheduling of jobs with a learning effect on two parallel machines***Marcin Zurowski***■ WC-19***Wednesday, 13:30-15:00 - RBM|3302***Production and Service Networks II***Stream: Production and Operations Management
Parallel session**Chair: Foad Ghadimi***1 - Overtime planning and safety stock placement in production networks***Tarik Aouam***■ WC-20***Wednesday, 13:30-15:00 - RBM|4403***Supply Chain Inventories***Stream: Supply Chain Management
Parallel session**Chair: Christopher Grob***1 - Optimal Randomized Ordering Policies for a Capacitated Two-Echelon Distribution Inventory System***Taher Ahmadi***2 - Window Fill Rate with Compound Arrival and Assembly Time***Michael Dreyfuss***3 - A solution procedure for joint optimization of reorder points in n-level distribution networks using (R,Q) order policies***Christopher Grob, Andreas Bley, Konrad Schade***■ WC-21***Wednesday, 13:30-15:00 - RBM|4404***Optimization of Technical Systems***Stream: OR in Engineering
Parallel session**Chair: Lena Charlotte Altherr***1 - Energy efficient design of a decentralized fluid system by mixed integer nonlinear programming***Philipp Leise, Lena Charlotte Altherr, Peter Pelz***2 - Product Family Design Optimization using Model Based Engineering Techniques***David Stenger, Tankred Mueller, Lena Charlotte Altherr, Peter Pelz***3 - How Do Structural Designs Affect the Economic Viability of Offshore Wind Turbines? An Interdisciplinary Simulation Approach***Clemens Huebler, Jan-Hendrik Piel, Raimund Rolfes, Michael H. Breitner***■ WC-22***Wednesday, 13:30-15:00 - HFB|A***MCDM 1: Complexity and Special Techniques***Stream: Decision Theory and Multiple Criteria Decision Making**Parallel session**Chair: Kathrin Klamroth***1 - The Multiobjective Shortest Path Problem is NP-hard, or is it?***Fritz Böckler***2 - Optimization of Bi-Objective TSP***Thomas Stidsen, Kim Allan Andersen, Kim Allan Andersen***3 - Multiobjective optimization for complex systems***Kathrin Klamroth, Stefan Ruzika, Margaret Wiecek***■ WC-23***Wednesday, 13:30-15:00 - HFB|B***Game Theory and Optimization***Stream: Game Theory and Experimental Economics
Parallel session**Chair: Mark Francis Rogers***1 - An Efficient and Truthful Algorithm for Fair Scheduling on Related Machines***Ruini Qu, Bo Chen***2 - How Additional Exit Affect the European Union's Power Distribution***Mark Francis Rogers, Dóra Gréta Petróczy, László Kóczy***■ WC-24***Wednesday, 13:30-15:00 - HFB|C***GOR Master Thesis Prize***Stream: Awards
Parallel session**Chair: Stefan Ruzika*

- 1 - **Stable Clusterings and the Cones of Outer Normals**
Felix Happach
- 2 - **Solving the Time-Dependent Shortest Path Problem on Airway Networks Using Super-Optimal Wind**
Adam Schienle
- 3 - **The two dimensional bin packing problem with side constraints**
Markus Seizinger

■ WC-25

Wednesday, 13:30-15:00 - HFB|D

Gas Networks and Market

Stream: Energy and Environment
Parallel session

Chair: *Dominik Möst*
Chair: *Philipp Hauser*

- 1 - **Benefits and Limitations of Simplified Transient Gas Flow Formulations**
Felix Hennings, Tom Streubel
- 2 - **The Value of Diversified Infrastructure in the European Natural Gas Market Using Chance Constrained Programming**
Philipp Hauser

■ WC-26

Wednesday, 13:30-15:00 - HFB|Senat

Automated Negotiations in Logistics (i)

Stream: Game Theory and Experimental Economics
Parallel session

Chair: *Tobias Buer*

- 1 - **Improving a Genetic Algorithm-based Mechanism for Allocating Requests in Transport Coalitions**
Jonathan Jacob, Tobias Buer
- 2 - **A combinatorial double auction for exchanging empty marine containers**
Tobias Buer
- 3 - **Agent-driven versus mediator-driven contract proposal in automated negotiations**
Gabriel Franz Guckenbiehl, Tobias Buer

Wednesday, 15:30-16:15

■ WD-01

Wednesday, 15:30-16:15 - WGS|101

Cancelled: Semi-Plenary Panos M. Pardalos

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Stefan Wolfgang Pickl*

■ WD-22

Wednesday, 15:30-16:15 - HFB|A

Presentation by the GOR Science Award Winner

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Karl Inderfurth*

- 1 - **Presentation by the GOR Science Award Winner (Name: to be announced!)**
Karl Inderfurth

■ WD-23

Wednesday, 15:30-16:15 - HFB|B

Semi-Plenary Dirk Christian Mattfeld

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Jan Fabian Ehmke*

- 1 - **Models and Optimization in Shared Mobility Systems**
Dirk Christian Mattfeld

■ WD-24

Wednesday, 15:30-16:15 - HFB|C

Semi-Plenary Marco Lübbecke

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Thorsten Koch*

- 1 - **Optimization meets Machine Learning**
Marco Lübbecke

■ WD-25

Wednesday, 15:30-16:15 - HFB|D

Semi-Plenary Martin Bichler

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Andreas Fink*

1 - Market Design: A Linear Programming Approach
Martin Bichler

Wednesday, 16:30-18:00

■ WE-01

Wednesday, 16:30-18:00 - WGS|101

Robust Combinatorial Optimization

Stream: Optimization under Uncertainty

Parallel session

Chair: *Sven Krumke*

1 - A Robust Approach to Single-Allocation Hub Location Problems with Uncertain Weights.

Jannis Kurtz

2 - Strategic and operational resource planning for emergency doctors

Manuel Streicher, Sven Krumke, Eva Schmidt

3 - An Approximate Dynamic Programming Based Heuristic for the Stochastic Lot-Sizing Problem in Remanufacturing Systems

Sedat Belbag, Mustafa Çimen, Mehmet Soysal, Armagan Tarim

■ WE-02

Wednesday, 16:30-18:00 - WGS|102

Optimization Software

Stream: Software Applications and Modelling Systems

Parallel session

Chair: *Ulf Lorenz*

1 - Simheuristics and Learnheuristics: extending metaheuristics in stochastic and dynamic scenarios

Angel A. Juan, Javier Faulin, Laura Calvet, Juan-Ignacio Latorre-Biel, Lorena Reyes-Rubiano

2 - Biased Randomization Procedures in Metaheuristics to Solve Stochastic Combinatorial Problems in Transportation and Logistics

Javier Faulin, Angel A. Juan, Adrian Serrano, Lorena Reyes-Rubiano, Juan-Ignacio Latorre-Biel

3 - Yasol: An open-source solver for Quantified Integer Program problems

Ulf Lorenz, Michael Hartisch

■ WE-03

Wednesday, 16:30-18:00 - WGS|103

Vehicle routing - Exact Methods

Stream: Logistics and Freight Transportation

Parallel session

Chair: *Taieb Mellouli*

1 - Multi-Commodity Two-Echelon Vehicle Routing Problem with Time Windows

Fardin Dashty Saridarq, Nico Dellaert, Tom van Woensel, Teodor Gabriel Crainic

- 2 - **Vehicle Scheduling vs. Vehicle Routing: Efficient network flow-based mathematical models and contrasts in structure and practical requirements**
Taieb Mellouli

■ WE-04

Wednesday, 16:30-18:00 - WGS|104

Confluence of Discrete and Continuous Network Optimization

Stream: Graphs and Networks

Parallel session

Chair: *Andreas Karrenbauer*

- 1 - **Near-Optimal Approximate Shortest Paths and Transshipment in Distributed and Streaming Models**
Ruben Becker, Andreas Karrenbauer, Sebastian Krinninger, Christoph Lenzen
- 2 - **Phase unwrapping for SAR interferometry using undirected shortest transshipments**
Andreas Karrenbauer
- 3 - **Two Results on Slime Mold Computations**
Pavel Kolev, Ruben Becker, Vincenzo Bonifaci, Andreas Karrenbauer, Kurt Mehlhorn

■ WE-05

Wednesday, 16:30-18:00 - WGS|104a

Planning and Scheduling in Air Transportation

Stream: Traffic, Mobility and Passenger Transportation

Parallel session

Chair: *Lucian Ionescu*

- 1 - **Airport Capacity Extension, Fleet Planning, and Optimal Aircraft Scheduling in a Four-Level Market Model: On the Effects of Market Regulations**
Martin Weibelzahl, Mathias Sirvent
- 2 - **The Flight Planning Problem with Variable Speed**
Marco Blanco, Ralf Borndörfer, Nam Dung Hoang, Thomas Schlechte
- 3 - **Lessons learned on Robust Efficiency of Airline Crew Schedules**
Lucian Ionescu, Natalia Kliewer

■ WE-06

Wednesday, 16:30-18:00 - WGS|105

Cycle Packings

Stream: Graphs and Networks

Parallel session

Chair: *Peter Recht*

- 1 - **Fullerene - Relationship between Maximum Cycle Packing and Independence Set of Dual Graph**
Stefan Stehling

- 2 - **On Maximum Cycle Packings in Halin Graphs using Wheel Decomposition**
Christin Otto

- 3 - **Spontaneous postman problems**
Peter Recht

■ WE-07

Wednesday, 16:30-18:00 - WGS|106

Foundations of Linear and Integer Programming (i)

Stream: Discrete and Integer Optimization

Parallel session

Chair: *Stefan Weltge*

- 1 - **Beyond TU-ness: A Strongly Polynomial Algorithm for Bimodular Integer Linear Programming**
Stephan Artmann, Robert Weismantel, Rico Zenklusen
- 2 - **On the number of distinct rows of a matrix with bounded sub-determinant**
Christoph Glanzer, Robert Weismantel, Rico Zenklusen
- 3 - **A polynomial algorithm for linear problems given by separation oracles**
Sergei Chubanov

■ WE-08

Wednesday, 16:30-18:00 - WGS|107

Public Transportation Planning 2

Stream: Traffic, Mobility and Passenger Transportation

Parallel session

Chair: *Christian Puchert*

- 1 - **Demand-Driven Line Planning with Selfish Routing**
Malte Renken, Amin Ahmadi Digehsara, Ralf Borndörfer, Guvenc Sahin, Thomas Schlechte
- 2 - **Traffic management heuristics for bidirectional line segments on double-track railway lines**
Norman Weik, Stephan Zieger, Nils Nießen
- 3 - **Detecting, Interpreting and Exploiting Structures in Integrated Public Transport Planning Problems**
Christian Puchert, Marco Lübbecke, Philine Schiewe, Anita Schöbel

■ WE-09

Wednesday, 16:30-18:00 - WGS|108

Discrete Optimization by Semidefinite Methods (i)

Stream: Discrete and Integer Optimization

Parallel session

Chair: *Angelika Wiegele*

- 1 - **A Modified Bundle Method for SDP with Exact Subgraph Constraints**
Elisabeth Gaar, Malwina Duda, Franz Rendl
- 2 - **Solving Extended Single Row Facility Layout Problems Using a Spectral Bundle Method**
Anja Fischer, Mirko Dahlbeck, Frank Fischer
- 3 - **DADAL - Improving Alternating Direction Augmented Lagrangian Algorithm for SDP by a Dual Step**
Angelika Wiegele, Marianna De Santis, Franz Rendl

■ WE-10

Wednesday, 16:30-18:00 - WGS|108a

Scheduling and Resource Management under Uncertainty

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Nicole Megow*

- 1 - **The Itinerant List Update Problem**
Kevin Schewior, Neil Olver, Kirk Pruhs, René Sitters, Leen Stougie
- 2 - **Submodular Secretary Problems: Cardinality, Matching, and Linear Constraints**
Andreas Tönnis, Thomas Kesselheim
- 3 - **Greedy Algorithms for Unrelated Machines Stochastic Scheduling**
Marc Uetz, Varun Gupta, Benjamin Moseley, Qiaomin Xie

■ WE-11

Wednesday, 16:30-18:00 - WGS|005

Vehicle Scheduling

Stream: Logistics and Freight Transportation
Parallel session

Chair: *Martin Pouls*

- 1 - **Exploration of Flexibility Schemes for Time Window Management**
Charlotte Köhler, Jan Fabian Ehmke, Ann Campbell
- 2 - **A randomised three-stage algorithm for the multiple depot vehicle scheduling problem**
Sarang Kulkarni, Mohan Krishnamoorthy, Andreas Ernst, Abhiram Ranade, Rahul Patil
- 3 - **A Branch-and-Price Algorithm for the Scheduling of Customer Visits in the Context of the Multi-Period Service Territory Design Problem**
Martin Pouls, Matthias Bender, Jörg Kalcsics, Stefan Nickel

■ WE-12

Wednesday, 16:30-18:00 - WGS|BIB

Hackathon: Gurobi-TomTom Mobility Maximization Mission Prize Award Session

Stream: Business Track
Parallel session

Chair: *Heiko Schilling*

- 1 - **Gurobi-TomTom-Hackathon Prize Awards**
Heiko Schilling

■ WE-13

Wednesday, 16:30-18:00 - RVH|I

Forecasting Algorithms & Methodology

Stream: Business Analytics, Artificial Intelligence and Forecasting

Parallel session

Chair: *Sven F. Crone*

- 1 - **Generalized Lasso for Weight Regularization in Forecast Combination**
Thomas Setzer, Sebastian Blanc
- 2 - **Efficiency improvement by employing forecast correction in judgmental revisions**
Florian Knöll

■ WE-14

Wednesday, 16:30-18:00 - RVH|II

Analytics in Retail and Digital Commerce II

Stream: Business Analytics, Artificial Intelligence and Forecasting

Parallel session

Chair: *Henning Nobmann*

- 1 - **The Modelling and Assessment of Online Customer Interaction, Customer Journeys and Churning**
Bernhard Luther, Nicola Winter
- 2 - **The relationship between behaviors in real life and buying behaviors on the electronic commerce site**
Kei Takahashi
- 3 - **Analyzing customer journeys in e-commerce**
Henning Nobmann, Thomas Winter

■ WE-15

Wednesday, 16:30-18:00 - RVH|III

Safety and Security

Stream: Simulation and Statistical Modelling
Parallel session

Chair: *Truong Son Pham*

- 1 - **Developing a Generalized Cyber Security Quantification Model.**
Vandana Kadam, Rakesh Verma

2 - Big-Data Approaches for Categorization of Ships based on AIS-Data
Max Krueger

3 - Modeling the Causes for Terrorism: An Innovative Framework Connecting Impactful Events with Terror Incidents
Truong Son Pham, Gonzalo Barbeito, Martin Zsifkovits, Stefan Wolfgang Pickl

■ WE-16

Wednesday, 16:30-18:00 - RBM|1102

Finance III

Stream: Finance
Parallel session

Chair: Michael H. Breitner

1 - Fast methods for the index tracking problem
Dag Haugland

2 - Impact of algorithmic trading on market quality in Austria
Roland Mestel, Michael Murg, Erik Theissen

3 - Optimal Carbon Tax Scheme under Uncertainty in an Oligopolistic Market of Polluters
Andreas Welling

■ WE-17

Wednesday, 16:30-18:00 - RBM|2204

Strategic Planning in Health Care

Stream: Health Care Management
Parallel session

Chair: Brigitte Werners

1 - Simulation-based Evaluation of Locations for Ambulances and Emergency Doctors
Pia Mareike Steenweg, Lara Wiesche, Brigitte Werners

2 - A Location Problem for Emergency Healthcare Facilities
Z. Pelin Bayindir, Cem Iyigün, Melike İşbilir

3 - Long-term personnel scheduling - A case study
Lena Wolbeck, Natalia Kliewer

■ WE-18

Wednesday, 16:30-18:00 - RBM|2215

Models and Methods for Resource-Constrained Project Scheduling

Stream: Project Management and Scheduling
Parallel session

Chair: Norbert Trautmann

1 - A branch-and-bound procedure for the resource-constrained project scheduling problem with partially renewable resources and time windows
Kai Watermeyer, Jürgen Zimmermann

2 - Markovian PERT networks: A new CTMC and benchmark results
Stefan Creemers

3 - CTMDP-Based Exact Method for Stochastic RCPSP with Uncertain Activity Durations and Rework
Xiaoming Wang, Roel Leus, Stefan Creemers, Qingxin Chen, Ning Mao

4 - An novel mixed-integer linear programming formulation for the resource-constrained project scheduling problem
Norbert Trautmann, Tom Rihm

■ WE-19

Wednesday, 16:30-18:00 - RBM|3302

Market Entry & Pricing

Stream: Production and Operations Management
Parallel session

Chair: Mohsen Elhafsi

1 - Pricing, Lead-time Quotation, Inventory Control and Capacity Setting in a Make-to-order System
Ata Jalili Marand

2 - Disruptive Innovation, Market Entry and Production Flexibility in Oligopoly
Benoit Chevalier-Roignant

3 - Managing an Integrated Production and Inventory System Selling to a Dual Market: Long-Term and Walk-In
Mohsen Elhafsi, Essia Hamouda ElHafsi

■ WE-20

Wednesday, 16:30-18:00 - RBM|4403

Supply Chain Planning

Stream: Supply Chain Management
Parallel session

Chair: Tim Gruchmann

1 - A Multi-Period Heuristic for Balancing Effort and Plan Quality in Tactical Supply Chain Planning
Annika Vernbro, Boris Amberg, Stefan Nickel

2 - Sequential vs. Integrated Solution Approaches for the Combined Manpower Teaming and Routing Problem
Yulia Anoshkina, Frank Meisel

- 3 - Managing schedule instability in automotive supply networks: insights from an industry case**
Tim Gruchmann

■ WE-21

Wednesday, 16:30-18:00 - RBM|4404

Flight Systems

Stream: OR in Engineering
Parallel session

Chair: *Michael Hartisch*

- 1 - An NLP Model for Free-flight Trajectory Planning**
Liana Amaya Moreno, Armin Fügenschuh, Anton Kaier, Swen Schlobach
- 2 - Quantified Programming applied to Airplane Scheduling**
Michael Hartisch, Simon Gnad
- 3 - Co-allocation of communication messages in an integrated modular avionic system**
Elina Rönnerberg

■ WE-22

Wednesday, 16:30-18:00 - HFB|A

MCDM 2: Multi-Criteria Optimization and Uncertainty

Stream: Decision Theory and Multiple Criteria Decision Making

Parallel session

Chair: *Stefan Ruzika*

- 1 - Risk aversion of veto functions in multi-attribute utility theory based preference models**
Andrej Bregar
- 2 - Scalarizations for multi-objective combinatorial problems with cardinality-constrained uncertainty**
Lisa Thom, Marie Schmidt, Anita Schöbel
- 3 - A General Approximation Algorithm Applied to Bi-objective Mixed Integer Programming Problems**
Stefan Ruzika, Xavier Gandibleux, Pascal Halfmann, Flavien Lucas

■ WE-23

Wednesday, 16:30-18:00 - HFB|B

Opinion Formation (i)

Stream: Game Theory and Experimental Economics
Parallel session

Chair: *Martin Hoefler*

- 1 - Opinion Formation Games in Social Networks**
Diodato Ferraioli

- 2 - Opinion Formation in a Metric Space and Dynamic Social Influences**
Angelo Fanelli

- 3 - Opinion Formation with Aggregation and Negative Influence**
Martin Hoefler

■ WE-24

Wednesday, 16:30-18:00 - HFB|C

Multiobjective Linear Programming and Global Optimization

Stream: Control Theory and Continuous Optimization
Parallel session

Chair: *Andreas Löhne*

- 1 - Algorithm for solving bilevel optimization problems being polyhedral on the lower level**
Alexandra Rittmann
- 2 - Bensolve tools - polyhedral calculus with Matlab/Octave**
Andreas Löhne, Benjamin Weißing, Daniel Ciripoi
- 3 - Decomposition-based Inner- and Outer-Refinement Algorithms for Global Optimization without Branching**
Ivo Nowak

■ WE-25

Wednesday, 16:30-18:00 - HFB|D

Open-source and Computation Time in Energy Models

Stream: Energy and Environment
Parallel session

Chair: *Dirk Hladik*

Chair: *Philipp Hauser*

- 1 - A Large-scale Spatial Open-source Electricity Market Model Using the Julia Language**
Jens Weibezahn, Mario Kendziorski, Jan Zepter
- 2 - Reducing computing times in optimizing energy system models- challenges and opportunities**
Felix Cebulla, Karl-Kien Cao, Manuel Wetzels, Frederik Fiand, Hans Christian Gils

■ WE-26

Wednesday, 16:30-18:00 - HFB|Senat

Managerial Economics

Stream: Game Theory and Experimental Economics
Parallel session

Chair: *Rainer Kleber*

1 - Inspection strategies and risk self-assessment - an extension of the classical inspection game

Jan Trockel, Benjamin Florian Siggelkow

2 - Audit Strategies in the Presence of Evasion Capabilities: a Mechanism Design Approach

Francis de Vericourt

3 - On the Robustness of the Consumer Homogeneity Assumption with Respect to the Discount Factor for Remanufactured Products

Rainer Kleber, Marc Reimann, Gilvan C. Souza, Weihua Zhang

Thursday, 9:00-10:30

■ TA-01

Thursday, 9:00-10:30 - WGS|101

Risk Aversion in Stochastic Programming

Stream: Optimization under Uncertainty

Parallel session

Chair: Matthias Claus

- 1 - **Risk averse scheduling with scenarios**
Mikita Hradovich, Adam Kasperski, Pawel Zielinski
- 2 - **On stability of stochastic bilevel programs with risk aversion**
Matthias Claus

■ TA-02

Thursday, 9:00-10:30 - WGS|102

Nonlinear Programming Solvers and Specialized Interfaces

Stream: Software Applications and Modelling Systems

Parallel session

Chair: Renke Kuhlmann

- 1 - **WORHP Zen: A Parametric Sensitivity Analysis for the Nonlinear Programming Solver WORHP**
Renke Kuhlmann, Sören Geffken, Christof Büskens
- 2 - **Efficient Computation of Pareto Frontiers with the Multi-Objective Interface of WORHP**
Arne Berger, Sören Geffken, Christof Büskens
- 3 - **On the performance of NLP solvers within global MINLP solvers**
Benjamin Müller, Renke Kuhlmann, Stefan Vigerske

■ TA-03

Thursday, 9:00-10:30 - WGS|103

Vehicle Routing - Column Generation

Stream: Logistics and Freight Transportation

Parallel session

Chair: Stefan Irnich

- 1 - **Branch-and-Price-and-Cut for the Periodic Vehicle Routing Problem with Different Schedule Structures**
Ann-Kathrin Rothenbächer
- 2 - **Bidirectional Labeling in Column-Generation Algorithms for Pickup and Delivery Problems**
Timo Gschwind, Stefan Irnich, Ann-Kathrin Rothenbächer, Christian Tilk

- 3 - **Nested column generation for a rich vehicle routing problem**

Christian Tilk, Stefan Irnich

■ TA-04

Thursday, 9:00-10:30 - WGS|104

Graphs in Air Transportation

Stream: Graphs and Networks

Parallel session

Chair: Pedro Maristany de las Casas

- 1 - **Synthetic Models for Multi-Layered Networks**
Marzena Fügenschuh, Raluca Gera, Mitchell Heaton, Tobias Lory
- 2 - **The Free Route Flight Planning Problem on Airway Networks**
Adam Schienle, Marco Blanco, Ralf Borndörfer, Nam Dung Hoang
- 3 - **Cost Minimal Aircraft Trajectories on Airway Networks**
Pedro Maristany de las Casas, Marco Blanco, Ralf Borndörfer, Nam Dung Hoang

■ TA-05

Thursday, 9:00-10:30 - WGS|104a

Matching, Coloring, and Ordering (i)

Stream: Discrete and Integer Optimization

Parallel session

Chair: Michael Juenger

- 1 - **Robust Recoverable Matchings on a Budget**
Moritz Mühenthaler, Viktor Bindewald
- 2 - **A New Integer Linear Programming Model for the Vertex Coloring Problem**
Adalat Jabrayilov
- 3 - **Mixed-Integer Programming Models for Multiprocessor Scheduling with Communication Delays**
Sven Mallach

■ TA-06

Thursday, 9:00-10:30 - WGS|105

Routing

Stream: Graphs and Networks

Parallel session

Chair: Jörn Schrieber

- 1 - **Decomposition of edge-coloured Eulerian graphs (with an application in vehicle scheduling)**
Hanno Schülldorf
- 2 - **Subtours - Useful Helpers to Solve Travelling Salesman Problems**
Cornelius Rüther, Katherina Meißner, Klaus Ambrosi

3 - Cost-Dependent Clustering: A General Multiscale Approach to Optimal Transport

Jörn Schrieber, Anita Schöbel, Dominic Schuhmacher

■ TA-07

Thursday, 9:00-10:30 - WGS|106

Computational Mixed-Integer Programming 1

Stream: Discrete and Integer Optimization
Parallel session

Chair: Ambros Gleixner

1 - Exploring the Numerics of Branch-and-Cut for Mixed Integer Linear Optimization

Matthias Miltenberger, Ted Ralphs, Daniel Steffy

2 - Measuring the Impact of Branching Rules for MIP

Gerald Gamrath, Christoph Schubert

3 - Compiling MIPLIB 2017: the 6th Mixed-Integer Programming Library

Ambros Gleixner

■ TA-08

Thursday, 9:00-10:30 - WGS|107

Data-driven Transportation Analysis

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: Alexander Immer

1 - Analyzing Temporal Mobility Patterns of Senior and Disabled Passengers in a Multimodal Setting

Büşra Sevinç, Uğur Eliyi, Selma Gürler

2 - Joint Travel Mode Detection and Segmentation using Recurrent Neural Networks

Alexander Immer, Florian Stock, Patrick Wagner

3 - Enhancing option bundling for automotive manufacturers by reducing demand variability

Radu Constantin Popa, Martin Grunow

■ TA-09

Thursday, 9:00-10:30 - WGS|108

Location Problems

Stream: Discrete and Integer Optimization
Parallel session

Chair: Andreas Klose

1 - Cut generation algorithm for the competitive facility location problem

Andrey Melnikov, Vladimir Beresnev

2 - Crane selection and location on construction sites

Michael Dienstknecht, Dirk Briskorn

3 - A branch-and-bound algorithm for the capacitated facility location problem with convex production costs

Andreas Klose

■ TA-10

Thursday, 9:00-10:30 - WGS|108a

Polyhedral Methods and Symmetry Exploitation

Stream: Discrete and Integer Optimization
Parallel session

Chair: Matthias Walter

1 - On the Size of Integer Programs with Sparse Constraints or Bounded Coefficients

Hendrik Lüthen, Christopher Hojny, Marc Pfetsch

2 - Symmetry in Mixed Integer Programs: Refined Orbitopes and Extended Formulations

Andreas Schmitt, Christopher Hojny, Marc Pfetsch

3 - Parity Polytopes and Binarization

Matthias Walter, Dominik Ermel

■ TA-11

Thursday, 9:00-10:30 - WGS|005

Collaborative Transportation Planning

Stream: Logistics and Freight Transportation
Parallel session

Chair: Margaretha Gansterer

1 - Forming near-optimal regions from bids of less-than-truckload logistics providers on country subdivisions in reverse auctions

Jan-Philipp Eisenbach, Felix Zesch

2 - The benefit of information sharing in horizontal carrier collaborations

Margaretha Gansterer, Richard Hartl, Martin Savelsbergh

■ TA-13

Thursday, 9:00-10:30 - RVH|I

Feature Engineering, Segmentation and Optimization

Stream: Business Analytics, Artificial Intelligence and Forecasting
Parallel session

Chair: Evren Guney

1 - A First Derivative Potts Model for Denoising and Segmentation Using MILP

Ruobing Shen, Gerhard Reinelt, Stéphane Canu

2 - Long-Term Forecasting: Cross-Impact-Analysis vs. time-sliced Bayesian Networks
Hans-Joachim Lenz, Thomas Schwarz

3 - Efficient Election Campaign Optimization Using Integer Programming
Evren Guney

■ TA-14

Thursday, 9:00-10:30 - RVH|II

Customer-Oriented Pricing Mechanisms

Stream: Pricing and Revenue Management
Parallel session

Chair: Claudius Steinhardt

1 - Threshold Problems in Ascending Combinatorial Auctions
Bart Vangerven, Dries Goossens, Frits Spieksma

2 - Pricing with Informative Delay Announcements
Secil Savaseneril, Sirma Karakaya, Yasemin Serin

■ TA-15

Thursday, 9:00-10:30 - RVH|III

Agent Based Modelling and Simulation

Stream: Simulation and Statistical Modelling
Parallel session

Chair: Warren Volk-Makarewicz

1 - Constructing Models of Reduced Complexity from Agent-Based Simulation Data
Mareen Hallier, Carsten Hartmann

2 - An agent-based simulation for analyzing supply chain strategies in the apparel industry
Christian Stummer, Sabrina Backs, Hermann Jahnke, Lars Lüpke, Mareike Stücken

3 - A Methodological Framework for Validating Agent-Based Simulation Models to Support Decision Making
Warren Volk-Makarewicz

■ TA-16

Thursday, 9:00-10:30 - RBM|1102

Lot Sizing and Inventory Planning

Stream: Production and Operations Management
Parallel session

Chair: Christoph Johannes

1 - Considering sequence-dependent stochasticity in production schedules
Michael Manitz, Frank Herrmann, Maximilian Munniger

2 - Production scheduling with discrete perishability of inventories
Mehdi Karimi-Nasab

3 - An extension of the General Lotsizing and Scheduling Problem (GLSP) with volatile energy prices
Christoph Johannes, Matthias Gerhard Wichmann, Thomas Spengler

■ TA-17

Thursday, 9:00-10:30 - RBM|2204

Surgery Planning

Stream: Health Care Management
Parallel session

Chair: Katja Schimmelpfeng

1 - How starting times influence performance of the operating theater
Lisa Koppka

2 - Surgery scheduling with consideration of ICU utilization leveling
Steffen Heider, Sebastian Hof, Jan Schoenfelder, Thomas Koperna, Jens Brunner

3 - A hybrid simulation-optimization approach for mobile GP operation planning
Christina Büsing, Martin Comis

■ TA-18

Thursday, 9:00-10:30 - RBM|2215

Scheduling in Shops

Stream: Project Management and Scheduling
Parallel session

Chair: Julia Lange

1 - Partially Concurrent Open Shop Scheduling with Resource Constraints
Hagai Ilani, Elad Shufan, Tal Grinshpoun

2 - A dynamic programming approach for the no-wait job shop problem
Ansis Ozolins

3 - Neighborhood structures for the blocking job-shop scheduling problem
Julia Lange, Frank Werner

■ TA-19

Thursday, 9:00-10:30 - RBM|3302

Case Studies in Operations Management

Stream: Production and Operations Management
Parallel session

Chair: Seyedreza Rahnamay Touhidi

- 1 - **Clustering the auto-part manufacturing companies based on the product value criteria (case study)**
Houshang Taghizadeh, Mostafa Ziyaei Hajipirlu
- 2 - **Agility indices to selecting contractors in outsourcing projects (case study)**
Seyedreza Rahnamay Touhidi, Mostafa Ziyaei Hajipirlu

■ TA-20

Thursday, 9:00-10:30 - RBM|4403

Supply Chain Design

Stream: Supply Chain Management
Parallel session

Chair: *Teresa Melo*

- 1 - **A joint network and inventory modelling approach for lean and agile strategies**
Wan Chuan (Claire) Chan, Johannes Fichtinger
- 2 - **A Distribution Planning Method for the Regional Logistics Center Considering Carbon Emissions**
Jun-Der Leu, Jin-Jen Liu, Yi-Wei Huang, Larry Jung-Hsing Lee, Andre Krischke
- 3 - **A Mixed-Integer Programming Model for Green Location and Transportation in a Closed-Loop Supply Chain**
Turan Paksoy, Ahmet Çalık, Abdullah Yıldızbaşı, Alexander Kumpf
- 4 - **A tri-objective multi-period model to redesign a food bank supply chain network**
Teresa Melo, Carlos Lúcio Martins, Margarida Vaz Pato

■ TA-21

Thursday, 9:00-10:30 - RBM|4404

Miscellaneous

Stream: OR in Engineering
Parallel session

Chair: *Zuzana Nedelkova*

- 1 - **Scheduling a manufacturing process with several rail-bound and identical machines in the project EWiMa**
Markus Schreiber
- 2 - **Development of Optimal Transit Routes in Afghanistan**
Fawad Zazai
- 3 - **A splitting algorithm for simulation-based optimization problems with categorical variables**
Zuzana Nedelkova

■ TA-22

Thursday, 9:00-10:30 - HFB|A

MCDM 3: Real-World Applications

Stream: Decision Theory and Multiple Criteria Decision Making
Parallel session

Chair: *H.a. Eiselt*

- 1 - **Sustainable tourism destination selection under the effect of digital economy**
Erdem Aksakal
- 2 - **Multiobjective Spatial Optimization: The Canadian Coast Guard**
H.a. Eiselt, Amin Akbari, Ronald Pelot

■ TA-23

Thursday, 9:00-10:30 - HFB|B

Optimization and Market Design (i)

Stream: Game Theory and Experimental Economics
Parallel session

Chair: *Martin Bichler*

- 1 - **Linear pricing in double auction markets with non-convexities**
Vladimir Fux
- 2 - **Core allocations in combinatorial exchanges with budget constraints**
Stefan Waldherr, Martin Bichler
- 3 - **Linear Item Pricing In Combinatorial Auctions**
Robert Day

■ TA-24

Thursday, 9:00-10:30 - HFB|C

Nonlinear Optimization 1

Stream: Control Theory and Continuous Optimization
Parallel session

Chair: *Faizan Ahmed*

- 1 - **Robust optimization methods for circle coverings of a square**
Mihály Csaba Markót
- 2 - **Computing the splitting preconditioner for interior point method using an incomplete factorization approach**
Marta Velazco, Aurelio Oliveira

■ TA-25

Thursday, 9:00-10:30 - HFB|D

Energy and Stochastic Programming

Stream: Energy and Environment
Parallel session

Chair: *Dogan Keles*

1 - Strategic generation investment using a stochastic rolling-horizon MPEC approach and adaptive risk management

Thomas Kallabis, Steven Gabriel

2 - A stochastic energy system model to investigate efficient markets for security of supply in Europe - and challenges when applying the model to high performance computing

Frieder Borggrefe, Manuel Wetzel

3 - Biomass Supply Planning for Combined Heat and Power Plants using Stochastic Programming

Daniela Guericke, Ignacio Blanco, Juan Miguel Morales, Henrik Madsen

■ TA-26

Thursday, 9:00-10:30 - HFB|Senat

Decision Making under Uncertainty (i)

Stream: Game Theory and Experimental Economics

Parallel session

Chair: *Timo Heinrich*

1 - An experimental approach to investigate whether and how risk attitudes change

Jonas Dorlöchter, Erwin Amann

2 - Social Learning and the Endowment Effect: An Experiment

Timo Heinrich, Matthias Seifert, Franziska Then

Thursday, 11:00-12:30

■ TB-01

Thursday, 11:00-12:30 - WGS|101

Nonlinear problems under uncertainty

Stream: Optimization under Uncertainty

Parallel session

Chair: *Raimund Kovacevic*

1 - Optimal control and the Value of Information for a Stochastic Epidemiological SIS-Model

Raimund Kovacevic

2 - Convex Approach with Subgradient Method to Robust Service System Design

Jaroslav Janacek, Marek Kvet

3 - Scenario Dominance for Acceleration of Robust Service System Design Method

Marek Kvet, Jaroslav Janacek

■ TB-02

Thursday, 11:00-12:30 - WGS|102

Implementation of Acceleration Strategies from Mathematics and Computational Sciences for Optimizing Energy System Models

Stream: Software Applications and Modelling Systems

Parallel session

Chair: *Felix Cebulla*

1 - Getting linear optimising energy system models ready for High Performance Computing

Manuel Wetzel, Karl-Kien Cao, Frederik Fiand, Hans Christian Gils

2 - Optimizing large-scale linear energy problems with block diagonal structure by using parallel interior-point methods

Daniel Rehfeldt, Ambros Gleixner, Thorsten Koch

3 - High Performance Computing with GAMS

Frederik Fiand, Michael Bussieck

4 - High Performance Computing for Energy System Modelling

Thomas Breuer, Dmitry Khabi

■ TB-03

Thursday, 11:00-12:30 - WGS|103

Sustainable Logistics

Stream: Logistics and Freight Transportation

Parallel session

Chair: *Moritz Behrend*

- 1 - **Multi-objective supplier portfolio configuration under supply risk and sustainability considerations: an a posteriori decision support methodology**
Florian Kellner, Bernhard Lienland, Sebastian Utz
- 2 - **How to control a reverse logistics system when used items return with diminishing quality**
Imre Dobos, Grigory Pishchulov, Ralf Gössinger
- 3 - **Integrating item-sharing and crowdshipping as a 3-dimensional assignment problem**
Moritz Behrend, Frank Meisel

■ TB-04

Thursday, 11:00-12:30 - WGS|104

Algorithms for NP-hard Problems

Stream: Graphs and Networks
Parallel session

Chair: Ernst Althaus

- 1 - **Arboreal bipartite matchings**
Stefan Canzar, Luka Borozan, Khaled Elbassioni, Sören Laue, Domagoj Matijevic
- 2 - **Resolving Conflicts for Lower-Bounded Clustering**
Henning Fernau, Katrin Casel
- 3 - **Solving SAT-Instances with Small Treewidth within the Apache Spark Framework**
Ernst Althaus, Vitali Diel, Andreas Hildebrandt

■ TB-05

Thursday, 11:00-12:30 - WGS|104a

Time-Discretized Formulations for Scheduling Problems (i)

Stream: Discrete and Integer Optimization
Parallel session

Chair: Andreas Börmann

- 1 - **Lower Bounds for the Resource-Constrained Project Scheduling Problem from a Time Bucket Relaxation**
Alexander Tesch
- 2 - **Train service rescheduling considering energy consumption and passenger compensation policy in case of delays**
Luis Cadarso
- 3 - **The Stable Set Problem with Multiple-Choice Constraints on Staircase Graphs**
Oskar Schneider, Andreas Börmann, Thorsten Gellermann, Alexander Martin, Maximilian Merkert

■ TB-06

Thursday, 11:00-12:30 - WGS|105

Social Networks

Stream: Graphs and Networks
Parallel session

Chair: Marinus Gottschau

- 1 - **Individualism and collectivism in social dynamics: contact process with stochastic opinion fluctuations in complex networks**
Liudmila Rozanova, Alexander Temerev
- 2 - **Bootstrap Percolation on Degenerate Graphs**
Marinus Gottschau

■ TB-07

Thursday, 11:00-12:30 - WGS|106

Computational Mixed-Integer Programming 2

Stream: Discrete and Integer Optimization
Parallel session

Chair: Ambros Gleixner

- 1 - **SCIP-SDP: A General-Purpose Solver for Mixed-Integer Semidefinite Programming**
Tristan Gally, Marc Pfetsch, Stefan Ulbrich
- 2 - **Four good reasons to use an Interior Point solver within a MIP solver**
Timo Berthold, Michael Perregaard, Csaba Mészáros
- 3 - **Current progress in ParaXpress**
Yuji Shinano

■ TB-08

Thursday, 11:00-12:30 - WGS|107

The Future of Mobility

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: Heiko Schilling

- 1 - **Transforming Mobility – Navigation Technology Past, Present, and Future**
Felix G. König, Heiko Schilling
- 2 - **Precisely Detect "Object" Locations Using Crowdsourcing and Machine Learning**
Sören Sonnenburg
- 3 - **Autonomos – Autonomous Driving Technology from Berlin**
Tinosch Ganjineh

■ TB-09

Thursday, 11:00-12:30 - WGS|108

MINLP-Methods

Stream: Discrete and Integer Optimization
Parallel session

Chair: Oliver Stein

- 1 - **Solving MIQP Topology Optimization Problems by Successive Nonconvex Approximation**
Gregoire Njacheun njanzoua, Ivo Nowak
- 2 - **Hypervolume Maximizing Representation for the Bi-objective Knapsack Problem: The Rectangular Knapsack Problem**
Britta Schulze, Carlos M. Fonseca, Luis Paquete, Stefan Ruzika, Michael Stiglmayr, David Willems
- 3 - **Feasible Roundings for Granular Optimization**
Oliver Stein

■ TB-10

Thursday, 11:00-12:30 - WGS|108a

Branch-and-Price

Stream: Discrete and Integer Optimization
Parallel session
Chair: *Stefan Irnich*

- 1 - **A Stabilized Branch-and-Price Algorithm for Vector Packing Problems**
Katrin Hebler, Timo Gschwind, Stefan Irnich
- 2 - **On the Gap of the Skiving Stock Problem**
John Martinovic, Guntram Scheithauer
- 3 - **Column Generation for the Soft-Clustered Vehicle-Routing Problem**
Stefan Irnich, Timo Hintsch
- 4 - **A branch-and-price algorithm for the SPP**
Isabel Friedow

■ TB-11

Thursday, 11:00-12:30 - WGS|005

Vehicle Routing - Heuristics I

Stream: Logistics and Freight Transportation
Parallel session
Chair: *Katharina Glock*

- 1 - **The Time Dependent Vehicle Routing Problem: A Simulation Based Dynamic Programming Approach**
Mehmet Soysal, Mustafa Çimen, Sedat Belbag, Cagri Sel
- 2 - **Vehicle Routing Problem with Ridesharing and Walking**
Olivier Gallay, Marc-Antoine Coindreau, Nicolas Zufferey
- 3 - **Extensions to the Correlated Orienteering Problem for Emergency Surveillance**
Katharina Glock, Anne Meyer, Guido Tack

■ TB-12

Thursday, 11:00-12:30 - WGS|BIB

IBM Business Session – On Deploying successful Decision Optimization applications

Stream: Business Track
Parallel session
Chair: *Sofiane Oussedik*

- 1 - **IBM Decision Optimization cloud offering**
Sebastian Fink

- 2 - **Designing and building new aircrafts case study**
Sofiane Oussedik

■ TB-13

Thursday, 11:00-12:30 - RVH|I

Smart Services and Internet of Things

Stream: Business Analytics, Artificial Intelligence and Forecasting
Parallel session
Chair: *Maria Maleshkova*

- 1 - **Smart Components for Value-driven Service Adaptation**
Maria Maleshkova
- 2 - **Towards Self-governed Smart Services**
Sebastian Bader
- 3 - **Optimizing Data Flows in Loosely Coupled Distributed Applications at Runtime**
Felix Leif Keppmann

■ TB-14

Thursday, 11:00-12:30 - RVH|II

Airline Revenue Management

Stream: Pricing and Revenue Management
Parallel session
Chair: *Robert Klein*

- 1 - **Optimal Benchmarks for the Revenue Management Problem**
Robert Dochow, Stefan Heuer
- 2 - **A stochastic dynamic pricing model for passenger air transportation**
Fernando Zepeda, Heiko Schmitz
- 3 - **A Frank-Wolfe Decomposition Approach to Network Revenue Management**
Thomas Winter, Ivo Nowak, Jörg Pancake-Steeg, Stephan Würfl

■ TB-15

Thursday, 11:00-12:30 - RVH|III

Modelling and Simulation for Operations and Logistics

Stream: Simulation and Statistical Modelling
Parallel session
Chair: *Yony Fernando Ceballos*

1 - Integration of Order Acceptance into Optimization-Based Order Release models

Pia Netzer, Stefan Haeussler, Hubert Missbauer

2 - Analysis of machine use in sport center in Medellin, Colombia

Yony Fernando Ceballos, Salomé Naranjo, Carlos Hernandez

■ **TB-16**

Thursday, 11:00-12:30 - RBM|1102

CANCELLED: Miscellaneous

Stream: Production and Operations Management

Parallel session

Chair: *Gabriel Trazzi*

■ **TB-17**

Thursday, 11:00-12:30 - RBM|2204

Treatment Planning and Health Care Systems

Stream: Health Care Management

Parallel session

Chair: *Stefan Nickel*

1 - Preventing Hot Spots in High Dose-Rate Brachytherapy

Björn Morén, Torbjörn Larsson, Åsa Carlsson Tedgren

2 - Kidney exchange programs with a priori crossmatch probing

Filipe Alvelos, Ana Viana

3 - Evaluating the Performance Criteria of Health Information Systems by Using Fuzzy Type-2 Multi Criteria Decision Making Methodology

Betül Özkan

■ **TB-18**

Thursday, 11:00-12:30 - RBM|2215

Project Management

Stream: Project Management and Scheduling

Parallel session

Chair: *Matthias Gerhard Wichmann*

1 - Impact Assessment Based Sectoral Balancing in Public R&D Project Portfolio Selection Problem

Sinan Gürel, Musa Çağlar

2 - Success of projects with respect to their characteristics

Arik Sadeh

3 - A new Simulation-based optimization Approach for multi-mode resource-constrained project scheduling problems

Parham Azimi

4 - A fuzzy robustness measure for the scheduling of commissioned product development projects

Matthias Gerhard Wichmann, Maren Gäde, Thomas Spengler

■ **TB-19**

Thursday, 11:00-12:30 - RBM|3302

Scheduling and Workload Control

Stream: Production and Operations Management

Parallel session

Chair: *Seyda Topaloglu Yildiz*

1 - Precedence theorems and dynamic programming solutions for the precedence-constrained single machine weighted tardiness problem

Salim Rostami, Stefan Creemers, Roel Leus

2 - An Iterative Matheuristic Approach for the Flexible Tour Scheduling Problem

Seyda Topaloglu Yildiz, Mustafa Avcı

3 - Comparison between Rule- and Optimization based Workload Control Concepts

Stefan Haeussler, Pia Netzer

■ **TB-20**

Thursday, 11:00-12:30 - RBM|4403

Hierarchical Demand Fulfillment

Stream: Supply Chain Management

Parallel session

Chair: *Konstantin Kloos*

1 - Deterministic allocation models for multi-period hierarchical demand fulfillment

Jaime Cano Belmán, Herbert Meyr

2 - Multi-period demand fulfillment in customer hierarchies with stochastic demand

Maryam Nouri Roozbahani, Moritz Fleischmann

3 - New Rules for Allocating Supply in Hierarchical, Push-Based ATP Systems under Stochastic Demand and Service-Level Targets

Konstantin Kloos, Benedikt Schulte, Richard Pibernik

■ **TB-21**

Thursday, 11:00-12:30 - RBM|4404

Modelling for Business and Society

Stream: OR in Engineering

Parallel session

Chair: *Achim Koberstein*

1 - The odyssey from business to research data – ideas, concepts, and obstacles explained on gas network data

Oliver Kunst, Friedrich Dinsel, Sascha Witte, Uwe Gotzes, Thorsten Koch

2 - Solution Algorithm for Capacity Expansion Problem on Networks

Takayuki Shiina, Jun Imaizumi, Susumu Morito

3 - Using mixed integer programming for the optimal design of water supply networks for slums

Lea Rausch, John Friesen, Lena Charlotte Altherr, Peter Pelz

■ TB-22

Thursday, 11:00-12:30 - HFB|A

MCDM 4: Multi-Criteria Decision Making and Fuzzy Systems

Stream: Decision Theory and Multiple Criteria Decision Making

Parallel session

Chair: *Olga Metzger*

1 - Comparison of City Sustainability Performances with a Hybrid Fuzzy Multi-Criteria Decision Making Method: A Case Study of Turkey

Abdullah Yıldızbaşı, Ahmet Çalık, Turan Paksoy

2 - From Right to Reality: The Children's Daycare Planning Problem

Catherine Cleophas, Martin Weibelzahl, Christina Büsing

3 - Economics of Crisp and Intuitionistic Fuzzy Information

Olga Metzger, Thomas Spengler, Tobias Volkmer

■ TB-23

Thursday, 11:00-12:30 - HFB|B

Tropical Geometry and Game Theory (i)

Stream: Game Theory and Experimental Economics

Parallel session

Chair: *Michael Joswig*

1 - Tropical spectrahedra and mean payoff stochastic games

Stephane Gaubert, Xavier Allamigeon, Mateusz Skomra

2 - Mean Payoff Games in Products of Simplices

Georg Loho

3 - Tropical Geometry and Mechanism Design

Robert Crowell

■ TB-24

Thursday, 11:00-12:30 - HFB|C

Nonlinear Optimization 2

Stream: Control Theory and Continuous Optimization

Parallel session

Chair: *Maksim Barketau*

1 - Strong Stability of degenerated C-stationary points in MPCC

Daniel Hernandez Escobar, Jan-J Ruckmann

2 - Maximization of homogeneous polynomials on the simplex: structure, stability, and generic behavior

Faizan Ahmed, Georg Still

3 - Quadratic support functions in quadratic bilevel programming

Oleg Khamisov

■ TB-25

Thursday, 11:00-12:30 - HFB|D

Maintenance in Energy

Stream: Energy and Environment

Parallel session

Chair: *Philipp Hauser*

1 - An Optimization Model to Develop Efficient Dismantling Networks for Wind Turbines

Martin Westbomke, Jan-Hendrik Piel, Michael H. Breitner, Peter Nyhuis, Malte Stonis

2 - On generating a fleet composition for offshore wind farm maintenance operations

Eligius M.T. Hendrix, Alejandro Gutierrez Alcoba, Inmaculada Garcia Fernandez, Dag Haugland, Elin E. Halvorsen-Weare, Gloria Ortega

3 - On a design of economically near optimal nuclear fuel reload patterns

Roman Cada

■ TB-26

Thursday, 11:00-12:30 - HFB|Senat

Behavioral Inventory Management (i)

Stream: Game Theory and Experimental Economics

Parallel session

Chair: *Michael Becker-Peth*

1 - Inventory Management with Alternative Myopic Incentive Schemes: Rational and Behavioral Decision Making

Michael Becker-Peth, Kai Hoberg, Margarita Protopappa-Sieke

2 - Explanatory Power of Experience Weighted Attraction in Individual Decision Making Compared to Simple Decision Rules - a Simulation Study

Heike Schenk-Mathes, Christian Koester

3 - Should the Retailer or Supplier Exercise Effort to Increase Demand?

Anna-Lena Sachs, Yingshuai Zhao, Ulrich Thonemann

Thursday, 13:30-14:15

■ TC-22

Thursday, 13:30-14:15 - HFB|A

Semi-Plenary Meinolf Sellmann

Stream: Semi-Plenaries

Semi-plenary session

Chair: Stefan Lessmann

- 1 - Meta-Algorithms**
Meinolf Sellmann
-

■ TC-23

Thursday, 13:30-14:15 - HFB|B

Semi-Plenary Hans-Georg Zimmermann

Stream: Semi-Plenaries

Parallel session

Chair: Ralph Grothmann

- 1 - Data Analytics, Machine Intelligence and Digitalization at Siemens**
Hans Georg Zimmermann
-

■ TC-24

Thursday, 13:30-14:15 - HFB|C

Semi-Plenary Alexander Martin

Stream: Semi-Plenaries

Semi-plenary session

Chair: Martin Skutella

- 1 - Network Flow Problems with Physical Transport**
Alexander Martin
-

■ TC-25

Thursday, 13:30-14:15 - HFB|D

Semi-Plenary Arne Strauss

Stream: Semi-Plenaries

Semi-plenary session

Chair: Catherine Cleophas

- 1 - Last Mile Logistics**
Arne Karsten Strauss
-

Thursday, 14:45-16:15

■ TD-01

Thursday, 14:45-16:15 - WGS|101

Applications of Uncertainty

Stream: Optimization under Uncertainty

Parallel session

Chair: Christine Markarian

- 1 - Influence Maximization with Deactivation in Social Networks**
Kübra Tanınmış, Necati Aras, I. Kuban Altinel
- 2 - Decision support for tactical planning of maintenance activities - a use case for the INFRALETT project**
Ute Kandler, Axel Simroth
- 3 - Online Leasing with Penalties**
Christine Markarian
-

■ TD-02

Thursday, 14:45-16:15 - WGS|102

Deployment of Optimization Models

Stream: Software Applications and Modelling Systems

Parallel session

Chair: Franz Nelissen

- 1 - Developing optimization web apps with Xpress**
Johannes Müller, Susanne Heipcke, Yves Colombani
- 2 - Recent Advances for Building and Deploying Analytical Solutions using AIMMS**
Ovidiu Listes
- 3 - A distributed Optimization Bot/Agent Application Framework for GAMS Models**
Franz Nelissen
-

■ TD-03

Thursday, 14:45-16:15 - WGS|103

Railway Transportation

Stream: Logistics and Freight Transportation

Parallel session

Chair: Carsten Moldenhauer

Chair: Ronny Hansmann

- 1 - Complexity of railway freight shunting - overview and new results**
Ronny Hansmann
-

■ TD-04

Thursday, 14:45-16:15 - WGS|104

Network Flows

Stream: Graphs and Networks

Parallel session

Chair: Horst W. Hamacher

- 1 - **Shortest Path Approach to the Min-Max Integer Minimum Cost Flow Problem**
Anika Kinscherff, André Chassein
- 2 - **On Finding Maximum Minimum Cost Flows**
Kai Hoppmann, Robert Schwarz
- 3 - **Swapping all-pair shortest path and maximal flow matrices: Theory and applications**
Horst W. Hamacher

■ TD-05

Thursday, 14:45-16:15 - WGS|104a

Scheduling Problems

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Cor Hurkens*

- 1 - **Location-Scheduling Model to Design Charging Infrastructure for a Fleet of Electric Vehicles**
Lubos Buzna, Michal Váňa, Michal Kohani, Matej Cebecauer, Peter Czimmermann
- 2 - **MIP and Heuristics for Multi-Earth-Observing Satellites Scheduling**
Xiaoyu Chen, Gerhard Reinelt, Guangming Dai
- 3 - **Solving integer programming models for the mid-term production planning of high-tech low-volume industries**
Joost de Kruijff, Cor Hurkens, Ton de Kok

■ TD-06

Thursday, 14:45-16:15 - WGS|105

Demand and Load Balancing in Networks

Stream: Graphs and Networks
Parallel session

Chair: *Christoph Helmberg*

- 1 - **Predictive Analytics Based Energy Pricing Approach for Smart Grids**
Jan Keidel, Peter Gluchowski
- 2 - **Virtual Machine Migration and Resource Reallocation: A Multi-Step Approach**
Nguyen Tuan Khai, Andreas Baumgartner, Thomas Bauschert
- 3 - **Synergetic Optimization of Communication and Power Networks**
Anja Hähle, Christoph Helmberg

■ TD-07

Thursday, 14:45-16:15 - WGS|106

Computational Mixed-Integer Programming 3

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Ambros Gleixner*

- 1 - **Recent developments in the CPLEX solver**
Roland Wunderling
- 2 - **Current Status and Future Developments of the SAS MILP Solver**
Philipp Christophel
- 3 - **Recent Advances in Gurobi 7.0**
Michael Winkler, Tobias Achterberg
- 4 - **Satalia's Solving Genie: The SolveEngine**
Vito Tumas, Yuri Moskvovic

■ TD-08

Thursday, 14:45-16:15 - WGS|107

Urban Transport

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: *Jörn Schönberger*

- 1 - **An Integrated Optimization-Simulation Approach for Sustainable Urban Transport**
Marcus Brandenburg, Werner Jammernegg, Matthias Kannegiesser, Manfred Paier, Tina Wakolbinger
- 2 - **Traffic Speed Prediction with Neural Networks**
Umut Çakmak, Mehmet Serkan Apaydin, Bülent Çatay
- 3 - **Ticket Portfolio Planning for Zone-based Public Transport Tariffs -Time-Oriented Product Discrimination**
Jörn Schönberger

■ TD-09

Thursday, 14:45-16:15 - WGS|108

Robust Combinatorial Optimization (i)

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Jannik Matuschke*

- 1 - **New MIP Formulations for the Steiner Forest Problem**
Daniel Schmidt, Bernd Zey, Francois Margot
- 2 - **Robust Randomized Matchings**
Jannik Matuschke, Martin Skutella, Jose Soto
- 3 - **Mixed Integer Reformulations of Robust b-Matching Problems**
Frauke Liers, Lena Maria Hupp, Manu Kapolke, Alexander Martin, Robert Weismantel

■ TD-10

Thursday, 14:45-16:15 - WGS|108a

Online-Algorithms

Stream: Discrete and Integer Optimization
Parallel session

Chair: *R. Hildenbrandt*

- 1 - **On-line Algorithms for Controlling Distribution Conveyors and Multi-line Palletizers**
Jochen Rethmann, Frank Gurski, Egon Wanke
- 2 - **Optimizing Address Mappings of DRAMs with Fixed Access Patterns**
Marco Natale, Sven Krumke
- 3 - **The k-server problem with parallel requests and the corresponding generalized paging problem**
R. Hildenbrandt

■ TD-11

Thursday, 14:45-16:15 - WGS|005

Vehicle Routing - Heuristics II

Stream: Logistics and Freight Transportation
Parallel session

Chair: *Sandra Huber*

- 1 - **A solution approach for the k-dissimilar vehicle routing problem with practical requirements**
Sandra Zajac
- 2 - **Just-in-Time Route Optimization for Urban Delivery Processes**
Sebastian-Adam Gebski, Patrick Czerwinski, Marc-Oliver Sonneberg, Max Leyerer, Michael H. Breitner
- 3 - **A matheuristic based on Variable Neighborhood Search for the Swap-Body Vehicle Routing Problem**
Sandra Huber, Jean-François Cordeau, Martin Josef Geiger

■ TD-13

Thursday, 14:45-16:15 - RVH|I

Smart Services and Internet of Things II

Stream: Business Analytics, Artificial Intelligence and Forecasting
Parallel session

Chair: *Maria Maleshkova*

- 1 - **Exploring the Formation of Blockchain-driven Business Networks**
Stefan Seebacher
- 2 - **Estimating Downtime Costs using Simulation**
Clemens Wolff, Michael Vössing
- 3 - **Data-driven Decision Support for Field Service Planning**
Michael Vössing, Clemens Wolff

■ TD-14

Thursday, 14:45-16:15 - RVH|II

Human Decision Making in Revenue Management

Stream: Pricing and Revenue Management
Parallel session

Chair: *Catherine Cleophas*

- 1 - **Prediction and Learning with Expert Advice in Airline Revenue Management**
Stefan Franz, Esther Mohr, Christiane Barz
- 2 - **Considering Human Decision Making in Revenue Management Given Diverse Decision Tasks**
Claudia Schuetze, Catherine Cleophas
- 3 - **Balancing Revenue and Load in Capacity-Based Revenue Management**
Felix Geyer, Christina Büsing, Catherine Cleophas

■ TD-15

Thursday, 14:45-16:15 - RVH|III

Modelling and Simulation Applied to Transportation Systems

Stream: Simulation and Statistical Modelling
Parallel session

Chair: *Malte Thiede*

- 1 - **The European Air Transport System: Data Analysis for System Dynamics Modeling**
Gonzalo Barbeito, Marcia Urban, Ulrike Kluge, Maximilian Moll, Kay Plötner, Martin Zsifkovits, Stefan Wolfgang Pickl, Mirko Hornung
- 2 - **An agent-based simulation using conjoint data: the case of electric vehicles in Germany**
Markus Günther, Marvin Klein, Lars Lüpke
- 3 - **Simulation of a Service Station in a Public Transportation System**
Malte Thiede, Lars Stegemann, Daniel Furstenau, Martin Gersch, Hannes Rothe

■ TD-16

Thursday, 14:45-16:15 - RBM|1102

Assembly Line Planning

Stream: Production and Operations Management
Parallel session

Chair: *Tobias Kreiter*

- 1 - **Flexible layouts for the mixed-model assembly of heterogeneous vehicles**
Andreas Hottenrott, Martin Grunow
- 2 - **Using Extreme Value Theory to Model Assembly Line Balancing Problem with Stochastic Task Times**
F. Tevhide Altekin

3 - Production Sequencing of Multi-level Mixed-Model Assembly Lines

Tobias Kreiter, Ulrich Pferschy

■ TD-17

Thursday, 14:45-16:15 - RBM|2204

Planning Health Care Services

Stream: Health Care Management

Parallel session

Chair: Teresa Melo

1 - Appointment Scheduling Strategies for Medical Group Practices

Julia Block, Lisa Koppka, Matthias Schacht, Brigitte Werners

2 - A Genetic Algorithm for the Vehicle Routing Problem with time window and temporal synchronization constraints

Stephan Hocke, Christina Hermann, Mathias Kasper

3 - Planning of out-of-hours service for pharmacies

Timo Gersing, Christina Büsing, Arie Koster

■ TD-18

Thursday, 14:45-16:15 - RBM|2215

Resource Planning and Production Planning

Stream: Project Management and Scheduling

Parallel session

Chair: Markus Seizinger

1 - Dynamic resource scheduling problem for audit planning

Ethem Canakoglu, Ibrahim Muter, Onur Adanur

2 - Strategic planning of new product introductions in the automotive industry

Christopher Valentin Bersch, Renzo Akkerman, Rainer Kolisch

3 - The two dimensional bin packing problem with layer constraints

Markus Seizinger, Andreas Fügenger, Jens Brunner, Alessio Trivella

■ TD-19

Thursday, 14:45-16:15 - RBM|3302

Production Planning & Control

Stream: Production and Operations Management

Parallel session

Chair: Justus Arne Schwarz

1 - Optimization of processing rates in stochastic operations systems

Raik Stolletz, Jannik Vogel

2 - In-Line Sequencing in Automotive Production Plants - A Simulation Study

Heinrich Kuhn, Marcel Lehmann

3 - Minimizing work-in-process inventory in dynamic Kanban systems

Justus Arne Schwarz, Raik Stolletz

■ TD-20

Thursday, 14:45-16:15 - RBM|4403

Multiple Suppliers

Stream: Supply Chain Management

Parallel session

Chair: Thomas Mellewigt

1 - Newsvendor models with unreliable and backup suppliers

Dimitrios Pandelis

2 - Finding the optimal fill rate and reorder point by simulating a periodic review stochastic inventory model with two supply modes

Felix Zesch

3 - Does the Effectiveness of Concurrent Sourcing in Reducing Opportunism Depend on the Internal/External Sourcing Balance?

Thomas Mellewigt, Sarah Bruhs

■ TD-21

Thursday, 14:45-16:15 - RBM|4404

Advanced Flow Systems

Stream: OR in Engineering

Parallel session

Chair: Fabian Gnegel

1 - Polyhedral 3D Models for Natural Gas Compressors and Stations

René Saitenmacher, Tom Walther, Benjamin Hiller

2 - A new Approach for the Optimization of Booster Stations

Jonas Benjamin Weber, Ulf Lorenz

3 - Mixed-Integer Linear Programming for a PDE-Constrained Dynamic Network Flow

Fabian Gnegel, Armin Fügenschuh

■ TD-22

Thursday, 14:45-16:15 - HFB|A

MCDM 5: Nonlinear Multiobjective Optimization

Stream: Decision Theory and Multiple Criteria Decision Making

Parallel session

Chair: Kerstin Daechert

- 1 - **A forward-backward method for solving vector optimization problems**
Sorin-Mihai Grad
- 2 - **Weight space decomposition for multiobjective convex quadratic programs**
Marco Milano, Kathrin Klamroth, Margaret Wiecek
- 3 - **A bicriteria perspective on an L-penalty approach for solving MPECs**
Kerstin Daeichert, Sauleh Siddiqui, Javier Saez-Gallego, Steven Gabriel, Juan Miguel Morales

■ TD-23

Thursday, 14:45-16:15 - HFB|B

Congestion Games (i)

Stream: Game Theory and Experimental Economics
Parallel session

Chair: *Alexander Skopalik*

- 1 - **Approximation Algorithms for Unsplittable Resource Allocation Problems**
Antje Bjelde, Max Klimm, Daniel Schmand
- 2 - **Network Design Games with Bandwidth Competition and Selfish Followers**
Daniel Schmand, Alexander Skopalik, Carolin Tidau
- 3 - **On 1.6-approximate pure Nash equilibria**
Alexander Skopalik, Vipin Ravindran Vijayalaksh

■ TD-24

Thursday, 14:45-16:15 - HFB|C

Nonlinear Optimization 3

Stream: Control Theory and Continuous Optimization
Parallel session

Chair: *Mirjam Duer*

- 1 - **Looking for the intersset distance**
Maksim Barketau, Erwin Pesch
- 2 - **Projection method for minimization of polyhedral function over hypercube**
Maxim Demenkov
- 3 - **A factorization method for completely positive matrices based on alternating projections**
Mirjam Duer, Patrick Groetzner

■ TD-25

Thursday, 14:45-16:15 - HFB|D

Energy-oriented scheduling

Stream: Energy and Environment
Parallel session

Chair: *Magnus Fröhling*

- 1 - **Energy-efficient multi-objective scheduling**
Damian Braschczok, Andreas Dellnitz, Andreas Kleine, Jonas Ostmeyer
- 2 - **Energy-oriented scheduling of parallel machines considering peak demand charges and labor costs**
Lukas Strob, Thomas Volling

■ TD-26

Thursday, 14:45-16:15 - HFB|Senat

Behavioral Operations Management (i)

Stream: Game Theory and Experimental Economics
Parallel session

Chair: *Andreas Fügener*

- 1 - **Performance of inventory policies under scarcity - a behavioral perspective**
Sebastian Schiffels
- 2 - **A behavioral investigation of the effect of strategic buckets in project selection**
Andreas Fügener, Sebastian Schiffels, Ulrich Thonemann
- 3 - **Behavioral Responses to Disruptions in the Multi-Armed Bandit Model**
Abdolhossein Ghayazi, Mirko Kremer, Fabian Sting

Friday, 9:00-10:30

■ FA-01

Friday, 9:00-10:30 - WGS|101

Inventory Routing

Stream: Logistics and Freight Transportation

Parallel session

Chair: *Sebastian Malicki*

- 1 - **A decision support system for last-mile distribution of perishables in e-grocery operations**
Christian Fikar
- 2 - **Inventory Routing: Consistency and Split Deliveries**
Emilio Jose Alarcon Ortega, Michael Schilde, Karl Doerner, Sebastian Malicki
- 3 - **Inventory Routing: Setting Safety Stock under Stochastic Demands**
Sebastian Malicki, Stefan Minner, Michael Schilde

■ FA-02

Friday, 9:00-10:30 - WGS|102

Optimization Applications

Stream: Software Applications and Modelling Systems

Parallel session

Chair: *Roland Wessäly*

- 1 - **Modeling uncertainties in supply chains**
Christian Timpe
- 2 - **Exam scheduling at United States Military Academy West Point**
Frederik Proske, Robin Schuchmann
- 3 - **Generic Construction and Efficient Evaluation of DAEs with Flow Network Structure and Their Derivatives in the Context of Gas Networks**
Tom Streubel, Christian Strohm, Philipp Trunschke, Caren Tischendorf
- 4 - **Gigabit at home - How mathematics makes the fiber rollout more efficient!**
Roland Wessäly

■ FA-03

Friday, 9:00-10:30 - WGS|103

Warehouse Management

Stream: Logistics and Freight Transportation

Parallel session

Chair: *David Boywitz*

- 1 - **Active repositioning of storage units in Robotic Mobile Fulfillment Systems**
Marius Merschformann

- 2 - **Order picking with heterogeneous technologies: An integrated article-to-device assignment and manpower allocation problem**
Ralf Gössinger, Grigory Pishchulov, Imre Dobos
- 3 - **Motion and Layout Planning in a Grid-Based Early Baggage Storage System**
Altan Yalcin, Achim Koberstein, Kai-Oliver Schocke
- 4 - **Robust storage assignment in stack- and queue-based storage systems**
David Boywitz, Nils Boysen

■ FA-04

Friday, 9:00-10:30 - WGS|104

Random Keys and Integrated Approaches

Stream: Metaheuristics

Parallel session

Chair: *Franz Rothlauf*

- 1 - **A Biased Random-Key Genetic Algorithm for the Liner Shipping Fleet Repositioning Problem**
Daniel Müller
- 2 - **Generalized Random Key Algorithms for Heuristic Optimization**
Kevin Tierney
- 3 - **The inola AOC - a proved and tested self-learning metaheuristic for optimization in logistics and transportation**
Thomas Scheidl

■ FA-05

Friday, 9:00-10:30 - WGS|104a

Discrete Optimization for User-Interface Design (i)

Stream: Discrete and Integer Optimization

Parallel session

Chair: *Andreas Karrenbauer*

Chair: *Antti Oulasvirta*

- 1 - **A Novel SDP Relaxation for the Quadratic Assignment Problem using Cut Pseudo Bases**
Maximilian John, Andreas Karrenbauer
- 2 - **Optimizing Special Character Entry: the Case of the French Keyboard Standard**
Anna Maria Feit, Antti Oulasvirta
- 3 - **Layout Design with Combinatorial Optimization**
Niraj Ramesh Dayama, Antti Oulasvirta
- 4 - **Combinatorial Optimization in User Interface Design**
Antti Oulasvirta

■ FA-06

Friday, 9:00-10:30 - WGS|105

Assignments and Matchings

Stream: Graphs and Networks

Parallel session

Chair: *Isabel Beckenbach*

1 - An Empirical Study on Online Frequency Assignment Problem (FAP)

Selin Bayramoglu, Berkin Tan Arici, Ali Özgür Çetinok, Tinaz Ekim

2 - k-Budgeted Matching Problems

Martin Comis, Christina Büsing

3 - Matchings in hypergraphs

Isabel Beckenbach

■ **FA-07**

Friday, 9:00-10:30 - WGS|106

Computational Mixed-Integer Programming 4

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Ambros Gleixner*

1 - SCIP-Jack: a solver for Steiner Tree problems in graphs and their relatives

Thorsten Koch, Daniel Rehfeldt, Stephen Maher, Gerald Gamrath, Yuji Shinano

2 - Polyhedral Symmetry Handling Techniques Exploiting Problem Information

Christopher Hojny, Marc Pfetsch

3 - Experiments with Conflict Analysis in Mixed-Integer Programming

Jakob Witzig, Timo Berthold, Stefan Heinz

■ **FA-08**

Friday, 9:00-10:30 - WGS|107

Electric Vehicles: Challenges

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: *Dennis Huisman*

1 - Forecasting Energy Consumption for Safety-Assessed In-Car Applications

Dominik Grether, Sebastian Hudert

2 - Electric Vehicle Scheduling under extreme conditions at the police

Kerstin Schmidt, Felix Saucke, Thomas Spengler

3 - The Vehicle Rescheduling Problem with Retiming

Dennis Huisman, Rolf Van Lieshout, Judith Mulder

■ **FA-09**

Friday, 9:00-10:30 - WGS|108

Variants of the TSP (i)

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Ulrich Pferschy*

1 - The multi-stripe travelling salesman problem

Eranda Cela, Vladimir Deineko, Gerhard Woeginger

2 - Convex hull and LP based heuristics for the quadratic travelling salesman problem

Rostislav Staněk, Peter Greistorfer, Klaus Ladner, Ulrich Pferschy

3 - Routing and order batching in a non-standard warehouse

Ulrich Pferschy, Joachim Schauer

■ **FA-10**

Friday, 9:00-10:30 - WGS|108a

Large scale location and routing problems (i)

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Bernard Fortz*

1 - Mixed-Integer Programming Model for the Joint Placement and Routing of Function Sequences

Dimitri Papadimitriou

2 - A Benders decomposition approach for location of stations in an electric car sharing system

Hatice Calik, Bernard Fortz

3 - Using variables aggregation and Benders decomposition for solving large-scale extended formulations

Bernard Fortz, Markus Leitner

■ **FA-11**

Friday, 9:00-10:30 - WGS|005

Stochastic Vehicle Routing

Stream: Logistics and Freight Transportation
Parallel session

Chair: *Alexandre Florio*

1 - A stochastic vehicle routing strategy for the collection of two similar products

Epaminondas Kyriakidis, Theodosis Dimitrakos, Constantinos Karamatsoukis

2 - An Approximate Dynamic Programming Based Heuristic for Stochastic Time-Dependent Vehicle Routing Problems

Mustafa Çimen, Mehmet Soysal, Cagri Sel, Sedat Belbag

3 - The Stochastic Delivery Problem: Optimizing the Number of Successful Deliveries of Courier Companies

Alexandre Florio, Dominique Feillet, Richard Hartl

■ **FA-13**

Friday, 9:00-10:30 - RVH|I

Smart City and Environment

Stream: Business Analytics, Artificial Intelligence and Forecasting
Parallel session

Chair: *Julian Bruns*

1 - Detecting Changes in Statistics of Road Accidents to Enhance Road Safety*Katherina Meißner, Cornelius Rüther, Klaus Ambrosi***2 - New technologies, which are the main role in the formation of information society, are computer and communication-communication technologies***Huseyin Demir***3 - Predicting habitable zones of invasive species based on temperature***Julian Bruns, Daniel Seebacher, Manuel Stein***■ FA-14***Friday, 9:00-10:30 - RVH|II***Revenue Management in Transport and Logistics***Stream: Pricing and Revenue Management
Parallel session**Chair: Arne Karsten Strauss***1 - Simulation-based Learning for Dynamic Time Window Allocation in Attended Home Deliveries***Magdalena Lang, Catherine Cleophas, Jan Fabian Ehmke***2 - Profit-Maximizing Time Window Selection Under Consideration of Customer Choice in Attended Home Delivery***Claudius Steinhardt, Jochen Mackert, Robert Klein***3 - Realtime pricing in B2B truck logistics***Alwin Haensel***■ FA-15***Friday, 9:00-10:30 - RVH|III***Modern Methods for Microsimulations***Stream: Simulation and Statistical Modelling
Parallel session**Chair: Ralf Münnich***1 - Mikrosimulation im Wandel der verfügbaren Daten***Markus Zwick***2 - Sensitivity Analysis for Demography Based Microsimulation***Jan Pablo Burgard, Simon Schmaus***3 - A network-flow approach to address selection for populations***Ulf Friedrich***■ FA-17***Friday, 9:00-10:30 - RBM|2204***Scheduling and Staffing 1***Stream: Project Management and Scheduling
Parallel session**Chair: Thomas Kesselheim***1 - A Large Neighbourhood Search approach for the Nurse Rostering Problem***Joe Bunton, Andreas Ernst, Mohan Krishnamoorthy***2 - Job scheduling with simultaneous assignment of machines and multi-skilled workers: a mathematical model***Cinna Seifi, Jürgen Zimmermann***3 - The Temp Secretary Problem and Partly-Stochastic Models for Online Scheduling***Thomas Kesselheim, Andreas Tönnis***■ FA-18***Friday, 9:00-10:30 - RBM|2215***Cranes and Robots***Stream: Project Management and Scheduling
Parallel session**Chair: Jenny Nossack***1 - Assignment, Scheduling and Routing of Triple-Crossover-Cranes in Container Yards***Lennart Zey, Dirk Briskorn***2 - Optimizing Periodic Schedules in Robot Based Manufacturing Lines***Tobias Hofmann***3 - Preventing Crane Interferences at Automated Container Terminals***Jenny Nossack, Dirk Briskorn, Erwin Pesch***■ FA-19***Friday, 9:00-10:30 - RBM|3302***Production and Maintenance Planning***Stream: Production and Operations Management
Parallel session**Chair: Sandra Transchel***1 - Maintenance Planning Using Condition Monitoring Data***Daniel Olivotti, Jens Passlick, Sonja Dreyer, Benedikt Lebek, Michael H. Breitner***2 - Production Planning and Quality Testing Under Random Yield with Two-Dimensional Quality***Sandra Transchel, Candace Yano***3 - Optimization of Work-Center Cycle Time Target Setting in a Semiconductor Wafer Fab***Hermann Gold, Hannah Dusch***■ FA-20***Friday, 9:00-10:30 - RBM|4403***Supply Chain Contracts and Finance***Stream: Supply Chain Management
Parallel session**Chair: Gerd J. Hahn*

- 1 - **Analysis of a Revenue Sharing Contract in a Reverse Supply Chain**
Ismail Serdar Bakal, Majid Biazaran
- 2 - **When to Offer Upgrades?**
Rowan Wang
- 3 - **A Financial Market Perspective on Value Chain Performance**
Gerd J. Hahn, Jochen Becker, Marcus Brandenburg

■ FA-21

Friday, 9:00-10:30 - RBM|4404

Engineering Applications of OR Techniques

Stream: OR in Engineering
Parallel session

Chair: *Armin Fügenschuh*

- 1 - **Optimization of non-ideal Multi-component Distillation Processes using Kriging Interpolation**
Dennis Michaels, Tobias Keßler, Achim Kienle, Christian Kunde, Nick Mertens
- 2 - **The Multistatic Sonar Location Problem and Mixed-Integer Programming**
Armin Fügenschuh, Emily Craparo
- 3 - **A Stochastic Optimization Model for Energy Management of Storage-Augmented Hybrid Multi-Building Districts Considering Battery Aging Costs**
Timm Weitzel, Maximilian Schneider, Christoph Glock, Stephan Rinderknecht

■ FA-22

Friday, 9:00-10:30 - HFB|A

MCDM 6: Software and Implementation

Stream: Decision Theory and Multiple Criteria Decision Making
Parallel session

Chair: *Martin Josef Geiger*

- 1 - **Integrating process mining and PROMETHEE for enhancing decision making in healthcare**
Sudhanshu Singh, Rakesh Verma
- 2 - **PolySCIP - Solving Multi-criteria Integer Programs**
Sebastian Schenker
- 3 - **Solving large-scale, mid-term planning problems under multiple objectives - A contribution to VeRoLog 2017 optimization competition**
Martin Josef Geiger

■ FA-23

Friday, 9:00-10:30 - HFB|B

Network Optimization under Competition (i)

Stream: Game Theory and Experimental Economics
Parallel session

Chair: *Tobias Harks*

- 1 - **Strategic Contention Resolution with Limited Feedback**
Martin Gairing
- 2 - **A Characterization of Undirected Graphs Admitting Optimal Cost Shares**
Anja Huber, Tobias Harks, Manuel Surek
- 3 - **Equilibrium Computation in Atomic Splittable Singleton Congestion Games**
Veerle Timmermans, Tobias Harks

■ FA-24

Friday, 9:00-10:30 - HFB|C

Optimal Control and Applications

Stream: Control Theory and Continuous Optimization
Parallel session

Chair: *Andrea Seidl*

- 1 - **Optimal Control of 'Deviant' Behavior**
Gustav Feichtinger
- 2 - **Optimal control in the presence of stochastic, impulsive, regime switching and paradigm shifting environments in finance and economy**
Gerhard-Wilhelm Weber, Emel Savku
- 3 - **On the stabilization of control systems by optimization methods**
Vakif Dzhamalov, Taner Büyükköroğlu, Özlem Esen

■ FA-25

Friday, 9:00-10:30 - HFB|D

Demand Side Management

Stream: Energy and Environment
Parallel session

Chair: *Magnus Fröhling*

- 1 - **Impacts of Constraints in Residential Demand-Side-Management Algorithms - A Simulation-Based Study**
Dennis Behrens, Cornelius Rüter, Thorsten Schoormann, Klaus Ambrosi, Ralf Knackstedt
- 2 - **Robust online planning of on/off-devices in demand side management**
Martijn Schoot Uiterkamp, Marco Gerards, Johann Hurink

3 - Production Process Modeling for Demand Side Management

Stefanie Kabelitz, Martin Matke

■ FA-26

Friday, 9:00-10:30 - HFB|Senat

Renewable Energy Sources and Decentralized Energy Systems

Stream: Energy and Environment
Parallel session

Chair: *Dominik Möst*

1 - Resource allocation problems in decentralized energy management

Johann Hurink, Thijs van der Klauw, Marco Gerards

2 - Renewable energy deployment in the UK: a spatial analysis of the opportunities and challenges

James Price

3 - Assessing the Impact of Renewable Energy Sources: Simulation Analysis of the Japanese Electricity Market

Keisuke Yoshihara, Hiroshi Ohashi

Friday, 10:50-11:35

■ FB-22

Friday, 10:50-11:35 - HFB|A

Semi-Plenary Anna Nagurney

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Stefan Minner*

1 - Blood Supply Chains: Challenges for the Industry and How Operations Research Can Help

Anna Nagurney

■ FB-23

Friday, 10:50-11:35 - HFB|B

Semi-Plenary Sven Crone

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Claudius Steinhardt*

1 - The Rise of Artificial Intelligence in Forecasting? Hype vs real world Success Stories

Sven F. Crone

■ FB-24

Friday, 10:50-11:35 - HFB|C

Semi-Plenary Dorothea Wagner

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Rolf Möhring*

1 - Route Planning in Transportation - New Results and Challenges

Dorothea Wagner

■ FB-25

Friday, 10:50-11:35 - HFB|D

Semi-Plenary Christoph Klingenberg

Stream: Semi-Plenaries
Semi-plenary session

Chair: *Alf Kimms*

1 - Improving on-time performance at Deutsche Bahn

Christoph Klingenberg

Friday, 11:45-13:15

■ FC-01

Friday, 11:45-13:15 - WGS|101

Long-haul Transportation

Stream: Logistics and Freight Transportation

Parallel session

Chair: Alexander Kleff

1 - Learning from the past - Risk Profiler for intermodal route planning in SYNCHRO-NET

Denise Holfeld, Axel Simroth

2 - Polynomial time algorithms for truck driver scheduling problems with multiple time windows

Alexander Kleff

■ FC-02

Friday, 11:45-13:15 - WGS|102

Delay Management and Route Choice under Delays

Stream: Traffic, Mobility and Passenger Transportation

Parallel session

Chair: Marie Schmidt

1 - Railway Delay Management in Face of Train Capacity Constraints

Eva König, Cornelia Schoen

2 - Simulating Passengers and Trains for Better Decisions in Delay Management

Sebastian Albert, Philipp Kraus, Jörg Müller, Anita Schöbel

3 - The traveler's route choice under uncertainty

Marie Schmidt, Paul Bouman, Leo Kroon, Anita Schöbel

■ FC-03

Friday, 11:45-13:15 - WGS|103

Green Transportation

Stream: Logistics and Freight Transportation

Parallel session

Chair: Martin Hrusovsky

1 - Efficient Truck Platooning in the Autonomous Driving Possibility: An Artificial Bee Colony Approach

Abtin Nourmohammadzadeh, Sven Hartmann

2 - Optimizing deliveries of daily goods from small producers by minimization of transport emissions

Christina Scharpenberg, Jutta Geldermann

3 - Methodological approaches for green and reliable intermodal transport planning

Martin Hrusovsky, Emrah Demir, Werner Jammerneegg, Tom van Woensel

■ FC-04

Friday, 11:45-13:15 - WGS|104

Routing and Scheduling

Stream: Metaheuristics

Parallel session

Chair: Oliver Wendt

1 - Metaheuristics for the vehicle routing problem with backhauls and soft time windows

Jose Brandao

2 - An Evolutionary Approach for the Traveling Thief Problem

Mahdi Moeini, Daniel Schermer, Oliver Wendt

3 - Scheduling an Indoor Football League: a Tabu Search Based Approach

David Van Bulck, Dries Goossens, Frits Spijksma

4 - NSGA-II algorithm optimization based workflow scheduling for medical applications in cloud

Khaled Sellami, Rabah Kassa, Abdelouhab Aloui, Pierre F Tiako

■ FC-05

Friday, 11:45-13:15 - WGS|104a

Algorithms for Graph Problems (i)

Stream: Discrete and Integer Optimization

Parallel session

Chair: Frauke Liers

1 - A Local-Search Algorithm for Steiner Forest

Melanie Schmidt, Martin Groß, Anupam Gupta, Amit Kumar, Jannik Matuschke, Daniel Schmidt, Jose Verschae

2 - The Primal-Dual Greedy Algorithm for Weighted Covering Problems

Andreas Wierz, Britta Peis, Jose Verschae

3 - Polyhedral Results for Clique Problems with Multiple-Choice Constraints

Maximilian Merkert, Andreas Bärmann, Patrick Gemander, Frauke Liers, Oskar Schneider

■ FC-06

Friday, 11:45-13:15 - WGS|105

Cooperative Truck Logistics

Stream: Graphs and Networks

Parallel session

Chair: Jörg Rambau

1 - New production approach for European truckload cargo industry

Andy Apfelstädt

2 - Multi-Routing und Transport-Matching in Cooperative, Full Truckload, Relay Networks
Bernd Nieberding

3 - MILP-Models for Cooperative Truck Networks
Jörg Rambau

■ FC-07

Friday, 11:45-13:15 - WGS|106

Computational Mixed-Integer Programming 5

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Ambros Gleixner*

- 1 - Automated Parameter Tuning in SCIP**
Ying Wang, Robert Lion Gottwald, Gregor Hendel, Ambros Gleixner, Thorsten Koch
- 2 - Experiments with concurrency in an MINLP solver**
Robert Lion Gottwald, Stephen Maher, Yuji Shinano
- 3 - Adaptive large neighborhood search for MIP**
Gregor Hendel

■ FC-08

Friday, 11:45-13:15 - WGS|107

Advanced Choice-Based Optimization

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: *Sven Müller*

Chair: *Knut Haase*

- 1 - A Lagrangian relaxation method for solving choice-based mixed linear optimization models that integrate supply and demand interactions**
Meritxell Pacheco Paneque, Shadi Sharif Azadeh, Michel Bierlaire, Bernard Gendron
- 2 - Choice Based Revenue Management with Flexible Substitution Patterns**
Sven Müller, Frauke Seidel, Knut Haase
- 3 - Supply chain contract design under asymmetric information: a multi-nominal logit model**
Guido Voigt, Sven Müller

■ FC-09

Friday, 11:45-13:15 - WGS|108

New Variants of the Traveling Salesman Problem Motivated by Emerging Applications (i)

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Philipp Hungerländer*

Chair: *Anja Fischer*

1 - Optimal Algorithms for an Extended Version of the Knight's Tour Problem

Michael Firstein, Philipp Hungerländer, Anja Fischer

2 - The Traveling Salesperson Problem with Forbidden Neighborhoods on Regular 2D and 3D Grids
Anna Jellen, Philipp Hungerländer, Anja Fischer

3 - A linear-time approximation algorithm of the MSTSP for regular grids
Isabella Stock, Jörg Rambau

■ FC-10

Friday, 11:45-13:15 - WGS|108a

Approximation Algorithms

Stream: Discrete and Integer Optimization
Parallel session

Chair: *Sven Krumke*

- 1 - Balanced Optimization with vector costs - a computational study**
Annette Ficker, Frits Spieksma, Gerhard J. Woeginger
- 2 - A FPTAS for the parametric knapsack problem**
Sven Krumke, Michael Holzhauser

■ FC-11

Friday, 11:45-13:15 - WGS|005

Analysis and Optimization of Road Traffic

Stream: Traffic, Mobility and Passenger Transportation
Parallel session

Chair: *Elmar Swarat*

- 1 - TWT Map Kernel - simulation based routing for field test planning and technical proof of automotive developments**
Bernhard Wieland, Victor Fäßler, Melanie Kluge, Alexander Raufeisen
- 2 - Two portable Linear Programming driven Heuristics for Optimal Toll Enforcement**
Elmar Swarat, Gerwin Gamrath, Markus Reuther, Thomas Schlechte
- 3 - Flexible mobility on demand: integrated choice models and optimization**
Shadi Sharif Azadeh, Bilge Atasoy, Yousef Maknoon, Michel Bierlaire, Moshe Ben-Akiva

■ FC-13

Friday, 11:45-13:15 - RVH|I

Forecasting with Artificial Intelligence and Machine Learning

Stream: Business Analytics, Artificial Intelligence and Forecasting

Parallel session

Chair: *Sven F. Crone*

- 1 - **Easy-to-implement Cognitive Algorithms for Electricity Spot Price Prediction - An Open-source Approach**
Lissy Langer, Jens Weibezahn, Benjamin Grosse, Lisa Hermann
- 2 - **Neural Network forecasts for time series with Islamic Calendar Seasonality - an empirical evaluation**
Sven F. Crone
- 3 - **Prognosis of EPEX SPOT electricity prices using artificial neural networks**
Johannes Hussak, Ralph Grothmann, Merlind Weber

■ FC-14

Friday, 11:45-13:15 - RVH|II

Dynamic Pricing

Stream: Pricing and Revenue Management
Parallel session

Chair: *Jochen Gönsch*

- 1 - **Stochastic Multi-Product Pricing under Competition**
Rainer Schlosser
- 2 - **Optimal dynamic pricing and lot-sizing for deteriorating items when demand and deterioration are exposed to randomness**
Maryam Ghoreishi, Christian Larsen
- 3 - **Time-Consistent, Risk averse Dynamic Pricing**
Jochen Gönsch, Rouven Schur, Michael Hassler

■ FC-17

Friday, 11:45-13:15 - RBM|2204

Scheduling and Staffing 2

Stream: Project Management and Scheduling
Parallel session

Chair: *Alexander Haupt*

- 1 - **Multi-objective large-scale staff allocation**
Karsten Lehmann, Harry Edmonds
- 2 - **A Bi-criteria Formulation of the Ship Crew Scheduling Problem with Resting Hours Constraints**
Anisa Rizvanolli, Alexander Haupt

■ FC-18

Friday, 11:45-13:15 - RBM|2215

Timetables and Aircraft

Stream: Project Management and Scheduling
Parallel session

Chair: *Dries Goossens*

- 1 - **A Two Stage Stochastic Program for Virtual Course Timetabling Problem**
Cristian David Ramirez Pico, Edna Rocío Pérez Malaver

- 2 - **Conference scheduling: a personalized approach**
Dries Goossens, Bart Vangerven, Annette Ficker, Ward Passchyn, Frits Spieksma, Gerhard Woeginger

■ FC-19

Friday, 11:45-13:15 - RBM|3302

Sales Planning

Stream: Production and Operations Management
Parallel session

Chair: *Han Hoogeveen*

- 1 - **Applying capacity allocation auctions to induce truthful information sharing in sales and operations planning**
Frank Hage, Martin Grunow
- 2 - **Deciding how many cuttings to cut from a mother plant: Combining Linear Programming and Data Mining**
Han Hoogeveen

■ FC-20

Friday, 11:45-13:15 - RBM|4403

Food Supply Chains

Stream: Supply Chain Management
Parallel session

Chair: *Martin Grunow*

- 1 - **An integrated loss-based optimisation model for apple supply chain**
Parichehr Paam, Regina Berretta, Mojtaba Heydar
- 2 - **A decision support model for sustainable management of catering supply chains**
Çagri Sel, Mustafa Çimen, Mehmet Soysal
- 3 - **Simulating fresh food supply chains by integrating product quality**
Magdalena Leithner, Christian Fikar
- 4 - **Impact of shelf life on the trade-off between economic and environmental objectives: a dairy case**
Bryndís Stefánsdóttir, Verena Depping, Martin Grunow

■ FC-22

Friday, 11:45-13:15 - HFB|A

MCDM 7: Economics and Finance

Stream: Decision Theory and Multiple Criteria Decision Making
Parallel session

Chair: *Amir Abbas Najafi*

- 1 - **Evaluating of e-Commerce Risks in the Framework of Capital Asset Pricing Model**
Gökçe Candan

2 - A novel bi-objective safety-first model for portfolio optimization

Amir Abbas Najafi, Tahere Hayati

■ **FC-23**

Friday, 11:45-13:15 - HFB|B

Algorithmic Pricing (i)

Stream: Game Theory and Experimental Economics

Parallel session

Chair: *Felix Fischer*

1 - Sequential Posted Price Mechanisms with Correlated Valuations

Bart de Keijzer

2 - Posted price mechanisms for a random stream of customers

Tim Oosterwijk, José Correa, Patricio Foncea, Ruben Hoeksma, Tjark Vredevel

3 - Revenue Gaps for Discriminatory and Anonymous Sequential Posted Pricing

Felix Fischer, Paul Duetting, Max Klimm

■ **FC-24**

Friday, 11:45-13:15 - HFB|C

Continuous Optimization and Applications

Stream: Control Theory and Continuous Optimization

Parallel session

Chair: *Gerhard-Wilhelm Weber*

1 - Decisions on Pricing, Capacity Investment, and Introduction Timing of New Product Generations in a Durable-Good Monopoly

Andrea Seidl, Richard Hartl, Peter M. Kort

2 - Semi-supervised supports vector machines: A semi-infinite programming formulation

Fariha Umbreen, Muhammad Faisal Iqbal, Faizan Ahmed

3 - Extracting the relevant trends for applied portfolio management

Theo Berger

■ **FC-25**

Friday, 11:45-13:15 - HFB|D

Energy and Optimization

Stream: Energy and Environment

Parallel session

Chair: *Dogan Keles*

1 - Optimal Looping of Pipelines in Gas Networks

Ralf Lenz, Robert Schwarz

2 - An optimization algorithm for the planning of virtual power plants

Lars-Peter Lauen

3 - Models and heuristic approaches for a large scale multi-period offshore power-grid extension planing problem

Philipp Hahn

■ **FC-26**

Friday, 11:45-13:15 - HFB|Senat

Water Networks

Stream: Energy and Environment

Parallel session

Chair: *Corinna Hallmann*

1 - Model Generator for Water Distribution Systems

Corinna Hallmann, Stefan Kuhlemann

2 - An Adaptive Discretization Algorithm for the Design of Water Usage and Treatment Networks

Sascha Kuhnke, Arie Koster

3 - Design and development of a decision support system for water distribution networks

Michaela Beckschäfer, Corinna Hallmann

Friday, 13:45-15:00

■ FD-27

Friday, 13:45-15:00 - HFB|Audimax

Plenary Lecture and Closing Ceremony

Stream: Plenaries

Plenary session

Chair: *Natalia Kliewer*

Chair: *Ralf Borndörfer*

Chair: *Jan Fabian Ehmke*

1 - On Big Data, Optimization and Learning

Andrea Lodi

Awards

Track(s): 24

Business Analytics, Artificial Intelligence and Forecasting

Sven F. Crone

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Track(s): 13 14

Business Track

Ralf Borndörfer

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Track(s): 12

Control Theory and Continuous Optimization

Mirjam Duer

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Stefan Ulbrich

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Track(s): 24

Decision Theory and Multiple Criteria Decision Making

Jutta Geldermann

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Horst W. Hamacher

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| Glock, Katharina | TB-11 | Hassler, Michael | FC-14 |
| Gluchowski, Peter | TD-06 | Haugland, Dag | WE-16, TB-25 |
| Glushko, Pavlo | WC-01 | Haupt, Alexander | FC-17 |
| Gnad, Simon | WE-21 | Hauser, Philipp | WC-25 |
| Gnegel, Fabian | TD-21 | Hayati, Tahere | FC-22 |
| Godbersen, Gregor | WB-05 | Hähle, Anja | TD-06 |
| Goebbels, Steffen | WC-07 | Heaton, Mitchell | TA-04 |
| Gold, Hermann | FA-19 | Heßler, Katrin | TB-10 |
| Gönsch, Jochen | FC-14 | Heckmann, Iris | WC-01 |
| Gonser, Tanya | WC-01 | Heider, Steffen | TA-17 |
| González Merino, Bernardo | WB-10 | Heinrich, Timo | TA-26 |
| Goossens, Dries | FC-04, TA-14, FC-18 | Heinz, Stefan | FA-07 |
| Göpfert, Paul | WB-05 | Heipcke, Susanne | TD-02 |
| Gössinger, Ralf | FA-03, TB-03 | Helm, Christopher | WC-16 |
| Gottschau, Marinus | TB-06 | Helmberg, Christoph | TD-06 |
| Gottwald, Robert Lion | FC-07 | Hendel, Gregor | FC-07 |
| Gotzes, Uwe | TB-21 | Hendrix, Eligius M.T. | TB-25 |
| Grad, Sorin-Mihai | TD-22 | Hennings, Felix | WC-25 |
| Greistorfer, Peter | FA-09 | Herlyn, Wilmjakob | WB-19 |
| Grether, Dominik | FA-08 | Hermann, Christina | TD-17 |
| Grigoriu, Liliana | WC-18 | Hermann, Lisa | FC-13 |
| Grimm, Boris | WB-08 | Hernandez Escobar, Daniel | TB-24 |
| Grinshpoun, Tal | TA-18 | Hernandez, Carlos | TB-15 |
| Groß, Martin | FC-05 | Herrmann, Frank | TA-16 |
| Grob, Christopher | WC-20 | Hettich, Felix | WB-05 |
| Groetzner, Patrick | TD-24 | Heuer, Stefan | TB-14 |
| Grosse, Benjamin | FC-13 | Heydar, Mojtaba | FC-20 |
| Grothmann, Ralph | FC-13, WB-14 | Hildebrandt, Andreas | TB-04 |
| Gruchmann, Tim | WE-20 | Hildenbrandt, Achim | WC-09 |
| Grunow, Martin | TA-08, TD-16, FC-19, 20 | Hildenbrandt, R. | TD-10 |
| Gschwind, Timo | TA-03, TB-10 | Hiller, Benjamin | TD-21 |
| Guðjohnsen, Júlíus Pétur | WC-14 | Hintsch, Timo | TB-10 |
| Guckenbiehl, Gabriel Franz | WC-26 | Hladik, Dirk | WB-25 |

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| Hoang, Nam Dung | TA-04, WE-05 | Kasper, Mathias | TD-17 |
| Hoberg, Kai | TB-26 | Kasperski, Adam | TA-01 |
| Hocke, Stephan | TD-17 | Kassa, Rabah | FC-04 |
| Hofer, Martin | WE-23 | Kóczy, László | WC-23 |
| Hoeksma, Ruben | FC-23 | Kämmerling, Nicolas | WC-01 |
| Hof, Sebastian | TA-17 | Keßler, Tobias | FA-21 |
| Hofmann, Tobias | FA-18 | Keidel, Jan | TD-06 |
| Hojny, Christopher | FA-07, TA-10 | Kellner, Florian | TB-03 |
| Holfeld, Denise | FC-01 | Kempkes, Jens Peter | WB-02 |
| Holzhauser, Michael | FC-10 | Kendzioriski, Mario | WE-25 |
| Hoogeveen, Han | WC-08, FC-19 | Keppmann, Felix Leif | TB-13 |
| Hoppmann, Kai | TD-04 | Kesselheim, Thomas | WE-10, FA-17 |
| Hornung, Mirko | TD-15 | Khabi, Dmitry | TB-02 |
| Hottenrott, Andreas | TD-16 | Khamisov, Oleg | TB-24 |
| Hradovich, Mikita | TA-01 | Kieckhäfer, Karsten | WB-22 |
| Hrusovsky, Martin | FC-03 | Kienle, Achim | FA-21 |
| Huang, Yi-Wei | TA-20 | Kinscherff, Anika | TD-04 |
| Huber, Anja | FA-23 | Klamroth, Kathrin | TD-22, WC-22 |
| Huber, Sandra | TD-11 | Kleber, Rainer | WE-26 |
| Hudert, Sebastian | FA-08 | Kleff, Alexander | FC-01 |
| Huebler, Clemens | WC-21 | Klein, Marvin | TD-15 |
| Huisman, Dennis | FA-08 | Klein, Robert | FA-14 |
| Hungerländer, Philipp | WB-07, FC-09, WC-10 | Kleine, Andreas | TD-25 |
| Hupp, Lena Maria | WB-01, TD-09 | Kleinert, Thomas | WB-25 |
| Hurink, Johann | FA-25, 26 | Kleinschmidt, Agathe | WB-03 |
| Hurkens, Cor | TD-05 | Kliwer, Natalia | WE-05, WE-17 |
| Hussak, Johannes | FC-13 | Klimm, Max | FC-23, TD-23 |
| Ilani, Hagai | TA-18 | Klingenberg, Christoph | FB-25 |
| Imaizumi, Jun | TB-21 | Kloos, Konstantin | TB-20 |
| Immer, Alexander | TA-08 | Klose, Andreas | TA-09 |
| Inderfurth, Karl | WD-22 | Kluge, Melanie | FC-11 |
| Ionescu, Lucian | WE-05 | Kluge, Ulrike | TD-15 |
| Irnich, Stefan | TA-03, TB-10 | Knackstedt, Ralf | FA-25 |
| İşbilir, Melike | WE-17 | Knöll, Florian | WE-13 |
| Iyigün, Cem | WE-17 | Koberstein, Achim | WC-01, FA-03 |
| Jabrayilov, Adalat | TA-05 | Koch, Thorsten | TB-02, FA-07, FC-07, TB-21 |
| Jacob, Jonathan | WC-26 | Koester, Christian | TB-26 |
| Jahn, Carlos | WB-03 | Kohani, Michal | TD-05 |
| Jahnke, Hermann | TA-15 | Köhler, Charlotte | WE-11 |
| Jalili Marand, Ata | WE-19 | Kolev, Pavel | WE-04 |
| Jammerneegg, Werner | FC-03, TD-08, WB-20 | Kolisch, Rainer | WB-05, TD-18, WC-18 |
| Janacek, Jaroslav | TB-01 | Kolkmann, Sven | WB-15 |
| Jónsson, Sigurður | WC-14 | König, Eva | FC-02 |
| Jellen, Anna | FC-09 | König, Felix G. | TB-08 |
| Jensen, Rune | WC-11 | Koperna, Thomas | TA-17 |
| Johannes, Christoph | TA-16 | Köpp, Cornelius | WB-13 |
| John, Maximilian | FA-05 | Koppka, Lisa | TA-17, TD-17 |
| Juan, Angel A. | WE-02 | Kort, Peter M. | FC-24 |
| Jung, Tobias | WC-13 | Koster, Arie | TD-17, FC-26 |
| Kabelitz, Stefanie | FA-25 | Kovacevic, Raimund | TB-01 |
| Kadam, Vandana | WE-15 | Kozeletskyi, Igor | WB-24 |
| Kaier, Anton | WE-21 | Kraul, Sebastian | WC-17 |
| Kaiser, Marcus | WC-05 | Kraus, Philipp | FC-02 |
| Kalcsics, Jörg | WE-11 | Kreiter, Tobias | TD-16 |
| Kallabis, Thomas | TA-25 | Kremer, Mirko | TD-26 |
| Kammann, Tim | WB-03 | Kriebel, Johannes | WC-16 |
| Kandler, Ute | TD-01 | Krininger, Sebastian | WE-04 |
| Kannegiesser, Matthias | TD-08 | Krischke, Andre | TA-20 |
| Kant, Philipp | WC-07 | Krishnamoorthy, Mohan | WC-09, WE-11, FA-17 |
| Kapolke, Manu | WB-01, TD-09 | Kristjansson, Bjarni | WB-02 |
| Karakaya, Sirma | TA-14 | Kroon, Leo | FC-02 |
| Karamatsoukis, Constantinos | FA-11 | Kruber, Markus | WB-09 |
| Karbstein, Marika | WC-08 | Krueger, Max | WE-15 |
| Karimi-Nasab, Mehdi | TA-16 | Krüger, Thomas | WB-07 |
| Karlsson, Emil | WC-18 | Krumke, Sven | WE-01, FC-10, TD-10 |
| Karrenbauer, Andreas | WE-04, FA-05 | Kuhlemann, Stefan | WB-11, FC-26 |

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|----------------------------|----------------------------|-------------------------------|---------------------|
| Kuhlmann, Renke | TA-02 | Malicki, Sebastian | FA-01 |
| Kuhn, Heinrich | TD-19 | Mallach, Sven | TA-05 |
| Kuhnke, Sascha | FC-26 | Manitz, Michael | TA-16 |
| Kulkarni, Sarang | WE-11 | Mao, Ning | WE-18 |
| Kumar, Amit | FC-05 | Marcotte, Étienne | WB-25 |
| Kumpf, Alexander | TA-20, WB-20 | Marcotte, Patrice | WB-25 |
| Kunde, Christian | FA-21 | Margot, Francois | TD-09 |
| Kunst, Oliver | TB-21 | Maristany de las Casas, Pedro | TA-04 |
| Kupfer, Stefan | WB-16 | Markarian, Christine | TD-01 |
| Kurtz, Jannis | WE-01 | Markót, Mihály Csaba | TA-24 |
| Kvet, Marek | TB-01 | Martin, Alexander | TB-05, TD-09, TC-24 |
| Kyriakidis, Epaminondas | FA-11 | Martinovic, John | TB-10 |
| Labbé, Martine | WB-25 | Martins, Carlos Lúcio | TA-20 |
| Ladner, Klaus | FA-09 | Matijevic, Domagoj | TB-04 |
| Lang, Magdalena | FA-14 | Matke, Martin | FA-25 |
| Lange, Ann-Kathrin | WB-03 | Mattfeld, Dirk Christian | WD-23 |
| Lange, Julia | TA-18 | Matuschke, Jannik | FC-05, TD-09 |
| Langer, Lissy | FC-13 | Mészáros, Csaba | TB-07 |
| Larsen, Christian | FC-14 | Mehlhorn, Kurt | WE-04 |
| Larsen, Rune | WB-11 | Meißner, Julie | WC-04 |
| Larsson, Torbjörn | TB-17 | Meißner, Katherina | TA-06, FA-13 |
| Latorre-Biel, Juan-Ignacio | WE-02 | Meisel, Frank | TB-03, WE-20 |
| Laue, Sören | TB-04 | Mellewigt, Thomas | TD-20 |
| Lauen, Lars-Peter | FC-25 | Mellouli, Taieb | WE-03 |
| Lebek, Benedikt | FA-19 | Melnikov, Andrey | TA-09 |
| Lee, Larry Jung-Hsing | TA-20 | Melo, Teresa | TA-20 |
| Lehmann, Karsten | FC-17 | Merkert, Maximilian | FC-05, TB-05 |
| Lehmann, Marcel | TD-19 | Merschformann, Marius | FA-03 |
| Leise, Philipp | WC-21 | Mertens, Nick | FA-21 |
| Leithner, Magdalena | FC-20 | Mestel, Roland | WE-16 |
| Leitner, Markus | FA-10 | Metzger, Olga | TB-22, WB-26 |
| Leniowski, Dariusz | WC-04 | Meyer, Anne | TB-11 |
| Lenz, Hans-Joachim | TA-13 | Meyr, Herbert | TB-20 |
| Lenz, Ralf | FC-25 | Michaels, Dennis | FA-21 |
| Lenzen, Christoph | WE-04 | Mies, Fabian | WB-01 |
| Leu, Jun-Der | TA-20 | Milano, Marco | TD-22 |
| Leus, Roel | WE-18, TB-19 | Miltenberger, Matthias | TA-07 |
| Leyerer, Max | WB-03, TD-11 | Minner, Stefan | FA-01 |
| Liebchen, Christian | WB-08 | Missbauer, Hubert | TB-15 |
| Lienland, Bernhard | TB-03 | Moeini, Mahdi | FC-04 |
| Lier, Stefan | WB-19 | Mohr, Esther | TD-14 |
| Liers, Frauke | WB-01, FC-05, TD-09, WB-25 | Mokhtar, Hamid | WC-09 |
| Linderoth, Jeff | WB-06 | Moll, Maximilian | TD-15 |
| Lipmann, Maarten | WC-04 | Morales, Juan Miguel | TD-22, TA-25 |
| Listes, Ovidiu | TD-02 | Morén, Björn | TB-17 |
| Liu, Jin-Jen | TA-20 | Morito, Susumu | TB-21 |
| Lodi, Andrea | FD-27 | Moseley, Benjamin | WE-10 |
| Löhne, Andreas | WE-24 | Moskovic, Youri | TD-07 |
| Loho, Georg | TB-23 | Möst, Dominik | WB-25 |
| Lorenz, Ulf | WE-02, TD-21, WB-21 | Mueller, Tankred | WC-21 |
| Lory, Tobias | TA-04 | Mühlenthaler, Moritz | TA-05 |
| Lübbecke, Marco | WE-08, WB-09, WD-24 | Mulder, Judith | FA-08 |
| Lucas, Flavian | WE-22 | Müller, Benjamin | TA-02 |
| Luedtke, Jim | WB-06 | Müller, Christoph | WB-22 |
| Lukas, Elmar | WB-16 | Müller, Daniel | FA-04 |
| Lüpke, Lars | TA-15, TD-15 | Müller, Johannes | TD-02 |
| Lüthen, Hendrik | TA-10 | Müller, Jörg | FC-02 |
| Luther, Bernhard | WE-14 | Müller, Sven | FC-08 |
| Ma, Tai-yu | WC-05 | Munninger, Maximilian | TA-16 |
| Mackert, Jochen | FA-14 | Murg, Michael | WE-16 |
| Madlener, Reinhard | WB-22 | Muter, Ibrahim | TD-18 |
| Madsen, Henrik | TA-25 | Nagurney, Anna | FB-22 |
| Maher, Stephen | FA-07, FC-07, WB-09 | Najafi, Amir Abbas | FC-22 |
| Maier, Kerstin | WB-07 | Naranjo, Salomé | TB-15 |
| Maknoon, Yousef | FC-11 | Natale, Marco | TD-10 |
| Maleshkova, Maria | TB-13, WB-17 | Nedelkova, Zuzana | TA-21 |

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| Nelissen, Franz | TD-02 |
| Netzer, Pia | TB-15, TB-19 |
| Neumann, Thomas | WB-26 |
| Nickel, Stefan | WC-01, WE-11, WB-17, WE-20 |
| Nießen, Nils | WE-08 |
| Nieberding, Bernd | FC-06 |
| Njacheun njanzoua, Gregoire | TB-09 |
| Nobmann, Henning | WE-14 |
| Nossack, Jenny | FA-18 |
| Nouri Roozbahani, Maryam | TB-20 |
| Nourmohammadzadeh, Abtin | FC-03 |
| Nowak, Ivo | TB-09, TB-14, WE-24 |
| Nyhuis, Peter | TB-25 |
| Ohashi, Hiroshi | FA-26 |
| Oliveira, Aurelio | TA-24 |
| Olivotti, Daniel | FA-19 |
| Olver, Neil | WE-10 |
| Oosterwijk, Tim | FC-23 |
| Ortega, Gloria | TB-25 |
| Ostmeier, Lars | WB-15 |
| Ostmeyer, Jonas | TD-25 |
| Otto, Christin | WE-06 |
| Oulasvirta, Antti | FA-05 |
| Oussedik, Sofiane | TB-12 |
| Özkan, Betül | TB-17 |
| Ozolins, Ansis | TA-18 |
| Öztürk, Işıl | WC-14 |
| Paam, Parichehr | FC-20 |
| Paar, Alexander | WC-12 |
| Paat, Joseph | WB-10 |
| Pacheco Paneque, Meritxell | FC-08 |
| Pacino, Dario | WB-11 |
| Paetz, Friederike | WB-14 |
| Paier, Manfred | TD-08 |
| Pajeau, Clément | WC-12 |
| Paksoy, Turan | TA-20, WB-20, TB-22 |
| Pancake-Steeg, Jörg | TB-14 |
| Pandelis, Dimitrios | TD-20 |
| Papadimitriou, Dimitri | FA-10 |
| Paquete, Luis | TB-09 |
| Parmentier, Axel | WB-09 |
| Passchyn, Ward | FC-18 |
| Passlick, Jens | FA-19 |
| Patil, Rahul | WE-11 |
| Pérez Malaver, Edna Rocío | FC-18 |
| Pätzold, Julius | WC-08 |
| Peis, Britta | WB-01, FC-05 |
| Pelot, Ronald | TA-22 |
| Pelz, Peter | TB-21, WC-21 |
| Perregaard, Michael | TB-07 |
| Pesch, Erwin | FA-18, TD-24 |
| Petkovic, Milena | WC-13 |
| Petróczy, Dóra Gréta | WC-23 |
| Pferschy, Ulrich | FA-09, TD-16 |
| Pfetsch, Marc | FA-07, TB-07, TA-10 |
| Pham, Truong Son | WE-15 |
| Pibernik, Richard | TB-20 |
| Pickl, Stefan Wolfgang | TD-15, WC-15, WE-15 |
| Piel, Jan-Hendrik | WB-16, WC-21, TB-25 |
| Pietruczuk, Jakub | WB-18 |
| Pishchulov, Grigory | FA-03, TB-03 |
| Plötner, Kay | TD-15 |
| Pohl, Maximilian | WC-18 |
| Pohle-Fröhlich, Regina | WC-07 |
| Popa, Radu Constantin | TA-08 |
| Pouls, Martin | WE-11 |
| Price, James | FA-26 |
| Proske, Frederik | FA-02 |
| Protopappa-Sieke, Margarita | TB-26 |
| Pruhs, Kirk | WE-10 |
| Puchert, Christian | WE-08 |
| Qu, Ruini | WC-23 |
| Radermacher, Marius | WC-16 |
| Rahnamay Touhidi, Seyedreza | TA-19 |
| Ralphs, Ted | TA-07 |
| Rambau, Jörg | FC-06, FC-09 |
| Ramirez Pico, Cristian David | FC-18 |
| Ranade, Abhiram | WE-11 |
| Raufeisen, Alexander | FC-11 |
| Rausch, Lea | TB-21 |
| Recht, Peter | WE-06 |
| Redmond, Michael | WB-06 |
| Rehfeldt, Daniel | TB-02, FA-07 |
| Rehs, Carolin | WB-04 |
| Reimann, Marc | WE-26 |
| Reinelt, Gerhard | TD-05, TA-13 |
| Reintjes, Christian | WB-21 |
| Rendl, Andrea | WC-10 |
| Rendl, Franz | WE-09 |
| Renken, Malte | WE-08 |
| Rethmann, Jochen | TD-10 |
| Reuss, Nicole | WC-14 |
| Reuter-Oppermann, Melanie | WB-17 |
| Reuther, Markus | WB-08, FC-11 |
| Reyes-Rubiano, Lorena | WE-02 |
| Rihm, Tom | WE-18 |
| Rinderknecht, Stephan | FA-21 |
| Rittmann, Alexandra | WE-24 |
| Rizvanolli, Anisa | FC-17 |
| Rogers, Mark Francis | WC-23 |
| Rogetzer, Patricia | WB-20 |
| Rohleder, Martin | WC-16 |
| Rohrbeck, Brita | WB-05 |
| Rolfes, Raimund | WC-21 |
| Rönnberg, Elina | WC-18, WE-21 |
| Rostami, Borzou | WC-01 |
| Rostami, Salim | TB-19 |
| Rothe, Hannes | TD-15 |
| Rothenbacher, Ann-Kathrin | TA-03 |
| Rozanova, Liudmila | TB-06 |
| Ruckmann, Jan-J | TB-24 |
| Rüther, Cornelius | TA-06, FA-13, FA-25 |
| Ruzika, Stefan | WC-06, TB-09, WC-22, WE-22 |
| Sachs, Anna-Lena | TB-26 |
| Sadeh, Arik | TB-18 |
| Saez-Gallego, Javier | TD-22 |
| Sahin, Guvenc | WE-08 |
| Saini, Pratibha | WB-19 |
| Saitenmacher, René | TD-21 |
| Saldanha-da-Gama, Francisco | WC-01 |
| Sankowski, Piotr | WC-04 |
| Saucke, Felix | FA-08 |
| Saul, Benjamin | WB-21 |
| Savard, Gilles | WB-25 |
| Savasaneril, Secil | TA-14 |
| Savelsbergh, Martin | TA-11 |
| Savku, Emel | FA-24 |
| Schacht, Matthias | TD-17 |
| Schade, Konrad | WC-20 |
| Schade, Stanley | WB-08 |
| Scharpenberg, Christina | FC-03 |
| Schauer, Joachim | FA-09 |

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| Scheidl, Thomas | FA-04 |
| Scheithauer, Guntram | TB-10 |
| Schenk-Mathes, Heike | TB-26 |
| Schenker, Sebastian | FA-22 |
| Schermer, Daniel | FC-04 |
| Schewior, Kevin | WC-04, WE-10, WB-24 |
| Schienze, Adam | TA-04, WC-24 |
| Schiewe, Alexander | WC-08 |
| Schiewe, Philine | WC-08, WE-08 |
| Schiffels, Sebastian | TD-26 |
| Schilde, Michael | FA-01 |
| Schilling, Heiko | TB-08, WE-12 |
| Schindler, Sören | WB-03 |
| Schlechte, Thomas | WE-05, WB-08, WE-08, FC-11 |
| Schlenker, Hans | WC-02 |
| Schlobach, Swen | WE-21 |
| Schlosser, Rainer | FC-14 |
| Schlöter, Miriam | WC-04 |
| Schmand, Daniel | TD-23 |
| Schmaus, Simon | FA-15 |
| Schmidt, Daniel | FC-05, TD-09 |
| Schmidt, Eva | WE-01 |
| Schmidt, Kerstin | FA-08 |
| Schmidt, Marie | FC-02, WE-22 |
| Schmidt, Martin | WB-25 |
| Schmidt, Melanie | FC-05 |
| Schmitt, Andreas | TA-10 |
| Schmitz, Heiko | TB-14 |
| Schneider, Maximilian | FA-21 |
| Schneider, Oskar | FC-05, TB-05 |
| Schöbel, Anita | FC-02, TA-06, WC-08, WE-08, WE-22 |
| Schocke, Kai-Oliver | FA-03 |
| Schoen, Cornelia | FC-02, WB-19 |
| Schoenfelder, Jan | TA-17, WC-17 |
| Schönberger, Jörn | TD-08 |
| Schoormann, Thorsten | FA-25 |
| Schoot Uiterkamp, Martijn | FA-25 |
| Schossler, Stephan | WB-26 |
| Schrader, Philipp | WB-16 |
| Schreiber, Markus | TA-21 |
| Schrieber, Jörn | TA-06 |
| Schubert, Christoph | TA-07 |
| Schuchmann, Robin | FA-02 |
| Schuetze, Claudia | TD-14 |
| Schuhmacher, Dominic | TA-06 |
| Schüllendorf, Hanno | TA-06 |
| Schulte, Alexander | WC-07 |
| Schulte, Benedikt | TB-20 |
| Schulze, Britta | TB-09 |
| Schumacher, Gerrit | WB-20 |
| Schur, Rouven | FC-14 |
| Schwartz, Stephan | WB-04 |
| Schwarz, Justus Arne | TD-19 |
| Schwarz, Robert | TD-04, FC-25 |
| Schwarz, Thomas | TA-13 |
| Schweiger, Jonas | WB-06 |
| Schwerdfeger, Stefan | WC-05 |
| Schwientek, Anne | WB-03 |
| Schymura, Matthias | WB-10 |
| Seebacher, Daniel | FA-13 |
| Seebacher, Stefan | TD-13 |
| Seidel, Frauke | FC-08 |
| Seidl, Andrea | FC-24 |
| Seifert, Matthias | TA-26 |
| Seifi, Cinna | FA-17 |
| Seizinger, Markus | WC-17, TD-18, WC-24 |
| Sel, Cagri | FA-11, TB-11, FC-20 |
| Sellami, Khaled | FC-04 |
| Sellmann, Meinolf | TC-22 |
| Semmler-Ludwig, Regina | WB-14 |
| Serin, Yasemin | TA-14 |
| Serrano, Adrian | WE-02 |
| Setzer, Thomas | WE-13 |
| Sevinç, Büşra | TA-08 |
| Shapoval, Katerina | WB-14 |
| Sharif Azadeh, Shadi | FC-08, FC-11 |
| Shavarani, Mahdi | WB-03 |
| Shen, Ruobing | TA-13 |
| Shiina, Takayuki | TB-21 |
| Shinano, Yuji | FA-07, FC-07, TB-07 |
| Shufan, Elad | TA-18 |
| Siddiqui, Sauleh | TD-22 |
| Siefen, Kostja | WC-02 |
| Siggelkow, Benjamin Florian | WE-26 |
| Silbermayr, Lena | WB-20 |
| Simroth, Axel | FC-01, TD-01 |
| Singh, Sudhanshu | WB-15, FA-22 |
| Sirvent, Mathias | WE-05 |
| Sitters, René | WE-10 |
| Skomra, Mateusz | TB-23 |
| Skopalik, Alexander | TD-23 |
| Skutella, Martin | TD-09 |
| Sonneberg, Marc-Oliver | WB-03, TD-11 |
| Sonnenburg, Sören | TB-08 |
| Soto, Jose | TD-09 |
| Souza, Gilvan C. | WE-26 |
| Soysal, Mehmet | WE-01, FA-11, TB-11, FC-20 |
| Spengler, Thomas | TB-22, WB-26 |
| Spengler, Thomas | FA-08, TA-16, TB-18, WB-22 |
| Spieksma, Frits | FC-04, FC-10, TA-14, FC-18 |
| Spies, Claudia | WB-15 |
| Staněk, Rostislav | FA-09 |
| Steenweg, Pia Mareike | WE-17 |
| Stefánsdóttir, Bryndís | FC-20 |
| Stefánsson, Hlynur | WC-14 |
| Steffy, Daniel | TA-07 |
| Stegemann, Lars | TD-15 |
| Steglich, Mike | WC-02 |
| Stehling, Stefan | WE-06 |
| Stein, Manuel | FA-13 |
| Stein, Oliver | TB-09 |
| Steinhardt, Claudius | FA-14 |
| Steinzen, Ingmar | WC-12 |
| Stenger, David | WC-21 |
| Stephan, Konrad | WC-05 |
| Stidsen, Thomas | WC-22 |
| Stieber, Anke | WB-21 |
| Stiglmayr, Michael | TB-09 |
| Still, Georg | TB-24 |
| Sting, Fabian | TD-26 |
| Stock, Florian | TA-08 |
| Stock, Isabella | FC-09 |
| Stolletz, Raik | TD-19 |
| Stonis, Malte | TB-25 |
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