

TECHNICAL PROGRAM

Wednesday, 9:00-10:30

■ WA-01

Wednesday, 9:00-10:30 - Aula

Opening Ceremony and Plenary Lecture

Stream: Plenaries

Chair: *Andreas Fink*

Chair: *Martin Josef Geiger*

1 - Perspectives on Research in Humanitarian Operations

Luk Van Wassenhove

Wednesday, 11:00-12:30

■ WB-02

Wednesday, 11:00-12:30 - Hörsaal 1

Exact Approaches for Mixed-Integer Nonlinear Optimization (i)

Stream: Discrete and Integer Optimization

Chair: *Frauke Liers*

1 - Global Optimization of Ideal Multi-component Distillation Processes by Problem specific Bound Tightening

Nick Mertens, Achim Kienle, Christian Kunde, Dennis Michaels

2 - Multiple Choice Problems under Staircase Compatibilities

Maximilian Merkert, Andreas Bärmann, Thorsten Gellermann, Oskar Schneider

3 - Penalty Alternating Direction Methods for Mixed-Integer Optimization: A New View on Feasibility Pumps

Martin Schmidt, Bjoern Geissler, Antonio Morsi, Lars Schewe

■ WB-03

Wednesday, 11:00-12:30 - Hörsaal 2

Exact Algorithms for Hard Combinatorial Optimization Problems

Stream: Discrete and Integer Optimization

Chair: *Joost de Kruijff*

1 - Recursively stacking items with variable height in a tube packing application

Stephen Maher, Ambros Gleixner, Benjamin Müller, Joao Pedro Pedroso

2 - A Parallel Branch-and-Price Algorithm for Unrelated Parallel Machine Scheduling with Setup Times in High Performance Computing Environments

Gerhard Rauchecker, Guido Schryen

3 - Integer programming models for the mid-term production planning of high-tech low-volume industries

Joost de Kruijff, Cor Hurkens, Ton de Kok

■ WB-04

Wednesday, 11:00-12:30 - Hörsaal 3

Model Based Energy System Planning

Stream: Energy and Environment

Chair: *Hannes Hobbie*

1 - Optimal Renewable Energy Deployment in Germany - Combining Portfolio Theory with Fundamental Electricity Market Modelling

Hannes Hobbie, Dominik Möst

2 - Interaction of power plant dispatch and capacity expansion models for the European energy system considering high shares of intermittent sources

Hasan Ümitcan Yılmaz, Quentin Bchini, Dogan Keles

3 - Linearized Optimization Models for Decentralized Energy Supply Systems

Martin Comis, Björn Bahl, Andre Bardow, Arie Koster, Sebastian Goderbauer

■ **WB-05**

Wednesday, 11:00-12:30 - Hörsaal 4

Behavioral Operations Management (i)

Stream: Game Theory and Experimental Economics

Chair: *Anna-Lena Sachs*

1 - How Negotiations Improve Performance in the Buy-back Contract

Michael Becker-Peth, Elena Katok, Ulrich Thonemann

2 - Diagnostic Accuracy in Congested Environments

Mirko Kremer, Francis de Vericourt

3 - Inventory decisions in retailing: A field experiment

Anna-Lena Sachs, Michael Becker-Peth, Stefan Minner, Ulrich Thonemann

■ **WB-06**

Wednesday, 11:00-12:30 - Hörsaal 5

Business Track 1

Stream: Business Track

Chair: *Marco Lübbecke*

1 - E2E NetSim: Daimler Trucks' Approach Using OPTANO to Manage the Global Powertrain Network

Thomas Schmall

2 - End-to-end value-based supply chain optimization at Aurubis

Bianca Springub

3 - Detecting location routing problems in geomarketing, sales force optimisation and task planning; specific challenges of real-life instances

Werner Heid

4 - State-of-the-art in industrial application of discrete-event simulation

Sven Spieckermann

■ **WB-07**

Wednesday, 11:00-12:30 - Hörsaal 6

Bilevel Network Games and Online Optimization (i)

Stream: Game Theory and Experimental Economics

Chair: *Jannik Matuschke*

1 - Improvements on Online Machine Minimization

Kevin Schewior, Lin Chen, Nicole Megow

2 - Approximation Algorithms for Interdiction Problems

Stephen Chestnut, Rico Zenklusen

3 - Re-routing network flows in case of link failures

Jannik Matuschke, Thomas S. McCormick, Gianpaolo Oriolo

■ **WB-08**

Wednesday, 11:00-12:30 - Seminarraum 101/103

GOR Master Thesis Prize

Stream: Prize Awards

Chair: *Stefan Ruzika*

1 - Beyond the chaos: How to store items in the warehouse of an online retailer

Felix Weidinger

2 - Compact MIP Models for the Resource-Constrained Project Scheduling Problem

Alexander Tesch

3 - Integrated Location-Inventory Optimization in Spare Parts Networks

Patrick Zech

■ **WB-09**

Wednesday, 11:00-12:30 - Seminarraum 105

Finance I

Stream: Finance

Chair: *Marcus Brandenburg*

1 - IPOs, the Level of Private Equity Engagement and Stock Performance Matters: Empirical Evidence from Germany

Tim Herberger, Andreas Oehler, Matthias Horn, Henrik Schalkowski

2 - The Impact of Central Clearing on Credit Default Swap Spreads - Evidence from the North American and European Corporate Credit Default Swap Market

Benjamin Hartl, Andreas Oehler

3 - A longitudinal DEA study on financial performance evolutions in the automotive supply chain

Marcus Brandenburg

■ **WB-10**

Wednesday, 11:00-12:30 - Seminarraum 108

Flexibility in Revenue Management

Stream: Pricing and Revenue Management

Chair: *Jochen Gönsch*

1 - Implications of Strategic Customer Choice for Revenue Management with Flexible Products

Sebastian Vock, Catherine Cleophas, Natalia Kliewer

2 - Overbooking in network revenue management with supply-side substitution

Sebastian Koch, Jochen Gönsch, Claudius Steinhardt, Robert Klein

■ **WB-11**

Wednesday, 11:00-12:30 - Seminarraum 110

Managing Inventory Systems

Stream: Production and Operations Management

Chair: *Yanwen Dong*

1 - Optimizing Machine Spare Parts Inventory Using Condition Monitoring Data

Sonja Dreyer, Jens Passlick, Daniel Olivotti, Benedikt Lebek, Michael H. Breitner

2 - Managing an Integrated Production and Inventory System Selling to a Dual Channel: Long-Term and Walk-In Markets

Mohsen Elhafsi, Essia Hamouda

3 - An Investigation of General Aptitude Test Battery in Relation to Cell Production Efficiency

Yanwen Dong

■ **WB-12**

Wednesday, 11:00-12:30 - Seminarraum 202

New Approaches

Stream: Metaheuristics

Chair: *Stefan Voss*

1 - Multi-agent stochastic diffusion search algorithm for optimization problems

Mümin Emre Şenol, Adil Baykasoğlu

2 - A nature-inspired approach for addressing large-scale optimization problems

Eduardo Lalla-Ruiz, Eduardo Segredo, Stefan Voss, Emma Hart, Ben Paechter

■ **WB-13**

Wednesday, 11:00-12:30 - Seminarraum 204

Multiobjective Linear Optimization I

Stream: Control Theory and Continuous Optimization

Chair: *Andreas Löhne*

1 - Solving bilevel optimization problems being polyhedral on the lower level

Alexandra Rittmann, Andreas Löhne

2 - A nonsmooth Newton method for disjunctive optimization problems

Stephan Buetikofer, Diethard Klatte

3 - Problems being equivalent to multiple objective linear programming

Andreas Löhne

■ **WB-14**

Wednesday, 11:00-12:30 - Seminarraum 206

Complexity in Multiobjective Combinatorial Optimization

Stream: Decision Theory and Multiple Criteria Decision Making

Chair: *Michael Stiglmayr*

1 - Output-sensitive Complexity of Multiobjective Combinatorial Optimization

Fritz Bökler, Matthias Ehrgott, Christopher Morris, Petra Mutzel

2 - Toward a categorization of tractable multiobjective combinatorial optimization problems

Michael Stiglmayr

3 - Supported Efficient Solutions for Unconstrained Binary Multiobjective Optimization Problems, Arrangements of Hyperplanes and Zonotopes

Britta Schulze, Kathrin Klamroth, Michael Stiglmayr

■ **WB-15**

Wednesday, 11:00-12:30 - Seminarraum 305

Project Scheduling Applications (i)

Stream: Project Management and Scheduling

Chair: *Norbert Trautmann*

1 - Scheduling of complex dismantling projects in nuclear facilities

Felix Huebner, Rebekka Volk, Frank Schultmann

2 - An application of Microsoft Excel's Evolutionary Solver to the RCPSP

Norbert Trautmann, Mario Gnägi

■ **WB-16**

Wednesday, 11:00-12:30 - Seminarraum 308

Simulation in Health Care

Stream: Health Care Management

Chair: *Sebastian Rachuba*

1 - Reallocation of operating hours in an operating theatre

Lisa Koppka, Matthias Schacht, Lara Wiesche, Khairun Bapumia, Brigitte Werners

2 - An Integrated Operating Room Scheduling and Patient Pick-up and Drop-off Problem

Lars Moench, Hanna Ewen

3 - A generic simulation based DSS to evaluate patient transfer decisions strategies in hospital ward clusters

Thomas Stoeck, Taieb Mellouli

4 - Simulating pathway redesign at an NHS walk-in centre

Sebastian Rachuba, Martin Pitt

■ **WB-17**

Wednesday, 11:00-12:30 - Seminarraum 310

Demand Fulfillment in Hierarchies

Stream: Supply Chain Management

Chair: *Herbert Meyr*

1 - A deterministic approach for multi-period hierarchical demand fulfillment

Jaime Cano Belmán, Herbert Meyr

2 - Service-level based allocation planning in customer hierarchies

Konstantin Kloos

3 - Decentralized allocation planning in customer hierarchies with stochastic demand

Maryam Nouri Roozbahani, Moritz Fleischmann

■ **WB-18**

Wednesday, 11:00-12:30 - Seminarraum 401/402

Location Routing

Stream: Logistics, Routing and Location Planning

Chair: *Michael Schneider*

1 - A new approach for a location routing problem with pick-up and delivery including home delivery services for food products

Christian Franz, Rainer Leisten

2 - Strategic Planning of Electric Logistic Fleet Networks: A Robust Location Routing Approach

Maximilian Schiffer, Grit Walther

3 - A model to locate and supply biorefineries in large-scale multi-biomass supply chains

Nasim Zandi Atashbar, Nacima Labadie, Christian Prins

■ **WB-19**

Wednesday, 11:00-12:30 - Seminarraum 403

Algorithm Engineering for Route Planning (i)

Stream: Traffic and Passenger Transportation

Chair: *Matthias Müller-Hannemann*

1 - Customizable Contraction Hierarchies

Ben Strasser, Julian Dibbelt, Dorothea Wagner

2 - How Far You Can Drive: Fast Exact Computation of Isocontours in Road Networks

Moritz Baum, Thomas Bläsius, Valentin Buchhold, Julian Dibbelt, Andreas Gemsa, Ignaz Rutter, Dorothea Wagner, Franziska Wegner

3 - Recent Advances in Public Transport Timetable Information Systems

Matthias Müller-Hannemann

■ **WB-20**

Wednesday, 11:00-12:30 - Seminarraum 404

Business and Industrial Analytics

Stream: Business Analytics and Forecasting

Chair: *Arnd Huchzermeier*

1 - Demand volatility and skill-orientated workforce scheduling

Matthias Schinner, Peter Letmathe

2 - Judgmental Demand Forecasting for Direct Sales: Segmenting by Type or Age

Arnd Huchzermeier

3 - Spare parts dispatch fraud detection analysis

Shivangi Verma

■ **WB-21**

Wednesday, 11:00-12:30 - Seminarraum 405/406

Stochastic and Exact Vehicle Routing

Stream: Logistics, Routing and Location Planning

Chair: *Philipp E.H. Salzmann*

1 - Routing under uncertainty: a new approach to the stochastic VRP with dependent demands

Alexandre Florio, Stefan Minner, Richard Hartl

2 - A stochastic vehicle routing problem with ordered customers and stochastic preferences and demands

Epaminondas Kyriakidis, Theodosios Dimitrakos, Constantinos Karamatsoukis

3 - Exact Approaches for the Multi Depot Travelling Salesman Problem with Pickup and Delivery

Philipp E.H. Salzmann, Margaretha Gansterer, Richard Hartl

Wednesday, 13:30-15:00

■ WC-02

Wednesday, 13:30-15:00 - Hörsaal 1

Recent Advances in Mixed-Integer Linear and Non-linear Programming (i)

Stream: Discrete and Integer Optimization

Chair: *Dennis Michaels*

- 1 - Maximum semidefinite extension complexity for families of polytopes**
Gennadiy Averkov, Volker Kaibel, Stefan Weltge
- 2 - Valid linear inequalities and nonlinear cutting planes for MINLP**
Sönke Behrends, Anita Schöbel
- 3 - Solving Mixed-Integer Nonlinear Programs with hierarchical Mixed-Integer Linear Programming relaxations**
Lars Schewe, Robert Burlacu, Alexander Martin

■ WC-03

Wednesday, 13:30-15:00 - Hörsaal 2

Applied Mixed Integer Programming (i)

Stream: Discrete and Integer Optimization

Chair: *Matthias Walter*

Chair: *Anja Fischer*

- 1 - Solving an On-line Capacitated Vehicle Routing Problem with Time Windows**
Christian Truden, Philipp Hungerländer, Andrea Rendl, Kerstin Maier, Jörg Pöcher
- 2 - Solving the Timetabling Problem of University College London**
Paul Alexandru Bucur, Philipp Hungerländer, Markus Aschinger, Kerstin Maier, Sam Applebee, Harry Edmonds
- 3 - Approaches for Virtual Network Embeddings Problems with Time Windows**
Frank Fischer, Andreas Bley

■ WC-04

Wednesday, 13:30-15:00 - Hörsaal 3

Electric Mobility: Battery Technologies

Stream: Energy and Environment

Chair: *Grit Walther*

- 1 - Stochastic Valuation of Battery Storage Systems in Second Life Applications**
Andreas Dietrich, Benjamin Böcker, Christoph Weber
- 2 - Location Planning of Charging Stations for Electric City Buses Considering Battery Aging Effects**
Brita Rohrbeck, Kilian Berthold, Felix Hettich

3 - Integrated Planning of Charging Infrastructure for Battery Electric Vehicles considering Interdependencies with the Electrical Grid

Barbara Scheiper, Maximilian Schiffer, Grit Walther

■ WC-05

Wednesday, 13:30-15:00 - Hörsaal 4

Behavioral Taxation (i)

Stream: Game Theory and Experimental Economics

Chair: *Martin Fochmann*

- 1 - Tax Incidence in the Presence of Tax Evasion**
Philipp Dörrenberg, Denvil Duncan
- 2 - Does Legality Matter? The Case of Tax Avoidance and Evasion**
Jochen Hundsdoerfer, Kay Blaufus, Martin Jacob, Matthias Sünwoldt
- 3 - Mental Accounting in Tax Evasion Decisions - An Experiment on Underreporting and Overdeducting**
Martin Fochmann, Nadja Wolf

■ WC-06

Wednesday, 13:30-15:00 - Hörsaal 5

Business Track 2

Stream: Business Track

Chair: *Sven F. Crone*

- 1 - Price Optimization: From prediction to decision with Gurobi**
Hannes Sieling
- 2 - Extension of Bouygues Telecom's ADSL network**
Julien Darlay, Frédéric Gardi
- 3 - Airport Resource Management using the 'BEONTRA Scenario Planning Suite'**
Daniel Binkele-Raible
- 4 - A Collaborative Filtering Approach to Fit Prediction**
Josef Feigl

■ WC-07

Wednesday, 13:30-15:00 - Hörsaal 6

Coordination Mechanisms in Logistics (i)

Stream: Game Theory and Experimental Economics

Chair: *Tobias Buer*

- 1 - Impact of Non-truthful Bidding on Transport Coalition Profits**
Jonathan Jacob, Tobias Buer
- 2 - An agent-driven negotiation protocol with Aumann/Maschler nucleolus side payments for a distributed lot-sizing problem**
Gabriel Franz Guckenbiehl, Tobias Buer

- 3 - Credible information sharing in supply chains - A behavioral assessment of review strategies**
Guido Voigt, Stephan Schosser, Bodo Vogt
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■ WC-08

Wednesday, 13:30-15:00 - Seminarraum 101/103

Cross Docking and Stochastic Approaches

Stream: Logistics, Routing and Location Planning
Chair: *Lars Eufinger*

- 1 - Combining mathematical optimization with discrete-event simulation to improve cross docking operations**
Daniel Diekmann, Uwe Clausen, Lars Eufinger, Gülgün Alpan, Anne-Laure Ladier
 - 2 - Two-Stage Stochastic Truck Assignment and Scheduling in Crossdocking Terminals using Hybrid Evolutionary Optimization**
Lars Eufinger, Uwe Clausen
 - 3 - A parallel matheuristic for strategic planning of a closed-loop supply chain with a time stochastic dominance risk averse functional measure**
Susana Baptista, Ana Barbosa-Povoa, Laureano Fernando Escudero, Maria Isabel Gomes, Celeste Pizarro Romero
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■ WC-09

Wednesday, 13:30-15:00 - Seminarraum 105

Finance II

Stream: Finance
Chair: *Marco Wilkens*

- 1 - Applying a Novel Investment Evaluation Method with Focus on Risk - A Wind Energy Case Study**
Jan-Hendrik Piel, Felix Humpert, Michael H. Breitner
 - 2 - Are Momentum Strategies Feasible in Intraday-Trading? Empirical Results from the German Stock Market**
Matthias Horn, Tim Herberger, Andreas Oehler
 - 3 - Quantification and Management of Carbon Risks of Stocks and Stock Portfolios**
Marco Wilkens, Martin Nerlinger
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■ WC-10

Wednesday, 13:30-15:00 - Seminarraum 108

Robust algorithms

Stream: Optimization under Uncertainty
Chair: *Marc Goerigk*

- 1 - MIP-based approaches for robust storage loading problems with stacking constraints**
Thanh Le Xuan, Sigrid Knust

- 2 - A Method for Solving Multiple Integer Linear Programming Stochastic Problem**
Meberek Fatma, Chaabane Djamel

- 3 - Solving Combinatorial Min-Max Regret Problems with Non-Interval Uncertainty Sets**
Marc Goerigk, André Chassein
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■ WC-11

Wednesday, 13:30-15:00 - Seminarraum 110

Lot Sizing

Stream: Production and Operations Management
Chair: *Florian Isenber*

- 1 - Integrated safety stock placement and lot-sizing in capacitated production networks**
Tarik Aouam, Kunal Kumar
 - 2 - Planned lead times, safety stocks, and lot sizing in capacitated production networks**
Kunal Kumar, Tarik Aouam
 - 3 - Lot sizing and scheduling for manufacturing with tooling machines**
Florian Isenber, Leena Suhl
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■ WC-12

Wednesday, 13:30-15:00 - Seminarraum 202

Variable Neighbourhood Search

Stream: Metaheuristics
Chair: *Martin Josef Geiger*

- 1 - Minimum Labelling bi-Connectivity**
José A. Moreno-Pérez, Sergio Consoli
 - 2 - A VNS Approach for Solving the Maximum Dispersion Problem**
Mahdi Moeini, Oliver Wendt
 - 3 - Analyzing the order of neighborhood operators in an iterated Variable Neighborhood Search**
Sandra Huber, Martin Josef Geiger
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■ WC-13

Wednesday, 13:30-15:00 - Seminarraum 204

Multiobjective Linear Optimization II

Stream: Control Theory and Continuous Optimization
Chair: *Oliver Stein*

- 1 - Multi-criteria decision making with variable weight function**
Bettina Zargini

2 - An inertial proximal point method for solving vector optimization problems

Sorin-Mihai Grad

3 - Solving Disjunctive Optimization Problems by Generalized Semi-infinite Optimization Techniques

Oliver Stein, Peter Kirst

■ **WC-14**

Wednesday, 13:30-15:00 - Seminarraum 206

Multiobjective Location and Routing Problems

Stream: Decision Theory and Multiple Criteria Decision Making

Chair: *Kathrin Klamroth*

1 - Modelling Outliers in Center Location Problems - A Multiobjective Perspective

Teresa Schnepfer, Kathrin Klamroth, Michael Stiglmayr

2 - Optimally solving the TSP on acyclic networks with soft due dates and multiple congestion scenarios

Stefan Bock

3 - Optimal placement of weather radars network as a multi-objectives problem

Redouane Boudjemaa

■ **WC-15**

Wednesday, 13:30-15:00 - Seminarraum 305

Scheduling Problems and Applications (i)

Stream: Project Management and Scheduling

Chair: *Ethem Canakoglu*

1 - ILP-based Modulo Scheduling for High-level Synthesis

Julian Oppermann, Andreas Koch, Melanie Reuter-Oppermann, Oliver Sinnen

2 - Audit Scheduling in Banking Sector

Ethem Canakoglu, Ibrahim Muter, Onur Adanur

■ **WC-16**

Wednesday, 13:30-15:00 - Seminarraum 308

Appointment Scheduling

Stream: Health Care Management

Chair: *Manuel Glaser*

1 - Strategies for Improving Block Appointment Schedules at Specialty Clinics

Rajesh Piplani, Eva Fancev

2 - Interday appointment scheduling and capacity allocation in primary care

Matthias Schacht

3 - Scheduling appointments based on probabilities for patient's presence

Manuel Glaser, Jens Brunner

■ **WC-17**

Wednesday, 13:30-15:00 - Seminarraum 310

Supplier Selection and Closed-Loop Supply Chains

Stream: CANCELED

■ **WC-18**

Wednesday, 13:30-15:00 - Seminarraum 401/402

Truck and Trailer Routing

Stream: Logistics, Routing and Location Planning

Chair: *Joachim Kneis*

1 - Solving a Rich Intra-facility Steel Slab Routing Problem

Biljana Roljic, Fabien Tricoire, Karl Doerner

2 - Branch-Price-and-Cut for the Truck and Trailer Routing Problem with Time Windows

Ann-Kathrin Rothenbacher, Michael Drexl, Stefan Irnich

3 - A Rich Truck and Trailer Problem arising in the Steel Industry

Joachim Kneis

■ **WC-19**

Wednesday, 13:30-15:00 - Seminarraum 403

Delay Management and Re-Scheduling (i)

Stream: Traffic and Passenger Transportation

Chair: *Sander Van Aken*

1 - Strategic Deconfliction in the European Air Traffic Flow Management Network with Column Generation

Jan Berling, Alexander Lau, Volker Gollnick

2 - Computing alternative railway timetables to deal with infrastructure maintenance works

Sander Van Aken, Nikola Besinovic, Rob Goverde

3 - A Stochastic Dynamic Programming Approach for Delay Management of a Single Train Line

Eva König, Cornelia Schoen

■ **WC-20**

Wednesday, 13:30-15:00 - Seminarraum 404

Smart Services and Internet of Things

Stream: Business Analytics and Forecasting

Chair: *Johannes Kunze von Bischoffshausen*

Chair: *Maria Maleshkova*

1 - Realising Smart Services Through Intelligent Interfaces

Maria Maleshkova

2 - Towards Smart Services based on Distributed Architectures

Felix Leif Keppmann

3 - Business analytics for managing uncertainties in industrial service contracts

Michael Vössing, Björn Schmitz

4 - Field Technician Scheduling 4.0

Johannes Kunze von Bischoffshausen, Michael Vössing

■ WC-21

Wednesday, 13:30-15:00 - Seminarraum 405/406

Hours of Service Regulations

Stream: Logistics, Routing and Location Planning

Chair: *Asvin Goel*

1 - Branch-and-price-and-cut for the vehicle routing and truck driver scheduling problem

Christian Tilk

2 - A regulatory impact analysis of hours of service regulations in Europe

Asvin Goel

3 - Truck Driver Shift Scheduling in Vehicle Routing with Time-Dependent Service Costs

Alexander Kleff, Tobias Pröger

Wednesday, 15:30-16:15

■ WD-02

Wednesday, 15:30-16:15 - Hörsaal 1

Semi-Plenary Miettinen

Stream: Semi-Plenaries

Chair: *Kathrin Klamroth*

1 - Advantages of Interactive Multiobjective Optimization Methods Demonstrated with NAUTILUS Navigator enabling Navigation without Trading-Off

Kaisa Miettinen

■ WD-03

Wednesday, 15:30-16:15 - Hörsaal 2

Semi-Plenary Woeginger

Stream: Semi-Plenaries

Chair: *Michael Juenger*

1 - New answers to old questions on the TSP

Gerhard J. Woeginger

■ WD-04

Wednesday, 15:30-16:15 - Hörsaal 3

Semi-Plenary Marklund

Stream: Semi-Plenaries

Chair: *Stefan Minner*

1 - Sustainable Supply Chain Inventory Control

Johan Marklund

■ WD-06

Wednesday, 15:30-16:15 - Hörsaal 5

Semi-Plenary GOR Unternehmenspreis

Stream: Semi-Plenaries

Chair: *Alf Kimms*

Wednesday, 16:30-18:00

■ WE-02

Wednesday, 16:30-18:00 - Hörsaal 1

Polyhedral Combinatorics (i)

Stream: Discrete and Integer Optimization

Chair: *Matthias Walter*

Chair: *Anja Fischer*

- 1 - Dantzig-Wolfe Reformulations for the Stable Set Problem**
Jonas Witt, Marco Lübbecke
- 2 - A New Hierarchy for Solving Polynomial Matroid Optimisation Problems**
Anja Fischer, Frank Fischer, Thomas S. McCormick
- 3 - Investigating Polyhedra by Oracles**
Matthias Walter, Volker Kaibel

■ WE-03

Wednesday, 16:30-18:00 - Hörsaal 2

Combinatorial Optimization II

Stream: Discrete and Integer Optimization

Chair: *John Martinovic*

- 1 - Two-Stage Cutting Stock Problem with Due Dates**
Zeynep Sezer, Ibrahim Muter
- 2 - On-line Algorithms for Controlling Palletizers**
Frank Gurski, Jochen Rethmann, Egon Wanke
- 3 - On the Solution of Generalized Spectrum Allocation Problems**
John Martinovic, Eduard Jorswieck, Guntram Scheithauer

■ WE-04

Wednesday, 16:30-18:00 - Hörsaal 3

Energy Management in the Steel Industry

Stream: Energy and Environment

Chair: *Magnus Fröhling*

- 1 - A real world application for the „Balanced Blocks Relocation Problem“ in the steel industry**
Jan Necil, Felix Brandt, Eric Ebermann, Stefan Nickel
- 2 - Operations-Research in integrated steel industry: Use cases from DILLINGER**
Eric Ebermann, Heike Busch, Jan Necil, Stefan Nickel
- 3 - Estimating greenhouse gas emissions of European steel suppliers**
Andreas Schiessl, Patrick Breun, Konrad Zimmer, Frank Schultmann

■ WE-05

Wednesday, 16:30-18:00 - Hörsaal 4

Coordination Games

Stream: Game Theory and Experimental Economics

Chair: *Thomas Neumann*

- 1 - An experimental investigation of supplier-retailer contracts**
Claudia Keser, Giuseppe Paleologo, Emmanuel Peterlé
- 2 - Vasopressin increases human risky cooperative behavior**
Bodo Vogt, Claudia Brunnlieb
- 3 - Equilibrium selection in coordination games: An experimental study of the role of higher order beliefs in strategic decisions**
Thomas Neumann, Bodo Vogt

■ WE-06

Wednesday, 16:30-18:00 - Hörsaal 5

GOR Dissertation Prize

Stream: Prize Awards

Chair: *Anita Schöbel*

- 1 - Solving Network Design Problems - with an Application to the Optimal Expansion of Railway Infrastructure**
Andreas Bärman
- 2 - On- and Offline Scheduling of Bidirectional Traffic**
Elisabeth Lübbecke
- 3 - Integrated Segmentation of Supply and Demand with Service Differentiation**
Benedikt Schulte

■ WE-07

Wednesday, 16:30-18:00 - Hörsaal 6

Game Theory and Incentives

Stream: Game Theory and Experimental Economics

Chair: *Stephan Schwartz*

- 1 - Sourcing Innovation: Public and Private Feedback in Contests**
Jochen Schlapp
- 2 - A Dynamic Game Theory Model for Dispute Resolution between Public and Private sector Partners in PPPs**
Mohammad Rajabi, Jamal Ouenniche
- 3 - Designing Inspector Rosters with Optimal Strategies**
Stephan Schwartz, Thomas Schlechte, Elmar Swarat

■ WE-08

Wednesday, 16:30-18:00 - Seminarraum 101/103

Network Design for Distribution Logistics

Stream: Logistics, Routing and Location Planning

Chair: *Tobias Buer*

Chair: *Michaela Thulke*

1 - Competitive Service Network Design when Demand is Sensitive to Congestion

Pratibha Pratibha, Cornelia Schoen

2 - Planning of mobile deconsolidation points in grocery retail logistics

Michaela Thulke, Thomas Volling

3 - Optimization Based Network Design in UPS Turkey

Gozde Merve Demirci, Aylin Baykan, Yaprak Dolgun, Fadime Üney-Yüksektepe

■ **WE-09**

Wednesday, 16:30-18:00 - Seminarraum 105

Finance III

Stream: Finance

Chair: *Michal Fendek*

1 - Long-run UIP Holds even in the Short Run

Fabian Ackermann, Karl Schmedders, Walter Pohl

2 - Bond Mutual Funds and Complex Investments

Markus Natter, Martin Rohleder, Dominik Schulte, Marco Wilkens

3 - Quantitative analysis the degree of concentration in the Slovak banking sector

Eleonora Fendekova, Michal Fendek

■ **WE-11**

Wednesday, 16:30-18:00 - Seminarraum 110

Sequencing and Scheduling

Stream: Production and Operations Management

Chair: *Tobias Kreiter*

1 - Solving job-shop problems with blocking constraints by simulated annealing

Julia Lange, Frank Werner

2 - Optimization models for vehicle planning in the pre-production phase

Tilak Raj Singh

3 - Sequencing mixed-model multi-level assembly lines

Tobias Kreiter, Ulrich Pferschy

■ **WE-12**

Wednesday, 16:30-18:00 - Seminarraum 202

Approximate Dynamic Programming: Methods and Applications

Stream: Metaheuristics

Chair: *Marlin Wolf Ulmer*

1 - Anticipation for Stochastic Inventory Routing in Bike Sharing Systems

Jan Brinkmann, Marlin Wolf Ulmer, Dirk Christian Mattfeld

2 - Multi-Period Technician Scheduling with Experience-based Service Times and Stochastic Customers

Barrett Thomas, Xi Chen, Mike Hewitt

3 - Risk-Averse Approximate Dynamic Programming for Dynamic Vehicle Routing

Marlin Wolf Ulmer, Stefan Voss

■ **WE-13**

Wednesday, 16:30-18:00 - Seminarraum 204

Optimal Control for Supply Chain and Operations Management I

Stream: Control Theory and Continuous Optimization

Chair: *Dmitry Ivanov*

1 - Serious Strategy for the Video Games Industry: Pay-to-Play vs. Free-to-Play

Andrea Seidl, Jonathan Caulkins, Richard Hartl, Peter M. Kort

2 - Ripple Effect in the Supply Chain: Control Perspective

Dmitry Ivanov

3 - Optimal Control of Stochastic Hybrid Systems under Regime Switches, Impulsiveness and Delay, in Finance, Economics and Nature

Gerhard-Wilhelm Weber, Emel Savku, Nadi Serhan Aydin, Busra Temocin, A. Sevtap Selcuk Kestel

■ **WE-14**

Wednesday, 16:30-18:00 - Seminarraum 206

MCDM Applications and Case Studies

Stream: Decision Theory and Multiple Criteria Decision Making

Chair: *Erdem Aksakal*

1 - The older, the better..!? - Benchmarking Quality Efficiency of time-consuming Whisky Production using DEA

Magnus Richter

2 - Multi Criteria Decision Making Methods for Ranking the Countries with respect to the Logistic Performance Index

Nimet Yapıcı Pehlivan, Aynur Şahin

3 - Building decision making models through Conceptual-Constraints: multi-scale process model implementations

Canan Dombayci, Antonio Espuña

4 - Marina destination selection under Analytic Network Process: A Case from Turkey

Erdem Aksakal

■ **WE-15**

Wednesday, 16:30-18:00 - Seminarraum 305

Complex scheduling problems (i)

Stream: Project Management and Scheduling

Chair: *Sigrid Knust*

1 - Decomposition algorithms for synchronous flow shop problems with additional resources and setup times

Sigrid Knust, Stefan Waldherr

2 - A shortest path algorithm for routing of triple crossover cranes

Lennart Zey, Dirk Briskorn

3 - Scheduling of Vehicles with Handover Relations at Transshipment Terminals

Dirk Briskorn, Malte Fliedner, Martin Tschöke

■ **WE-16**

Wednesday, 16:30-18:00 - Seminarraum 308

Data Analytics

Stream: Health Care Management

Chair: *Sebastian Kohl*

1 - Towards a Process Analysis Tool: Goodness-of-Fit Tests on clinical processes

Tobias Weller, Maria Maleshkova, Martin Wagner, Lena-Marie Ternes, Hannes Kenngott

2 - Pitfalls in Hypothesis Testing: Sensitization and Solution to Multiple Testing Problems

Christina Bartenschlager, Jens Brunner

3 - Exploring the Accuracy of Data Envelopment Models using Monte Carlo Simulated Production Data

Sebastian Kohl, Jens Brunner

■ **WE-18**

Wednesday, 16:30-18:00 - Seminarraum 401/402

Collaborative Transportation Planning II (i)

Stream: Logistics, Routing and Location Planning

Chair: *Mario Ziebuhr*

Chair: *Kristian Schopka*

1 - Bundle generation in combinatorial transportation auctions

Margaretha Gansterer, Richard Hartl

2 - Non-cooperative pricing decisions in Site-Dependent Vehicle Routing Problems

Silvia Schwarze

3 - Transportation Planning with different Forwarding Limitations

Mario Ziebuhr, Herbert Kopfer

■ **WE-19**

Wednesday, 16:30-18:00 - Seminarraum 403

Resource Scheduling in Public Transportation (i)

Stream: Traffic and Passenger Transportation

Chair: *Natalia Kliewer*

1 - The Electric Vehicle Scheduling Problem - A study on modelling approaches for charging a vehicle's battery

Nils Olsen, Natalia Kliewer

2 - A Sequential Approach for Vehicle and Crew Scheduling Problem in Public Bus Transportation

Hande Öztop, Uğur Eliyi, Deniz Türsel Eliyi, Levent Kandiller

3 - A framework for agent based simulation of demand responsive transport systems.

Joschka Bischoff, Ninja Soeffker, Michal Maciejewski

4 - Column generation for Airline Crew Rostering: Practical considerations in a production system

Hamid Kharraziha, Andreas Westerlund

■ **WE-20**

Wednesday, 16:30-18:00 - Seminarraum 404

Forecasting

Stream: Business Analytics and Forecasting

Chair: *Sven F. Crone*

1 - Modelling of water use patterns in the Rajasthan Province of India

Shankar Venkatagiri, Shashank Garg, Krishna Sundar Diatha

2 - Statistics instead of stopover - Range predictions for electric vehicles

Christian Kluge, Stefan Schuster, Diana Sellner

3 - Don't Correct and Combine Judgmental Forecast

Sebastian Blanc

4 - Improving the forecasting accuracy of two-step segmentation models

Friederike Paetz

■ **WE-21**

Wednesday, 16:30-18:00 - Seminarraum 405/406

Storage Systems Optimization

Stream: Logistics, Routing and Location Planning

Chair: *Achim Koberstein*

1 - Loading and unloading strategies for a stacking problem with item families

Sven Boge

2 - Window Fill Rate in a Two-echelon Exchangeable-Item Repair-System

Michael Dreyfuss, Yahel Giat

3 - Extension of the A*-Algorithm for Puzzle-Based Storage Systems Problems

Altan Yalcin, Achim Koberstein, Kai-Oliver Schocke

Thursday, 9:00-10:30

■ TA-02

Thursday, 9:00-10:30 - Hörsaal 1

Mixed Integer and Linear Programming Software (i)

Stream: Discrete and Integer Optimization

Chair: *Sven Wiese*

- 1 - **Parallelization of the FICO Xpress Optimizer**
Timo Berthold
- 2 - **Recent improvements in the CPLEX LP solver**
Bo Jensen, Roland Wunderling
- 3 - **Gurobi - Performance Improvements and New Features**
Michael Winkler

■ TA-03

Thursday, 9:00-10:30 - Hörsaal 2

Selected Topics of Discrete Optimization

Stream: Discrete and Integer Optimization

Chair: *Christoph Buchheim*

- 1 - **Low-rank/sparse-inverse decomposition**
Jon Lee, Victor Fuentes
- 2 - **Optimal division of the electoral districts for the single-member constituency system**
Keisuke Hotta
- 3 - **Robust Assignments with Vulnerable Edges**
Dennis Michaels, Viktor Bindewald, David Adjashvili

■ TA-04

Thursday, 9:00-10:30 - Hörsaal 3

Applications in energy modelling

Stream: Energy and Environment

Chair: *Michael Zipf*

- 1 - **BEAM-ME: Acceleration Strategies for Energy System Models**
Frederik Fiand, Michael Bussieck
- 2 - **Linear reformulations of the unit commitment problem**
Kerstin Daechert, Christoph Weber
- 3 - **Cooperation of TSO and DSO to provide re-dispatch capacities**
Michael Zipf, Dominik Möst

■ TA-05

Thursday, 9:00-10:30 - Hörsaal 4

Behavioral Project Management (i)

Stream: Game Theory and Experimental Economics

Chair: *Sebastian Schiffels*

- 1 - **The effect of power on cost planning in project management**
Andreas Fügener, Sebastian Schiffels
- 2 - **Delegated Testing of Design Alternatives: Selectionism vs. Trial-and-Error**
Gerrit Schumacher
- 3 - **Does Strategic Behavior Mitigate Parkinson's Law?**
Sebastian Schiffels, Andreas Fügener

■ TA-06

Thursday, 9:00-10:30 - Hörsaal 5

Advanced Analytics in Revenue Management

Stream: Pricing and Revenue Management

Chair: *Catherine Cleophas*

- 1 - **Nonparametric Demand Estimation in Revenue Management**
Johannes Ferdinand Jörg, Catherine Cleophas
- 2 - **Forecasting Price Elasticity with Generalized Additive Models assuming a Poisson Process with an Application to Dynamic Pricing**
Jan Felix Meyer, Goeran Kauermann, Catherine Cleophas
- 3 - **Exogenous Capacity Changes in Airline Revenue Management: Quantifying the Value of Information**
Catherine Cleophas, Daniel Kadatz, Natalia Kliewer

■ TA-07

Thursday, 9:00-10:30 - Hörsaal 6

Behavioral Contracting (i)

Stream: Game Theory and Experimental Economics

Chair: *Karina Held*

- 1 - **Sticky Wages and Effort Inertia - Experimental Evidence on Productivity and Distribution Effects under Inflation**
Karina Held
- 2 - **Efficiency of two-part tariffs in supply chains: The role of bargaining power and demand uncertainty**
Abdolkarim Sadrieh, Guido Voigt
- 3 - **The effect of communication media on forecast information sharing in supply chains**
Lennart Johnsen, Guido Voigt, Joachim Weimann

■ TA-08

Thursday, 9:00-10:30 - Seminarraum 101/103

Container and Terminal Operations I (i)

Stream: Logistics, Routing and Location Planning

Chair: *Julia Funke*

1 - Berth Allocation - Do we have it all wrong?

Stefan Voss

2 - A Mixed Integer Programming Model for Integrated Operations in Container Terminals

Damla Kizilay, Deniz Türsel Eliiyi

3 - Multi-size Container Transportation

Julia Funke, Herbert Kopfer

■ **TA-09**

Thursday, 9:00-10:30 - Seminarraum 105

Modeling and Solver Performance

Stream: Software and Modelling Systems

Chair: *Werner Helm*

1 - Planarization of CityGML models using a linear program

Steffen Goebbels, Regina Pohle-Fröhlich, Jochen Rethmann

2 - Distributed solving of mixed-integer programs with GLPK and Thrift

Jochen Rethmann, Frank Gurski

3 - Benchmarking: Extending the range of H.D. Mittelmann

Werner Helm, Jan-Erik Justkowiak

■ **TA-10**

Thursday, 9:00-10:30 - Seminarraum 108

Advances in Stochastic Optimization

Stream: Optimization under Uncertainty

Chair: *Marco Laumanns*

1 - A maximum likelihood approach to optimization table balancing

Geoffrey Brent

2 - Scenario Aggregation using Binary Decision Diagrams for Stochastic Programs with Endogenous Uncertainty

Marco Laumanns, Utz-Uwe Haus, Carla Michini

■ **TA-11**

Thursday, 9:00-10:30 - Seminarraum 110

Production Scheduling

Stream: Production and Operations Management

Chair: *Liliana Grigoriu*

1 - Flexible production scheduling with volatile energy rates

Christoph Johannes, Matthias Gerhard Wichmann, Thomas Spengler

2 - Scheduling of uniform nonsimultaneous parallel machines

Liliana Grigoriu, Donald Friesen

3 - Extension of the Quay Crane Scheduling Problem for scheduling of several rail-mounted robots and the development of a heuristic solver for fiber placement processes

Markus Schreiber, Rüdiger Ruwe

■ **TA-12**

Thursday, 9:00-10:30 - Seminarraum 202

Graphs and Networks

Stream: Metaheuristics

Chair: *Silvia Schwarze*

1 - The Generalized Steiner Cable-Trench Problem with Application to Error Correction in Vascular Image Analysis

Eric Landquist, Francis Vasko, Gregory Kresge, Adam Tal, Yifeng Jiang, Xenophon Papademetris

2 - Interactive Metaheuristics for Network Optimization Problems

David Meignan

■ **TA-13**

Thursday, 9:00-10:30 - Seminarraum 204

Error Bounds and Algorithms

Stream: Control Theory and Continuous Optimization

Chair: *Andreas Fischer*

1 - Convergence of Newton-Type Methods for Degenerate Complementarity Systems

Andreas Fischer, Markus Herrich, Alexey Izmailov, Mikhail Solodov

2 - A Globally Convergent LP-Newton Method for Constrained Piecewise Differentiable Systems of Equations

Markus Herrich, Andreas Fischer, Alexey Izmailov, Mikhail Solodov

3 - Projected Levenberg-Marquard methods under the constrained error bound condition

Klaus Schönefeld, Roger Behling, Andreas Fischer, Gabriel Haeser, Alberto Ramos

■ **TA-14**

Thursday, 9:00-10:30 - Seminarraum 206

Scalarizations, Bounds and Mathematical Programming Methods

Stream: Decision Theory and Multiple Criteria Decision Making

Chair: *Nikolai Krivulin*

1 - Efficient Bound Computations in Multiobjective Optimization

Kathrin Klamroth, Kerstin Daechert, Renaud Lacour, Daniel Vanderpooten

2 - Methods of tropical optimization in rating alternatives based on pairwise comparisons

Nikolai Krivulin

■ TA-15

Thursday, 9:00-10:30 - Seminarraum 305

Flows and Queues

Stream: Project Management and Scheduling

Chair: *Martin Josef Geiger*

1 - Linking Queueing Theory and Scheduling Approaches

Kathrin Benkel, Rainer Leisten

2 - Analysis of integrated scheduling and intermediate transportation systems in production lines with variability-related measures

Miriam Zacharias, Rainer Leisten, Rajendran C

3 - Optimal Torpedo Scheduling in Steel Production

Martin Josef Geiger

■ TA-16

Thursday, 9:00-10:30 - Seminarraum 308

Planning health care services

Stream: Health Care Management

Chair: *Jens Brunner*

1 - Improving health care service in rural areas by mobile medical units

Christina Büsing, Martin Comis

2 - Locating and designing group practices for general practitioners

Melanie Reuter-Oppermann, Jost Steinhäuser

3 - Analyzing economies of scale and scope in hospitals using non-linear optimization

Sebastian Hof, Jens Brunner

■ TA-18

Thursday, 9:00-10:30 - Seminarraum 401/402

Collaboration In Logistics

Stream: Logistics, Routing and Location Planning

Chair: *Margaretha Gansterer*

1 - Transportation Planning in a Sharing Economy Setting

Moritz Behrend, Frank Meisel

2 - The Political Campaigning Problem: A Selective and Periodic TSP Perspective on Electoral Campaigns

Deniz Aksent, Masoud Shahmanzari

3 - Solving the centralized problem for a two-clustered transport collaboration network

Adria Soriano, Margaretha Gansterer, Richard Hartl

■ TA-19

Thursday, 9:00-10:30 - Seminarraum 403

Integrated Public Transportation Planning (i)

Stream: Traffic and Passenger Transportation

Chair: *Marie Schmidt*

1 - Integrated Traffic Planning in Grid Graphs

Alexander Schiewe, Philine Gattermann, Anita Schöbel

2 - A SAT-Formulation for Integrating Line Planning, Timetabling and Passenger Routing

Philine Gattermann, Peter Großmann, Karl Nachtigall, Anita Schöbel

3 - Line planning with user-optimal route choice

Marie Schmidt, Marc Goerigk

■ TA-20

Thursday, 9:00-10:30 - Seminarraum 404

Forecasting with Artificial Neural Networks

Stream: Business Analytics and Forecasting

Chair: *Sven F. Crone*

1 - Forecasting Model Selection for Industry Data by Applying Meta-Learning with Feature Selection

Mirko Kück, Sven F. Crone, Michael Freitag

2 - The Value of Visualization in Forecasting Applications

Dennis Eilers, Daniel Olivotti, Michael H. Breitner

3 - Neural network initialisation for time series prediction - an empirical evaluation of different methodologies on Industry Data

Sven F. Crone

■ TA-21

Thursday, 9:00-10:30 - Seminarraum 405/406

Airspace Networks

Stream: Logistics, Routing and Location Planning

Chair: *Adam Schienle*

1 - A VRP Based Mathematical Model for Airspace Sectorization

Aydin Sipahioglu, Şaban Temizkan

2 - Preprocessing Techniques for the Shortest Path Problem on Airway Networks

Adam Schienle, Marco Blanco, Ralf Borndörfer, Nam Dung Hoang, Thomas Schlechte

Thursday, 11:00-12:30

■ TB-02

Thursday, 11:00-12:30 - Hörsaal 1

Combinatorial Optimization (i)

Stream: Discrete and Integer Optimization

Chair: *Dennis Michaels*

- 1 - **Robust Assignments with Vulnerable Nodes**
Viktor Bindewald, David Adjashvili, Dennis Michaels
- 2 - **On the stable set polytope of claw-free graphs: the class of icosahedral graphs**
Claudio Gentile, Anna Galluccio
- 3 - **Solution methods for the Quadratic TSP and its variations**
Rostislav Staněk, Oswin Aichholzer, Anja Fischer, Frank Fischer, J. Fabian Meier, Ulrich Pferschy, Alexander Pilz

■ TB-03

Thursday, 11:00-12:30 - Hörsaal 2

Flexibility options in power markets

Stream: Energy and Environment

Chair: *Reinhard Madlener*

- 1 - **Towards quantifying customer needs from micro blog data in e-mobility**
Marc Goutier, Niklas Kuehl
- 2 - **Flexibility Options for Lignite-fired Power Plants - A Real Option Approach**
Barbara Glensk, Reinhard Madlener
- 3 - **Using Optimization Models for a Technology-Neutral Coordination of Flexibility Options on the Power Market**
Lars-Peter Lauen, Jutta Geldermann

■ TB-04

Thursday, 11:00-12:30 - Hörsaal 3

Demand Response and decentralized systems

Stream: Energy and Environment

Chair: *Hannes Hobbie*

- 1 - **Demand Response in Industrial Sites - Energy cost reduction using mathematical optimization**
Sleman Saliba, Lennart Merkert, Reinhard Bauer
- 2 - **Simulation and Evaluation of the Market Potential of Virtually Connected Photovoltaic-Battery Systems with Respect to Decentralized Prosumers**
Hendrik Broering, Reinhard Madlener

■ TB-05

Thursday, 11:00-12:30 - Hörsaal 4

Mechanism and Markets for IT Service Compositions

Stream: Game Theory and Experimental Economics

Chair: *Alexander Skopalik*

- 1 - **Economic Aspects of Service Composition: Price Negotiations and Quality Investments**
Simon Hoof, Sonja Brangewitz
- 2 - **Truthful Outcomes from Non-Truthful Position Auctions**
Paul Dütting, Felix Fischer, David C. Parkes
- 3 - **Strategic Formation of Customer Relationship Networks**
Sonja Brangewitz, Claus-Jochen Haake, Philipp Möhlmeier

■ TB-06

Thursday, 11:00-12:30 - Hörsaal 5

Robust Revenue Management

Stream: Pricing and Revenue Management

Chair: *Jochen Gönsch*

- 1 - **Multi-criteria Optimization for Airline Revenue Management**
Felix Geyer, Catherine Cleophas
- 2 - **Practical Decision Rules for Risk-Averse Revenue Management using Simulation-Based Optimization**
Jochen Gönsch, Sebastian Koch, Michael Hassler, Robert Klein

■ TB-07

Thursday, 11:00-12:30 - Hörsaal 6

New Results for Shipping, Matching, and Covering

Stream: Graphs and Networks

Chair: *Ralf Borndörfer*

- 1 - **Integer Programming Formulations and Decomposition Algorithms for Maximum Induced Matching Problem**
Z. Caner Taşkın, Betül Ahat, Tinaz Ekim
- 2 - **Optimization Formulations for Set Covering Open Locating Dominating Sets**
Blair Sweigart, Rex Kincaid
- 3 - **Timetabling on Path Networks with Application to the Istanbul Metrobus**
Ralf Borndörfer, Oytun Arslan, Ziena Elijazyfer, Hakan Güler, Malte Renken, Guvenc Sahin, Thomas Schlechte

■ TB-08

Thursday, 11:00-12:30 - Seminarraum 101/103

Collaborative Transportation Planning I (i)

Stream: Logistics, Routing and Location Planning

Chair: *Kristian Schopka*

Chair: *Mario Ziebuhr*

1 - Event-Based Support for Collaborative Synchronic Modal Logistics

Paul Grefen, Remco Dijkman

2 - Dynamic Vehicle Routing with Stochastic Travel Times Matrices Changes Induced by a Cooperative Traffic Management

Felix Köster, Dirk Christian Mattfeld, Marlin Wolf Ulmer

3 - Request-allocation in Dynamic Collaborative Transportation Planning Problems

Kristian Schopka, Herbert Kopfer

■ TB-09

Thursday, 11:00-12:30 - Seminarraum 105

Algebraic Modeling Languages

Stream: Software and Modelling Systems

Chair: *Robert Fourer*

1 - Cloud services for optimization modeling software

Robert Fourer

2 - Recent Enhancements in GAMS

Franz Nelissen, Michael Bussieck, Frederik Fiand

3 - Deploying MPL Optimization Models with Google Web Services API's

Bjarni Kristjansson, Sandip Pindoria

■ TB-10

Thursday, 11:00-12:30 - Seminarraum 108

Multistage uncertain problems

Stream: Optimization under Uncertainty

Chair: *Georg Pflug*

1 - Multistage Personnel Scheduling under Uncertainty: Evaluating Deterministic Lookahead Policies

Michael Römer, Taieb Mellouli

2 - Multi-stage Hub-Location Routing Problem

Dimitri Papadimitriou

3 - Bounds for stochastic multistage optimization problems

Georg Pflug, Francesca Maggioni

■ TB-11

Thursday, 11:00-12:30 - Seminarraum 110

Multi-stage Production Systems

Stream: Production and Operations Management

Chair: *Peter Greistorfer*

1 - Minimizing work-in-process inventory in stochastic and time-dependent flow lines

Justus Arne Schwarz, Raik Stolletz

2 - Modelling uncertainty in an automobile multi-stage production process

Andrea Borenich, Peter Greistorfer, Marc Reimann

■ TB-12

Thursday, 11:00-12:30 - Seminarraum 202

Scheduling and Sequencing: Applications

Stream: Metaheuristics

Chair: *Franz Rothlauf*

1 - A Heuristic Procedure for Integrated Cutting Stock and Sequencing Problem in the Marble Industry

Burcu Kubur, Adil Baykasoglu

2 - Ensemble Techniques for Scheduling in Heterogeneous Wireless Communications Networks

David Lynch, Michael Fenton, Stepan Kucera, Holger Claussen, Michael O'Neill

3 - Don't buy a pig in a poke: Supporting allocation decisions in multi-clouds

Leonard Heilig, Eduardo Lalla-Ruiz, Stefan Voss

■ TB-13

Thursday, 11:00-12:30 - Seminarraum 204

Simulation Models I

Stream: Simulation and Stochastic Modeling

Chair: *Brigitte Werners*

1 - A macroscopic simulation model of the urban Viennese subway network with capacity constraints and time-dependent demand

David Schmaranzer, Roland Braune, Karl Doerner

2 - Decision support for power plant shift configuration using stochastic simulation

Pia Mareike Steenweg, Matthias Schacht, Brigitte Werners

3 - Simulating the diffusion of competing technology generations: An agent-based model and its application to the consumer computer market in Germany

Markus Günther, Christian Stummer

■ TB-14

Thursday, 11:00-12:30 - Seminarraum 206

Decision Making with Incomplete or Imprecise Information

Stream: Decision Theory and Multiple Criteria Decision Making

Chair: *Mohammad Darvizeh*

- 1 - **SMAA-Based Approach for Project Portfolio Selection with Uncertain and Incomplete Information**
Makbule Kandakoglu, Grit Walther
- 2 - **Self-regulated Multi-criteria Decision Analysis**
Muhammad Umer Wasim, Pascal Bouvry, Tadas Limba
- 3 - **Dynamic capabilities in new product development and its effects on firm performance**
Mohammad Darvizeh, Jian-Bo Yang, Steve Eldridge

■ TB-15

Thursday, 11:00-12:30 - Seminarraum 305

Resource Constrained Project Scheduling

Stream: Project Management and Scheduling
Chair: *Kristina Bayer*

- 1 - **A decomposition method for the Multi-Mode Resource-Constrained Multi-Project Scheduling Problem (MRCMPSP)**
Mathias Kühn, Sebastian Dirkmann, Michael Völker, Thorsten Schmidt
- 2 - **Solving the resource-constrained multi-project scheduling problem with a flexible project structure**
Luise-Sophie Hoffmann, Carolin Kellenbrink
- 3 - **Monte Carlo Tree Search for the Resource-Constrained Project Scheduling Problem**
Kristina Bayer, Robert Klein, Sebastian Koch

■ TB-16

Thursday, 11:00-12:30 - Seminarraum 308

Resource scheduling

Stream: Health Care Management
Chair: *Melanie Erhard*

- 1 - **Queue management for operating theatres**
Belinda Spratt, Erhan Kozan
- 2 - **Optimizing Intensive Care Unit (ICU) Planning by Markov Decision Process**
Jie Bai, Jens Brunner
- 3 - **Flexible break assignment in physician scheduling**
Melanie Erhard, Jens Brunner

■ TB-17

Thursday, 11:00-12:30 - Seminarraum 310

Coordination and Collaboration

Stream: Supply Chain Management
Chair: *Thomas Spengler*

- 1 - **Partial Cooperation Opportunities in a Two-Echelon Supply Chain**
Ismail Serdar Bakal, Betül Diler, Ozgen Karaer
- 2 - **Drivers and Resistors for Supply Chain Collaboration**
Verena Jung, Tjark Vredevelde, Marianne Peeters
- 3 - **Coordination by contracts in distributed product development processes with complete substitution**
Kerstin Schmidt, Thomas Volling, Thomas Spengler

■ TB-18

Thursday, 11:00-12:30 - Seminarraum 401/402

Container and Terminal Operations II (i)

Stream: Logistics, Routing and Location Planning
Chair: *Julia Funke*

- 1 - **Optimal dynamic assignment of internal vehicle fleet at a maritime rail terminal with uncertain processing times**
Ying Xie, Dongping Song
- 2 - **Cargo Allocation and Vessel Scheduling Problem with Synchronization of Transshipments**
Sel Ozcan, Deniz Türsel Eliiyi

■ TB-19

Thursday, 11:00-12:30 - Seminarraum 403

Learning Robust Routes (i)

Stream: Traffic and Passenger Transportation
Chair: *Matús Mihalák*

- 1 - **Robust Routing in Urban Public Transportation: How to find reliable journeys based on past observations**
Tobias Pröger, Katerina Böhmova, Matús Mihalák, Peter Widmayer
- 2 - **Robust Routing in Urban Public Transportation: Evaluating Strategies that Learn from the Past**
Katerina Böhmova, Matús Mihalák, Peggy Neubert, Tobias Pröger, Peter Widmayer
- 3 - **Bi-directional Search for Min-Max-Relative-Regret Routes in Time-dependent Bi-criteria Road Networks**
Matús Mihalák, Sandro Montanari

■ TB-20

Thursday, 11:00-12:30 - Seminarraum 404

Analytics in Mobility

Stream: Business Analytics and Forecasting
Chair: *Jennifer Schoch*

- 1 - **Accounting for Range Anxiety in Smart Charging Strategies for Electric Vehicles**
Jennifer Schoch, Johannes Gärtner, Alexander Schuller, Thomas Setzer

2 - Towards mathematical programming methods for predicting user mobility in mobile networks
Alberto Ceselli, Marco Premoli

3 - Simulation-based Data Selection and Reduction for Battery Degradation Modeling in Electric Vehicles
Philipp Staudt, Jennifer Schoch

■ TB-21

Thursday, 11:00-12:30 - Seminarraum 405/406

Facility and Hub Location Problems

Stream: Logistics, Routing and Location Planning
Chair: *Teresa Melo*

1 - The stochastic single allocation hub location problem
Nicolas Kämmerling, Borzou Rostami

2 - Competitive hub location for the leader; considering followers in the future
Babak Farhang Moghaddam, Amir Afshin Fatahi

3 - Multi-period facility location with dynamic capacity planning and delayed demand satisfaction
Teresa Melo, Isabel Correia

Thursday, 13:30-14:15

■ TC-02

Thursday, 13:30-14:15 - Hörsaal 1

Semi-Plenary Walther

Stream: Semi-Plenaries
Chair: *Stefan Wolfgang Pickl*

1 - OR for Future Mobility: Designing Sustainable Means of Transportation
Grit Walther

■ TC-03

Thursday, 13:30-14:15 - Hörsaal 2

Semi-Plenary Correa

Stream: Semi-Plenaries
Chair: *Tobias Harks*

1 - Dynamic pricing with forward-looking consumers
José Correa

■ TC-04

Thursday, 13:30-14:15 - Hörsaal 3

Semi-Plenary Hurink

Stream: Semi-Plenaries
Chair: *Guido Voigt*

1 - Decentralized Energy Management: New Challenges for Operations Research
Johann Hurink

■ TC-06

Thursday, 13:30-14:15 - Hörsaal 5

Semi-Plenary Spieksma

Stream: Semi-Plenaries
Chair: *Dirk Briskorn*

1 - Scheduling a soccer league
Frits Spieksma

Thursday, 14:45-16:15

■ TD-02

Thursday, 14:45-16:15 - Hörsaal 1

Advances in Mixed Integer Programming (i)

Stream: Discrete and Integer Optimization
Chair: Sven Wiese

1 - SCIP-Jack: A Solver for the Steiner Tree Problem and Variants

Daniel Rehfeldt

2 - Experiments with conflict analysis in SCIP

Jakob Witzig, Timo Berthold, Stefan Heinz

3 - MILP experiments with wide split cuts

Sven Wiese, Andrea Lodi, Andrea Tramontani, Pierre Bonami, Felipe Serrano

■ TD-03

Thursday, 14:45-16:15 - Hörsaal 2

Sustainable Resource Management

Stream: CANCELED

■ TD-04

Thursday, 14:45-16:15 - Hörsaal 3

Investment planning and portfolios in energy markets

Stream: Energy and Environment
Chair: Michael Zipf

1 - Turning Brown into Green Electricity: Economic Feasibility of Pumped Storage Hydro Power Plants in Open Pit Mines

Reinhard Madlener, Michael Wessel, Christoph Hilgers

2 - A Mathematical Programming-Based Approach for an Energy Investment Planning of a Private Company

Semra Agrali, Fulya Terzi, Ethem Canakoglu, Neslihan Yilmaz

3 - Optimising the natural gas supply portfolio of a gas-fired power producer

Nadine Kumbartzky

■ TD-05

Thursday, 14:45-16:15 - Hörsaal 4

Sequential Scheduling Games (i)

Stream: Game Theory and Experimental Economics
Chair: Matús Mihalák

1 - The Price of Anarchy for Set Packing Games

Marc Uetz, Jasper de Jong

2 - Tighter Bounds on the Inefficiency Ratio of Stable Equilibria in Load Balancing Games

Paolo Penna, Akaki Mamageishvili

3 - Sequential solutions in machine scheduling

Akaki Mamageishvili, Paul Duetting, Matús Mihalák, Paolo Penna

■ TD-06

Thursday, 14:45-16:15 - Hörsaal 5

Revenue Management for Urban Transportation

Stream: Pricing and Revenue Management
Chair: Michael H. Breitner

1 - Revenue Management meets Carsharing: Optimizing the Daily Business

Justine Broihan, Max Möller, Kathrin Kühne, Marc-Oliver Sonneberg, Michael H. Breitner

2 - Revenue management approach for electric vehicles in two-way carsharing systems

Isa von Hoesslin, Kerstin Schmidt, Thomas Volling, Thomas Spengler

3 - E-Fulfillment for Attended Last-Mile Delivery Services in Metropolitan Areas

Magdalena Lang, Catherine Cleophas, Jan Fabian Ehmke, Charlotte Köhler

■ TD-07

Thursday, 14:45-16:15 - Hörsaal 6

Gas Network Optimization (i)

Stream: Graphs and Networks
Chair: Claudia Gotzes

1 - Capacity management in gas networks

Claudia Gotzes

2 - Two-stage Stochastic Semidefinite Programming and Application to AC Power Flow under Uncertainty

Tobias Wollenberg, Rüdiger Schultz

3 - Analysis of operation modes in gas compressor stations

Tom Walther, Benjamin Hiller, René Saitenmacher

■ TD-08

Thursday, 14:45-16:15 - Seminarraum 101/103

Emission Oriented Transportation Planning (i)

Stream: Logistics, Routing and Location Planning
Chair: Frank Meisel
Chair: Thomas Kirschstein

1 - Comparing the minimization of travel times, emissions and costs in urban routing

Jan Fabian Ehmke, Ann Campbell, Barrett Thomas

2 - An emission-minimizing vehicle routing problem with heterogeneous vehicles and pathway selection

Thomas Kirschstein, Martin Behnke, Christian Bierwirth

3 - Vehicle Re-Use for Fuel Minimization by Solving the Capacitated Vehicle Routing Problem with Different Vehicle Classes

Jörn Schönberger

■ **TD-09**

Thursday, 14:45-16:15 - Seminarraum 105

Solver Approaches

Stream: Software and Modelling Systems

Chair: *Andrea Cassioli*

1 - Solving routing and scheduling problems using LocalSolver

Frédéric Gardi, Thierry Benoist, Julien Darlay, Bertrand Estellon, Romain Megel, Clément Pajean

2 - The MOSEK Fusion API: a simple and safe framework for conic optimization

Andrea Cassioli

3 - On the Role of Optimization Modeling in the Algorithm Economy

Ovidiu Listes

■ **TD-10**

Thursday, 14:45-16:15 - Seminarraum 108

Sourcing and Capacity Management in Uncertain Environments

Stream: Optimization under Uncertainty

Chair: *Gerd J. Hahn*

1 - The Value of Capacity Flexibility in Economic Crises

Gerd J. Hahn, Achim Koberstein, Semën Nikolajewski, Sven Woogt

2 - Optimal replenishment under price uncertainty

Esther Mohr

3 - Stochastic optimization of modular production networks considering demand uncertainties

Tristan Becker, Pascal Lutter, Stefan Lier, Brigitte Werners

■ **TD-11**

Thursday, 14:45-16:15 - Seminarraum 110

Advances Production and Operations Management

Stream: Production and Operations Management

Chair: *Clemens Thielen*

1 - RTS-Mavericks in DEA

Andreas Dellnitz

2 - Regionalized Assortment Planning for Multiple Chain Stores

Michael Hopf, Benedikt Kasper, Clemens Thielen, Hans Corsten

3 - Application of Ant Colony Optimization in Solving Facility Layout Problem of an Elevator Automatic Door Production Plant

Tuba Ulusoy, Mehmet Aktan

■ **TD-12**

Thursday, 14:45-16:15 - Seminarraum 202

Real-World Applications

Stream: Metaheuristics

Chair: *Lars-Peter Lauven*

1 - Alternative fitness functions in the development of models for prediction of patient recruitment in multi-centre clinical trials

Gilyana Borlikova, Michael Phillips, Louis Smith, Michael O'Neill

2 - Integrated Biorefinery Planning using a Nested Evolutionary Strategy

Tim Schröder, Lars-Peter Lauven, Jutta Geldermann

3 - Branch-and-cut for forest harvest scheduling problems subject to clearcut and core area constraints

Isabel Martins, Miguel Constantino

■ **TD-13**

Thursday, 14:45-16:15 - Seminarraum 204

Simulation Models II

Stream: Simulation and Stochastic Modeling

Chair: *Frank Herrmann*

1 - MetaSimLab: A laboratory for validating and calibrating agent-based simulations for business analytics

Janina Knepper, Catherine Cleophas

2 - Trajectory Optimization under Kinematical Constraints for Moving Target Search

Manon Raap

3 - Scheduling of a Partially Automated Production

Frank Herrmann

■ **TD-14**

Thursday, 14:45-16:15 - Seminarraum 206

Rankings, Goals and (Integer) Linear Programming

Stream: Decision Theory and Multiple Criteria Decision Making

Chair: *M. Karimi-Nasab*

1 - The minimal angle jump technique for the simplex method

Monsicha Tipawanna, Krung Sinapiromsaran

2 - Multi-objective formulation of a multi-attribute decision making problem

M. Karimi-Nasab

3 - Generalized Imprecise Multi-Choice Goal Programming

Hocine Mouslim, Sakina Melloul

■ **TD-15**

Thursday, 14:45-16:15 - Seminarraum 305

Robust Scheduling

Stream: Project Management and Scheduling

Chair: *Han Hoogeveen*

1 - The Introduction of a New Algorithm to Determine Buffer's Size in Critical Chain with Use of Environmental Indices: A Case Study

Mohammad Khalilzadeh

2 - Search Algorithms for Improving the Pareto Front in a Timetabling Problem with a Solution Network-based Robustness Measure

Can Akkan, Gulcin Ermis

3 - Recoverable robustness in scheduling problems

Han Hoogeveen, Marjan van den Akker, Judith Stoef

■ **TD-16**

Thursday, 14:45-16:15 - Seminarraum 308

Decision Support and Scheduling

Stream: Project Management and Scheduling

Chair: *Marcus Wiens*

1 - Integrated scheduling approach for future capability development based on genetic algorithm

Michael Preuß

2 - Endogenous Risks in Project Exploration

Marcus Wiens, Frank Schultmann

3 - Risk Analysis in Airport Construction Projects

Ahmet Gokhan Tiryaki, Burze Yasar, Oncu Hazir

■ **TD-17**

Thursday, 14:45-16:15 - Seminarraum 310

Supply Chain Reliability and Risk

Stream: Supply Chain Management

Chair: *Moritz Fleischmann*

1 - Supply Chain Reliability and the Role of Individual Suppliers

Simeon Hagspiel

2 - Total Supplier Risk Monitoring - Wissensmanagement als Grundlage einer präventiven Lieferantenbewertung

Anja Wilde

■ **TD-18**

Thursday, 14:45-16:15 - Seminarraum 401/402

Liner Shipping Optimization II (i)

Stream: Logistics, Routing and Location Planning

Chair: *Kevin Tierney*

1 - Design of Container Liner Services - A literature Review and Simulation Results

Jürgen Böse, Joachim R. Daduna

2 - A chance constrained approach for heterogeneous fleet scheduling in liner shipping service

Sinan Gürel, Aysan Shadmand

3 - Service Design for Liner Shipping with Service Levels

Kevin Tierney, Jan Fabian Ehmke, Ann Campbell

■ **TD-19**

Thursday, 14:45-16:15 - Seminarraum 403

Passenger Routing in Public Transportation Problems (i)

Stream: Traffic and Passenger Transportation

Chair: *Jonas Harbering*

1 - Causal structure learning on travel mode choice based on structural restrictions and model averaging algorithm

Tai-yu Ma, Joseph Y.J. Chow, Jia Xu

2 - Predictive Clustering of Public Transport Boarding Data for Planning and Smart Passenger Information Systems

Uğur Eliyi, Efendi Nasibov

3 - Delay Resistant Line Planning with a View Towards Passengers' Transfers

Jonas Harbering

■ **TD-20**

Thursday, 14:45-16:15 - Seminarraum 404

Sequential and Temporal Data Analysis

Stream: Business Analytics and Forecasting

Chair: *Julian Bruns*

1 - Reducing debiasing model uncertainty with revisiting

Florian Knoell, Thomas Setzer

2 - Metrics and Aggregation Mechanisms for Temporal Information in Sequential Data

Katerina Shapoval, Thomas Setzer

3 - Forecasting local temperatures in urban context

Julian Bruns, Boris Amberg, Thomas Setzer

■ TD-21

Thursday, 14:45-16:15 - Seminarraum 405/406

Bi-Objective Vehicle/Ship Routing

Stream: Logistics, Routing and Location Planning

Chair: *Kjetil Fagerholt*

1 - Finding the trade-off between gas emissions and disturbance in an urban context

Jasmin Grabenschweiger

2 - The bi-objective k-dissimilar vehicle routing problem

Sandra Zajac

3 - Bi-objective optimization in offshore supply vessel planning

Kjetil Fagerholt, Thomas Borthen, Henrik Loennechen, Xin Wang

Thursday, 16:30-18:00

Friday, 9:00-10:30

■ FA-02

Friday, 9:00-10:30 - Hörsaal 1

Paths, Trees, and Tours

Stream: Discrete and Integer Optimization

Chair: *Corinna Gottschalk*

- 1 - **Asymmetry Helps: Dynamic Half-Way Points for Solving Shortest Path Problems with Resource Constraints Faster**
Stefan Irnich, Timo Gschwind, Ann-Kathrin Rothenbächer, Christian Tilk
- 2 - **On the minimum quartet tree cost problem**
Sergio Consoli, Jan Korst, Gijs Geleijnse, Steffen Pauws
- 3 - **Better s-t-Tours by Gao Tree**
Corinna Gottschalk, Jens Vygen

■ FA-03

Friday, 9:00-10:30 - Hörsaal 2

Resource and Energy Efficiency

Stream: Energy and Environment

Chair: *Magnus Richter*

- 1 - **Coordination mechanisms for decentralised production planning in energy-flexible factories: matching theory and applications**
Lukas Strob, Thomas Volling
- 2 - **Deployment and relocation of semi-mobile facilities in a thermal power plant supply chain**
Tobias Zimmer, Patrick Breun, Frank Schultmann
- 3 - **An investment planning approach for energy and resource efficiency measures for cross-sectional technology**
Matthias Gerhard Wichmann, Ina Schlei-Peters, Thomas Spengler

■ FA-04

Friday, 9:00-10:30 - Hörsaal 3

Optimisation and decomposition in energy markets

Stream: Energy and Environment

Chair: *Michael Zipf*

- 1 - **Two-stage Robustness Trade-off: TRusT in the design of energy systems**
Dinah Elena Majewski, Marco Wirtz, Matthias Lampe, Andre Bardow
- 2 - **Optimization Problem for the Installation of Equipment to Control Power Flow**
Takayuki Shiina, Jun Imaizumi, Susumu Morito, Chunhui Xu

3 - Benders Decomposition on Large-Scale Unit Commitment Problems for Medium-Term Power Systems Simulation

Andrea Taverna

■ FA-05

Friday, 9:00-10:30 - Hörsaal 4

Congestion Games (i)

Stream: Game Theory and Experimental Economics

Chair: *Max Klimm*

- 1 - **Approximate Pure Nash Equilibria in Cost Sharing Games**
Matthias Feldotto, Grammateia Kotsialou, Alexander Skopalik
- 2 - **Competitive Packet Routing with Priority Lists**
Daniel Schmand, Tobias Harks, Britta Peis, Laura Vargas Koch
- 3 - **Bottleneck Routing with Elastic Demands**
Max Klimm, Tobias Harks

■ FA-06

Friday, 9:00-10:30 - Hörsaal 5

Pricing and Service Design

Stream: Pricing and Revenue Management

Chair: *Cornelia Schoen*

- 1 - **Product Line Optimization in the presence of preferences for compromise alternatives**
Georg Bechler, Claudius Steinhardt
- 2 - **Optimal Service Design at the Interface of Marketing and Operations: What Benefits to Provide to Customers, how to Create them, and what Price to Charge?**
Fabian Strohm, Cornelia Schoen
- 3 - **Stochastic Multi-Product Pricing under Competition**
Rainer Schlosser

■ FA-07

Friday, 9:00-10:30 - Hörsaal 6

Technical Applications of OR Methods (i)

Stream: Graphs and Networks

Chair: *Armin Fügenschuh*

- 1 - **Technical Operations Research and Technology Management**
Ulf Lorenz
- 2 - **Particle-Image Velocimetry and the Assignment Problem**
Armin Fügenschuh, Michael Breuer, Franz-Friedrich Butz, Jens Nikolas Wood

3 - A Mixed-Integer Nonlinear Program for the Design of Mechanical Transmission Systems

Thorsten Ederer, Bastian Dörig, Peter Pelz, Marc Pfetsch, Jan Wolf

■ FA-08

Friday, 9:00-10:30 - Seminarraum 101/103

Liner Shipping Optimization I (i)

Stream: Logistics, Routing and Location Planning

Chair: *Kevin Tierney*

- 1 - Modelling bunker consumption for optimization models in maritime transportation**
Daniel Mueller, Kevin Tierney
- 2 - Comparing Two Optimization Approaches for Ship Weather Routing**
Laura Walther, Srikanth Shetty, Anisa Rizvanolli, Carlos Jahn
- 3 - Speed optimizations for liner networks with VSA and cooperation with feeders services, under workshift rules and piracy and emission control zones**
Line Reinhardt
- 4 - Maritime Load Dependent Lead Times - An Analysis**
Julia Pahl, Stefan Voss

■ FA-09

Friday, 9:00-10:30 - Seminarraum 105

Evacuation Planning

Stream: Security and Disaster Management

Chair: *David Willems*

- 1 - Interwoven systems modeling in civil security**
Stefan Ruzika, Kathrin Klamroth, Tobias Kuhn, Margaret Wiecek
- 2 - A complementary optimisation-simulation framework for a single- and biobjective timetabling problem**
David Willems, Carolin Torchiani, Stefan Ruzika

■ FA-10

Friday, 9:00-10:30 - Seminarraum 108

Robust optimization and applications

Stream: Optimization under Uncertainty

Chair: *Corinna Krüger*

- 1 - A Robust Network Control Problem**
Kai Hennig
- 2 - The Robustness Gap in Multiobjective Linear Optimization with Decision Uncertainty**
Corinna Krüger, Anita Schöbel, Margaret Wiecek

3 - Using Uncertainty Theory on the Facility Layout Problems

Seyyed Hassan Taheri

■ FA-12

Friday, 9:00-10:30 - Seminarraum 202

Combinatorial Optimization: Applications

Stream: Metaheuristics

Chair: *Peter Greistorfer*

- 1 - Adaptive memory procedures for Max 3-SAT**
Peter Greistorfer, Cornelia Rainer, Gary Kochenberger
- 2 - A genetic algorithm for two-dimensional retail shelf space problems**
Fabian Schäfer, Kai Schaal, Sandro Kühn, Alexander Hübner
- 3 - Planning strategies of Smart Grids: An approach based on meta-heuristics and simulation**
Ederson Santos, Carlos Teixeira, Marcelino Silva, Gizele Júlio, Diego Cardoso

■ FA-13

Friday, 9:00-10:30 - Seminarraum 204

Control Theory and Continuous Optimization

Stream: Control Theory and Continuous Optimization

Chair: *Behnam Soleimani*

- 1 - On necessary optimality conditions for nonconvex vector optimization problems with variable ordering structures**
Behnam Soleimani
- 2 - A variational inequality formulation of migration models with random data**
Fabio Raciti, Baasansuren Jadamba
- 3 - Approximations and Generalized Newton Methods for Equations and Inclusions**
Diethard Klatte, Bernd Kummer
- 4 - Strong well-posedness for a class of hemivariational inequalities**
Morteza Oveisiha

■ FA-14

Friday, 9:00-10:30 - Seminarraum 206

Simulation in Safety & Security & Social Science

Stream: Simulation and Stochastic Modeling

Chair: *Stefan Wolfgang Pickl*

- 1 - OR in Modern Decision Support: The Case of Critical Infrastructure Protection**
Martin Zsifkovits, Stefan Wolfgang Pickl

2 - A Macroscopic System Dynamics Model for a Generic Airport

Maximilian Moll, Stefan Wolfgang Pickl, Jan-Peter Neutert, Andreas Tahedl

3 - Impact of Imitation on the Dynamics of Long Wave Growth

Olivier Gallay

■ **FA-15**

Friday, 9:00-10:30 - Seminarraum 305

Crew Scheduling

Stream: Project Management and Scheduling

Chair: *Michal Kohani*

1 - Vessel Crew Scheduling in Ship Management - A Modelling Approach

Erik Pohl

2 - Efficient Ship Crew Scheduling complying with Resting Hours Regulations

Anisa Rizvanolli, Carl Georg Heise

3 - Acceleration of the column generation method for the crew scheduling problem

Michal Kohani, Jaroslav Janacek

■ **FA-16**

Friday, 9:00-10:30 - Seminarraum 308

Project Scheduling

Stream: Project Management and Scheduling

Chair: *Patrick Gerhards*

1 - Introducing system dynamics functionalities in project management by playing a game

David Rumeser, Margaret Emsley

2 - Providing Lower Bounds for the Multimode Resource-Constrained Project-Scheduling Problem

Christian Stürck, Patrick Gerhards

3 - A hybrid metaheuristic for the multi-mode resource investment problem with tardiness penalty

Patrick Gerhards, Christian Stürck

■ **FA-17**

Friday, 9:00-10:30 - Seminarraum 310

Sustainable supply chains

Stream: Supply Chain Management

Chair: *Eda Nur Çankaya*

1 - A Decision Support System for Optimizing the Food Stock Distribution in Unilever

Eda Nur Çankaya, Kübra Deligöz, Aylin Yağman, Tülin Aktin

2 - A mixed-integer linear programming for harvesting planing and transportation for coconut fruit supply chain in Chumphon province Thailand

Pramote Kuson, Monsicha Tipawanna

3 - 3-D Printing as an Alternative Supply Option in Spare Parts Management

Marko Jaksic

■ **FA-18**

Friday, 9:00-10:30 - Seminarraum 401/402

Complex Vehicle Routing Problems

Stream: Logistics, Routing and Location Planning

Chair: *Andreas Bortfeldt*

1 - The capacitated vehicle routing problem with three-dimensional loading constraints and split pickup - a case study

Junmin Yi, Andreas Bortfeldt

2 - Combined manpower teaming and routing problem

Yulia Anoshkina, Frank Meisel

3 - A Hybrid Algorithm for the Vehicle Routing Problem with Pickup and Delivery and Three-dimensional Loading Constraints

Dirk Männel, Andreas Bortfeldt

■ **FA-19**

Friday, 9:00-10:30 - Seminarraum 403

Applications of Timetable Optimization in Public Transport (i)

Stream: Traffic and Passenger Transportation

Chair: *Michael Kümmling*

1 - Integrating Periodic Timetabling and Passenger Routing

Heide Hoppmann

2 - Periodic Timetabling for Fixed Driving and Waiting Times

Julius Pätzold, Anita Schöbel

3 - Improving traffic assignment and periodic timetable optimization by constraint propagation

Michael Kümmling, Jens Opitz, Peter Großmann

■ **FA-20**

Friday, 9:00-10:30 - Seminarraum 404

Railway Applications (i)

Stream: Traffic and Passenger Transportation

Chair: *Ambra Toletti*

1 - A Column Generation Approach to Multi-Period Railway Rolling Stock Assignment

Susumu Morito, Jun Imaizumi, Motoki Miura, Takayuki Shiina

2 - Freight Train Routing and Scheduling in a Large Railway Network

Shripad Salsingkar, Narayan Rangaraj

3 - A resource conflict graph for energy efficient rescheduling of rail traffic

Ambra Toletti

■ FA-21

Friday, 9:00-10:30 - Seminarraum 405/406

Heuristic Vehicle Routing

Stream: Logistics, Routing and Location Planning

Chair: *Martin Scheffler*

1 - Split Methods for the Clustered Team Orienteering Problem

Ala Eddine Yahiaoui, Aziz Moukrim, Mehdi Serairi

2 - Splitting procedure of genetic algorithm for column generation to solve a Vehicle Routing Problem

Martin Scheffler, Christina Hermann, Mathias Kasper

Friday, 11:00-11:45

■ FB-02

Friday, 11:00-11:45 - Hörsaal 1

Semi-Plenary Klein

Stream: Semi-Plenaries

Chair: *Natalia Kliewer*

1 - Revenue Management: Selected Concepts and Applications

Robert Klein

■ FB-03

Friday, 11:00-11:45 - Hörsaal 2

Semi-Plenary Schultz

Stream: Semi-Plenaries

Chair: *Georg Pflug*

1 - Stochastic Programs in Gas and Power Networks

Rüdiger Schultz

■ FB-06

Friday, 11:00-11:45 - Hörsaal 5

Semi-Plenary Sörensen

Stream: Semi-Plenaries

Chair: *Stefan Voss*

1 - A history of metaheuristics

Kenneth Sörensen

Friday, 11:45-13:15

■ FC-02

Friday, 11:45-13:15 - Hörsaal 1

Two-dimensional Packing Problems

Stream: Discrete and Integer Optimization

Chair: *Isabel Friedow*

- 1 - **New lower bound based on relaxed model for the two-dimensional Variable Sized Bin Packing Problem**
Mohamed Maiza, Billal Merhoum, Mohammed Bouziane
- 2 - **Creating Worst-Case Instances for Lower Bounds of the Two-Dimensional Strip Packing Problem**
Torsten Buchwald, Guntram Scheithauer
- 3 - **An exact approach for the 2D rectangular strip packing problem**
Isabel Friedow

■ FC-03

Friday, 11:45-13:15 - Hörsaal 2

Environmental Aspects of Electric Mobility

Stream: Energy and Environment

Chair: *Patrick Jochem*

- 1 - **Analyzing Policies for E-Mobility Services with Renewable Energy**
Stephan Meisel, Tanja Merfeld
- 2 - **Stochastic bidding of electric vehicles at different energy markets**
Maren Kier, Christoph Weber
- 3 - **Locating fast-charging stations along the German Autobahn**
Patrick Jochem, Melanie Reuter-Oppermann, Stefan Nickel, Wolf Fichtner

■ FC-04

Friday, 11:45-13:15 - Hörsaal 3

Energy Storages

Stream: Energy and Environment

Chair: *Hannes Hobbie*

- 1 - **A Two-Stage Heuristic Procedure for Solving the Long-Term Unit Commitment Problem with Pumped Storages and its Application to the German Electricity Market**
Alexander Franz, Jürgen Zimmermann

- 2 - **Optimal temporal usage of salt cavern storage units for alternative media in light of intermittent renewables and carbon sequestration**

Xavier de Graaf, Reinhard Madlener

■ FC-05

Friday, 11:45-13:15 - Hörsaal 4

Equilibrium Computation (i)

Stream: Game Theory and Experimental Economics

Chair: *Martin Hoefer*

- 1 - **Improved Balanced Flow Computation and Experiments on Combinatorial Algorithms for Linear Arrow-Debreu Markets**
Omar Darwish
- 2 - **Amortized Analysis of Asynchronous Coordinate Descent and Tatonnement**
Yun Kuen Cheung
- 3 - **Efficient Algorithms for Unknown Markets**
Martin Hoefer

■ FC-06

Friday, 11:45-13:15 - Hörsaal 5

Innovative Applications in Pricing and Revenue Management

Stream: Pricing and Revenue Management

Chair: *Catherine Cleophas*

- 1 - **Cruise Line Revenue Management: Overview and Research Opportunities**
Daniel Sturm, Kathrin Fischer
- 2 - **Integer Linear Programming (ILP) Models for Price Recommendation for Online Retailers**
Somnath Sikdar, Ralf Winkler, Berkan Erol, Maximilian Werk

■ FC-07

Friday, 11:45-13:15 - Hörsaal 6

Networks and Flows

Stream: Graphs and Networks

Chair: *Miriam Schlöter*

- 1 - **Analyzing the vulnerabilities of the German high-speed train network using quantitative graph theory**
Zhonglin Wang, Martin Zsifkovits, Stefan Wolfgang Pickl
- 2 - **On the Convex Piecewise Linear Unsplittable Multi-commodity Flow Problem**
Bernard Fortz, Luís Gouveia, Martim Joyce-Moniz

3 - A new Way to solve the Quickest Transshipment Problem

Miriam Schlöter, Martin Skutella

■ FC-08

Friday, 11:45-13:15 - Seminarraum 101/103

Districting Problems in Business and Public Organizations (i)

Stream: Logistics, Routing and Location Planning
Chair: *Knut Haase*

1 - Redistricting in Mexico

Eric Alfredo Rincón-García, Sergio de-los-Cobos-Silva, Miguel Angel Gutierrez, Antonin Ponsich, Roman Anselmo Mora-Gutiérrez, Pedro Lara-velázquez

2 - Toll zone planning for road-based traffic

Martin Tschöke, Sven Müller, Sascha Ruja

3 - Pilgrim camp layout planning for the annual Hajj operation of the Al-Mashaaer Metro system

Matthes Koch

4 - Revenue Maximizing Tariff Zone Planning

Knut Haase, Sven Müller

■ FC-09

Friday, 11:45-13:15 - Seminarraum 105

Preparedness in Civil Security and Humanitarian Aid

Stream: Security and Disaster Management
Chair: *Kathrin Fischer*

1 - Prepositioning of Relief Items in Preparation for Disasters - Literature Overview and Realistic Case Study Design

Emilia Grass, Kathrin Fischer, Antonia Rams

2 - First Analytic System Dynamics Simulation Results for the Interplay of Airport Sectors

Gonzalo Barbeito, Martin Zsifkovits, Michael Rampetsreiter, Martin Weiderer

■ FC-10

Friday, 11:45-13:15 - Seminarraum 108

Applications of uncertain optimization

Stream: Optimization under Uncertainty
Chair: *Achim Koberstein*

1 - Procurement Lot-Sizing Decision with Supplier Selection Under Discounts and Stochastic Lead Time

Sunan Klinmalee, Thanakorn Naenna

2 - The Premarshalling Problem with Uncertain Pick-up Times

Amelie Eilken

3 - Optimal operation and electricity sourcing in the aluminium industry

Alessio Trivella, Stein-Erik Fleten, Denis Mazieres, Selvaprabu Nadarajah, David Pisinger

■ FC-11

Friday, 11:45-13:15 - Seminarraum 110

Stochastic Models in Operations

Stream: Production and Operations Management
Chair: *Christoph Schwindt*

1 - Markov model for system throughput analysis in warehouse design

Anja HeBler, Christoph Schwindt

2 - Heuristic Approximations for Closed Networks: A Case Study in Open-pit Mining

Ruslan Krenzler, Hans Daduna, Robert Ritter, Dietrich Stoyan

3 - Production Planning in Dairy Industry under Uncertainty

Bilge Bilgen

■ FC-12

Friday, 11:45-13:15 - Seminarraum 202

Combinatorial Optimization: New Approaches

Stream: Metaheuristics
Chair: *Silvia Schwarze*

1 - Combinatorial Optimization via Weighted Superposition Attraction

Adil Baykasoğlu, Mümin Emre Şenol

2 - A Sequential Hyperheuristic for Optimizing The Parameters of A Generic Parameterised Dual Local Search with a TSP Application

Mona Hamid, Jamal Ouenniche

3 - An NSGA-III Approach for Multi-Objective Structural Optimization

Amir H. Gandomi

■ FC-13

Friday, 11:45-13:15 - Seminarraum 204

Optimal control for supply chain and operations management II

Stream: Control Theory and Continuous Optimization
Chair: *Gernot Tragler*

1 - Kuhn - Tucker optimality conditions in equilibrium optimization models for network industries markets

Michal Fendek, Eleonora Fendekova

- 2 - **Fluctuating supply and learning by doing in a non-autonomous optimal control model of renewable energy production**
Gernot Tragler, Elke Moser, Dieter Grass

■ FC-14

Friday, 11:45-13:15 - Seminarraum 206

Queueing Networks

Stream: Simulation and Stochastic Modeling
 Chair: *Hans Daduna*

- 1 - **Queueing networks with infinite supply : Local stabilization and local equilibrium analysis**
Hans Daduna
- 2 - **Integrated models for production-inventory systems with base stock policy**
Sonja Otten, Ruslan Krenzler, Hans Daduna
- 3 - **Decomposition of open queueing networks with batch service**
Wiebke Klünder

■ FC-15

Friday, 11:45-13:15 - Seminarraum 305

Scheduling with MIPs

Stream: Project Management and Scheduling
 Chair: *Franz Ehm*

- 1 - **A multi-criteria MILP formulation for energy aware hybrid flow shop scheduling**
Sven Schulz
- 2 - **Lower bounds for the two-machine flow shop problem with time delays**
Mohamed Amine Mkaem, Aziz Moukrim, Mehdi Serairi
- 3 - **Machine scheduling for multi-product disassembly**
Franz Ehm

■ FC-16

Friday, 11:45-13:15 - Seminarraum 308

Multi Machine Scheduling

Stream: Project Management and Scheduling
 Chair: *Klaus Jansen*

- 1 - **ZDD and generic branching in branch-and-price algorithms for scheduling problems**
Daniel Kowalczyk, Roel Leus
- 2 - **Bounded dynamic programming algorithm for solving the job shop scheduling problem with sequence dependent setup times**
Ansis Ozolins

- 3 - **Closing the Gap for Makespan Scheduling via Sparsification Techniques**
Klaus Jansen, Kim-Manuel Klein, Jose Verschae

■ FC-17

Friday, 11:45-13:15 - Seminarraum 310

Supply chain planning and lot-sizing

Stream: Supply Chain Management
 Chair: *Hartmut Stadler*

- 1 - **Balancing Effort and Plan Quality: Tactical Supply Chain Planning in the Chemical Industry**
Annika Vernbro, Iris Heckmann, Stefan Nickel
- 2 - **Multi-Stage Multi-Product Simultaneous Lot Sizing and Scheduling with Time Windows**
Jonas Ostmeyer
- 3 - **Lower Bounds for Capacitated Lot-Sizing with Stochastic Demand and Service Level Constraints**
Hartmut Stadler, Malte Meistering

■ FC-18

Friday, 11:45-13:15 - Seminarraum 401/402

Efficient Neighborhood Search for Vehicle Routing Problems

Stream: Logistics, Routing and Location Planning
 Chair: *Timo Gschwind*

- 1 - **Large Neighborhood Search for the Clustered Vehicle Routing Problem**
Timo Hintsch, Stefan Irnich
- 2 - **An Adaptive Large Neighborhood Search for the Dial-a-Ride Problem**
Timo Gschwind, Michael Drexler

■ FC-19

Friday, 11:45-13:15 - Seminarraum 403

Polyhedral and Heuristic Methods for Railway Timetabling

Stream: Traffic and Passenger Transportation
 Chair: *Andreas Bärmann*

- 1 - **Rail rapid transit Timetabling Problem under dynamic passenger demand: Exact formulations**
David Canca, Eva Barrena, Gilbert Laporte, Leandro Coelho
- 2 - **Adaptive Large Neighborhood Search to solve the rail rapid transit timetabling under dynamic passenger demand**
Eva Barrena, David Canca, Gilbert Laporte, Leandro Coelho

3 - Compact Tight Optimization Models for Energy-Efficient Railway Timetables

Andreas Börmann, Alexander Martin, Oskar Schneider

■ FC-20

Friday, 11:45-13:15 - Seminarraum 404

Advances in Railway Transportation (i)

Stream: Traffic and Passenger Transportation

Chair: *Frank Fischer*

1 - A Robust Approach to Integrating Energy Peak Loads in Operational Train Timetabling

Anja Hähle, Christoph Helmberg

2 - An integrated service-network design and hub location problem for intermodal traffic

Thorsten Ramsauer, Andreas Börmann, Alexander Martin

3 - A Re-optimization Approach for Train Dispatching

Torsten Klug, Frank Fischer, Thomas Schlechte, Boris Grimm

■ FC-21

Friday, 11:45-13:15 - Seminarraum 405/406

Facility Location and Capacity Problems

Stream: Logistics, Routing and Location Planning

Chair: *Daniel Freund*

1 - Closest and barrier distances in the presence of a finite size facility

Masashi Miyagawa

2 - Min-max fair emergency system with randomly occupied centers

Jaroslav Janacek, Marek Kvet

3 - Allocating Capacity in Bikeshare-Systems

Daniel Freund, Shane Henderson, David B. Shmoys

Friday, 13:45-15:00

■ FD-01

Friday, 13:45-15:00 - Aula

Plenary Lecture and Closing Ceremony

Stream: Plenaries

Chair: *Andreas Fink*

Chair: *Martin Josef Geiger*

1 - Network Flow and Equilibrium Computation in the Linear Exchange Economy

Kurt Mehlhorn

Business Analytics and Forecasting

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Control Theory and Continuous Optimization

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Decision Theory and Multiple Criteria Decision Making

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Discrete and Integer Optimization

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Game Theory and Experimental Economics

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Graphs and Networks

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Optimization under Uncertainty

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