

■ **WA-01**

Wednesday, 9:00-10:15

Rotterdam Hall

Opening and Plenary: Alexander Rinnooy Kan (see page 26)

Chair: *Albert Wagelmans*

■ **WB-03**

Wednesday, 10:45-12:15

Leeuwen Room 1

Sustainable Development

Chair: *Laura Elisabeth Hombach*

1 - Transportation Costs and Carbon Emissions in a Vendor Managed Inventory Situation

Marcel Turkensteen, Christian Larsen

2 - Simulation based evaluation of strategies for the market diffusion of alternative drivetrain technologies

Laura Elisabeth Hombach, Grit Walther

3 - Measurement of Risk for Wind Energy Projects: A Critical Analysis of Full Load Hours

André Koukal, Stefan Lange, Michael H. Breitner

■ **WB-04**

Wednesday, 10:45-12:15

Leeuwen Room 2

Auctions and Game Theory

Chair: *Martin Bichler*

1 - Pricing and Coordination in Ascending Combinatorial Auctions

Zhen Hao, Martin Bichler

2 - Mechanism design with value-maximizing bidders

Salman Fadaei, Martin Bichler

3 - Is the solidarity value close to the equal split value?

Tadeusz Radzik

4 - Spectrum Auction Design - Simple Auctions For Complex Sales

Martin Bichler, Jacob Goeree, Stefan Mayer, Pash Shabalin

■ WB-05

Wednesday, 10:45-12:15

Goudriaan Room 1

Managerial Accounting

Chair: *Katja Schimmelpfeng*

- 1 - **Commercial efforts of dealers to reach the product efficiency frontier and intensification of competition in the Spanish auto market**

Eduardo Gonzalez, Juan Ventura, Ana Cárcaba

- 2 - **The effect of depreciation rules on residual income: The case of overlapping capacity investments**

Christian Lohmann

- 3 - **Judgmental Forecasting and Production Decisions: Incentives and Negotiations**

Clint Pennings

■ WB-06

Wednesday, 10:45-12:15

Goudriaan Room 2

Neural Networks and Fuzzy

Chair: *Hans Georg Zimmermann*

1 - New Applications of Neural Networks in Industry

Ralph Grothmann, Hans Georg Zimmermann, Christoph Tietz

2 - Advances in Forecasting with Recurrent Neural Networks

Hans Georg Zimmermann, Ralph Grothmann, Christoph Tietz

3 - Evaluating Employer Attractiveness: development of a Fuzzy Rule-based System

Jessica Naundorf

■ **WB-07**

Wednesday, 10:45-12:15

Antwerp Room

Logistics scheduling

Chair: *Nils Boysen*

1 - Layout planning of sortation conveyors in parcel distribution centers

Stefan Fedtke

2 - Complexity results for some basic yard crane scheduling problems

Konrad Stephan

3 - The berth allocation problem with mobile quay walls

Nils Boysen, Dirk Briskorn, Simon Emde

■ WB-08

Wednesday, 10:45-12:15

Penn Room 1

Scheduling and Assignments

Chair: *Dirk Briskorn*

1 - Approximation Algorithms for Multi-Dimensional Vector Assignment Problems

Frits Spieksma, Trivikram Dokka, Yves Crama

2 - Battery scheduling under various objectives

Thijs van der Klauw, Johann Hurink, Gerhard Post, Gerard Smit

3 - An efficient algorithm for scheduling groups of jobs with individual release dates

Alexander Lieder, Dirk Briskorn, Raik Stolletz

4 - Meeting Project Deadlines under Uncertainty ?How (and When) to Encourage Help?

Fabian Sting, Pascale Crama, Yaozhong Wu

■ **WB-09**

Wednesday, 10:45-12:15

Diamond Room 1

ATO systems and SCM

Chair: *Willem van Jaarsveld*

1 - Demand Fulfillment in an Assemble-to-Order (ATO) production system

Sebastian Geier, Bernhard Fleischmann

2 - Pre-shipment Financing: Credit Capacities and Supply Chain Consequences

Anne Lange, Fehmi Tanrisever, Matthew Reindorp

3 - Optimization of industrial-scale assemble-to-order systems

Willem van Jaarsveld, Alan Scheller-Wolf

■ **WB-10**

Wednesday, 10:45-12:15

Diamond Room 2

Perishable Inventory Management

Chair: *Stefan Minner*

- 1 - Production planning of a perishable food product with non-stationary demand in a rolling planning horizon**

Karin G.J. Pauls-Worm, René Haijema, Eligius M.T. Hendrix, Jack van der Vorst

- 2 - Assortment planning and inventory management under stock-out based substitution for perishable products.**

Rob Broekmeulen, Karel van Donselaar

- 3 - New heuristic policies for managing perishable inventories**

Stefan Minner

■ **WB-11**

Wednesday, 10:45-12:15

Penn Room 2

TSP and Vehicle Routing

Chair: *Achim Koberstein*

- 1 - Core-based Cost Allocation in Cooperative Traveling Salesmen Problem with Rolling Horizon**
Igor Kozeletskyi, Alf Kimms
- 2 - The Driver Assignment Vehicle Routing Problem**
Remy Spliet, Rommert Dekker
- 3 - When Vehicle Routing needs Project Scheduling ...**
Jörn Schönberger
- 4 - A Heuristic Solution Approach for the Hybrid Electric Vehicle Traveling Salesman Problem**
Christian Doppstadt, Achim Koberstein, Daniele Vigo

■ **WB-12**

Wednesday, 10:45-12:15

Van Oldenbarnevelt Room

Routing I

Chair: *Leendert Kok*

1 - Column generation based heuristic for three dimensional vehicle routing problem

Satyaveer S. Chauhan, Batoul Mahvash, Anjali Awasthi

2 - Vehicle routing with redistributing equipment

Chagiet Bloemendal, Leendert Kok, Joaquim Gromicho

3 - Routing in practice: current major challenges

Leendert Kok

■ **WB-13**

Wednesday, 10:45-12:15

Mees Auditorium

Rolling Stock Rescheduling

Chair: *Thijs Dewilde*

1 - Maintenance in the Rolling Stock Rescheduling Model

Joris Wagenaar, Leo Kroon

2 - Ultra-short term railway rolling stock rescheduling

Gabor Maroti

3 - Re-optimization of Rolling Stock Rotations

Thomas Schlechte, Markus Reuther, Ralf Borndörfer

4 - Adapting the train schedule due to planned infrastructure unavailability in complex railway stations

Thijs Dewilde, Peter Sels, Dirk Cattrysse, Pieter Vansteenwegen

■ **WB-14**

Wednesday, 10:45-12:15

Tokyo Room

Decision support systems

Chair: *Alexander Scherrer*

- 1 - **Measuring criticality of elements based on multi-criteria decision making**
Dennis Stindt
- 2 - **A decision support system for advanced breast cancer treatment planning**
Alexander Scherrer, Patrick Ruediger, Andreas Dinges, Karl-Heinz Kuefer, Hans Hagen, Ilka Schwidde, Sherko Kuemmel

■ WB-15

Wednesday, 10:45-12:15

New York Room

Networks I

Chair: *Marco Lübbecke*

1 - Single-Commodity Network Design with Uncertain Demands

Frauke Liers, Valentina Cacchiani, Michael Juenger, Andrea Lodi, Daniel Schmidt

2 - Improving flow solutions by path decomposition

Jan Peter Ohst, Stefan Ruzika

3 - A contraction-expansion algorithm for the capacitated min-cost network flow problem

Marco Lübbecke, Jacques Desrosiers, Jean-Bertrand Gauthier

4 - Vertex coloring with bounds and distances constraints for minmax channel assignment problem

Rosiane deFreitas, Bruno Cardoso Dias, Nelson Maculan

■ **WB-16**

Wednesday, 10:45-12:15

Oscar Auditorium

GOR Master Awards

Chair: *Kathrin Klamroth*

1 - New Lower Bounds for the Three-Dimensional Strip Packing Problem

Kirsten Hoffmann

2 - Two-stage robust combinatorial optimization with priced scenarios

Roman Rischke

3 - Time-dependent dynamic location and relocation of ambulances

Lara Wiesche

■ **WB-17**

Wednesday, 10:45-12:15

New Orleans Room

Statistical methods

Chair: *Theo Berger*

1 - Galton Variations

Ingo Althoefer, Petar Hofmann

2 - Adjustable Robust Parameter Design with Unknown Distributions

Ihsan Yanikoglu

3 - On the Impact of Copulas on VaR Forecasts: A Simulation Study

Theo Berger

■ WC-03

Wednesday, 12:45-14:15

Leeuwen Room 1

Electricity Markets

Chair: *Stephan Raths*

1 - Multi Level European Electricity Market Simulation using Network Flow Algorithm and Lagrangian Relaxation

Stephan Raths

2 - A Stochastic-Global Optimization Approach to Electricity Market Model

Miray Hançm Yıldırım, Gerhard-Wilhelm Weber

3 - Forecasting the distribution of hourly electricity spot prices

Christian Pape, Christoph Weber, Oliver Woll

■ WC-04

Wednesday, 12:45-14:15
Leeuwen Room 2

Decision Making

Chair: *Erik Kropat*

1 - A Multi-Objective Online Terrain Coverage Approach

Michael Preuß

2 - A Human Resource Model for Performance Optimization to Gain Competitive Advantages

Joachim Block, Stefan Wolfgang Pickl

3 - Learning in Highly Polarized Conflicts

Sigifredo Laengle, Gino Loyola

4 - Dynamical Supply Networks for Crisis and Disaster Relief - Networks Resilience and Decision Support in Uncertain Environments

Erik Kropat, Silja Meyer-Nieberg

■ WC-05

Wednesday, 12:45-14:15

Goudriaan Room 1

Kidney exchange

Chair: *Kristiaan Glorie*

1 - Kidney exchange in sparse and dynamic graphs

Kristiaan Glorie, Albert Wagelmans, J.j. van de Klundert

2 - New Optimization Tools for Kidney Exchange Programs

Ana Viana, Filipe Alvelos, Miguel Constantino, Xenia Klimentova, Joao Pedro Pedroso, Abdur Rais, Nicolau Santos, Paolo Tubertini

3 - Paired and Altruistic Kidney Donation in the UK: A Column Generation Approach

David Manlove, Gregg OMalley

■ WC-06

Wednesday, 12:45-14:15
Goudriaan Room 2

Decision Support for Market Analysis and Risk Management

Chair: *Ralph Grothmann*

- 1 - **Structural Econometric Analysis and Its Application on the Dutch Flower Auctions**
Yixin Lu, Alok Gupta, Wolfgang Ketter, Eric van Heck
- 2 - **A simulation-optimization approach for information security risk management**
Elmar Kiesling, Andreas Ekelhart, Bernhard Grill, Christine Strauss, Christian Stummer
- 3 - **Interactive Decision Support within Corporate Environmental Management Information Systems**
Fabian Renatus, Jutta Geldermann

■ WC-07

Wednesday, 12:45-14:15

Antwerp Room

Maritime Shipping

Chair: *Rutger de Mare*

- 1 - **Designing robust liner shipping schedules: Optimizing recovery actions and buffer times**
Judith Mulder, Rommert Dekker
- 2 - **Routing and Scheduling in Tramp Shipping - Integrating Bunker Optimization**
Charlotte Vilhelmsen, Richard Lusby, Jesper Larsen
- 3 - **A Branch-and-Price Approach for a Ship Routing Problem with Multiple Products and Inventory Constraints**
Rutger de Mare, Remy Spliet, Dennis Huisman

■ WC-08

Wednesday, 12:45-14:15

Penn Room 1

Resource allocation in practice

Chair: *Norbert Trautmann*

1 - An MBLP model for scheduling assessment centers

Adrian Zimmermann, Norbert Trautmann

2 - Short and long-term scheduling in an operating room

Francisco Ballestin, M. Angeles Pérez, M.Pilar Lino, Sacramento Quintanilla, Vicente Valls

3 - Resource allocation for a make-to-order production process in the printing industry

Norbert Trautmann, Philipp Baumann, Salome Forrer

■ WC-09

Wednesday, 12:45-14:15

Diamond Room 1

Maintenance Planning I

Chair: *Geert-Jan van Houtum*

1 - Optimal maintenance policies for a safety-critical system and its deteriorating sensor

Chiel van Oosterom, Lisa Maillart, Jeffrey Kharoufeh, Hao Peng

2 - The optimal line replaceable unit definition problem

Jorge Eduardo Parada Puig, Rob Basten, Leo van Dongen

3 - A comparison of age-based maintenance and condition-based maintenance

Bram de Jonge, Ruud Teunter, Warse Klingenberg, Tiedo Tinga

4 - Simultaneous scheduling of non-resumable jobs and maintenance activities on parallel machines

Wiebke von Hoyningen-Huene, Gudrun Kiesmüller

■ WC-10

Wednesday, 12:45-14:15

Diamond Room 2

Inventory I

Chair: *Karl Inderfurth*

- 1 - **A new heuristic for an inventory system with random yield and positive lead time**

Wanrong Ju, Adriana F. Gabor, Jan-Kees van Ommeren

- 2 - **Stability of re-entrant flow lines**

Carlos Bispo

- 3 - **Optimal and Approximate Policies for Inventory Systems with Multiple Supply Options**

Mahesh Srinivasan, Douglas Thomas

- 4 - **Exact and heuristic linear-inflation policies for an inventory model with random yield and arbitrary lead times**

Karl Inderfurth, Gudrun Kiesmüller

■ WC-11

Wednesday, 12:45-14:15

Penn Room 2

Supply Chain Optimization I

Chair: *Marcus Brandenburg*

1 - Solving Supply Chain Management Problems with the SCIP Optimization Suite

Matthias Miltenberger, Gerald Gamrath, Weninger Dieter

2 - Territory Design for Arc Routing

Alexander Butsch, Jörg Kalcsics, Gilbert Laporte, Stefan Nickel

3 - Supply chain design for new product introduction by mixed-integer linear programming

Marcus Brandenburg

■ WC-12

Wednesday, 12:45-14:15

Van Oldenbarnevelt Room

Supply Chain Contracts

Chair: *Gerd J. Hahn*

- 1 - **Capacity reservation contracts for risk-neutral and risk-sensitive suppliers**
Mehdi Sharifyazdi, Hoda Davarzani
- 2 - **Managing After-sales Service Contracts with Lifetime Buy Planning**
Dong Li, Nishant Mishra
- 3 - **Optimal design of buyback contract in the magazine industry**
Kei Takahashi, Ko Nagai, Takahiro Ohno
- 4 - **Value-based Supply Chain Management: A newsvendor perspective**
Gerd J. Hahn, Moritz Fleischmann

■ WC-13

Wednesday, 12:45-14:15

Mees Auditorium

Optimization Methods for Vehicle Routing

Chair: *Stefan Irnich*

1 - Dynamic Programming Formulations for the Minimum Tour Duration Problem

Christian Tilk, Stefan Irnich

2 - New solution approaches to integrate the vehicle-type scheduling and timetable generation

Monize Sâmara Visentini, Denis Borenstein, Olinto Araújo, Pablo Guedes

3 - Static vs. Dynamic Policies for Vehicle Routing Problems with Backhauling and Dynamic Customer Demands

Subrata Mitra

■ WC-14

Wednesday, 12:45-14:15

Tokyo Room

Decision Analysis

Chair: *Andreas Kleine*

1 - On the Aggregation of the Benchmark Technologies in the Global Malmquist Productivity Index

Mohsen Afsharian, Heinz Ahn

2 - Predicting student retention by comparing histograms of bootstrapping for Charnes-Cooper transformation-linear programming discriminant analysis

Jaan Ubi, Evald Ubi, Innar Liiv, Leo Vohandu

3 - Sensitivity Analysis of BCC Efficiency in DEA with Application to European Health Services

Andreas Kleine, Andreas Dellnitz, Wilhelm Rödder

■ WC-15

Wednesday, 12:45-14:15

New York Room

Networks II

Chair: *Diptesh Ghosh*

1 - Identifying defective valves in a blowout preventer valve network

Diptesh Ghosh

2 - The intersection of all maximum independent sets and the intersection of all critical sets of a unicyclic graph are equal

Eugen Mandrescu, Vadim Levit

3 - An Optimal Placement of a Liaison with Short Communication Lengths between Two Members of the Same Level in an Organization Structure of a Complete K-ary Tree

Kiyoshi Sawada

■ WC-16

Wednesday, 12:45-14:15

Oscar Auditorium

GOR PhD Awards

Chair: *Alf Kimms*

- 1 - **Competition for Resources: The Equilibrium Existence Problem in Congestion Games**
Max Klimm
- 2 - **Operational Planning Problems in Intermodal Freight Transportation**
Jenny Nossack
- 3 - **Application of operational research methods for ergonomic design of working places at assembly lines**
Alena Otto
- 4 - **Capacitated Network Design - Multi-Commodity Flow Formulations, Cutting Planes, and Demand Uncertainty**
Christian Raack

■ WC-17

Wednesday, 12:45-14:15

New Orleans Room

Queueing systems

Chair: *René de Koster*

1 - Queueing systems in a random environment with applications

Ruslan Krenzler, Hans Daduna

2 - Integrated models for queueing-inventory systems

Sonja Otten, Hans Daduna

3 - Analysis of a polling system for dynamic order picking

Jelmer van der Gaast, René de Koster, Ivo Adan, Jacques Resing

■ **WD-01**

Wednesday, 14:45-15:30

Rotterdam Hall

Semi-plenary speaker: Miguel Anjos

Chair: *Mirjam Duer*

1 - Semidefinite Relaxations: The Cutting Edge

Miguel Anjos

■ **WD-09**

Wednesday, 14:45-15:30

Diamond Room 1

Semi-plenary speaker: Fred Espen Benth

Chair: *Jörn Sass*

1 - Weather, risk and energy markets

Fred Espen Benth

■ **WD-13**

Wednesday, 14:45-15:30

Mees Auditorium

Semi-plenary speaker: Horst Tempelmeier

Chair: *Wilco van den Heuvel*

1 - Dynamic lot sizing with random demand

Horst Tempelmeier

■ **WD-16**

Wednesday, 14:45-15:30

Oscar Auditorium

Semi-plenary speaker: Henk Zijm

Chair: *Rommert Dekker*

- 1 - The European Roadmap on Logistics and Supply Chain research**
Henk Zijm

■ WE-03

Wednesday, 16:00-17:30

Leeuwen Room 1

Enhanced Energy Network Models

Chair: *Katja Breitmoser*

- 1 - **Layout optimisation of decentralised energy systems under uncertainty**
Hannes Schwarz, Valentin Bertsch, Wolf Fichtner
- 2 - **Structural Properties of Solving the AC Linear Power Flow Problem**
Stephan Lemkens, Arie Koster
- 3 - **Welfare Maximization of Autarkic Hybrid Energy Systems**
Katja Breitmoser, Bjoern Geissler, Alexander Martin

■ WE-04

Wednesday, 16:00-17:30

Leeuwen Room 2

Economic Modeling

Chair: *Theo Driessen*

1 - Influence of mutations in an evolutionary inspection game with three strategic players

Günter Fandel, Jan Trockel

2 - Risk-adjusted on-line portfolio selection

Robert Dochow, Esther Mohr, Günter Schmidt

3 - Consistent conjectural variations equilibrium in a mixed oligopoly

Felipe de Jesus Castillo Perez, Vyacheslav Kalashnikov, Vladimir Bulavsky, Nataliya Kalashnykova

4 - One-Convexity of Bankruptcy Games with distinct linear reward functions

Theo Driessen

■ WE-05

Wednesday, 16:00-17:30

Goudriaan Room 1

Facility Location in Healthcare Management Systems

Chair: *Twan Dollevoet*

1 - The Roadside Healthcare Facility Location Problem

Harwin de Vries, Albert Wagelmans, J.j. van de Klundert

2 - Dispatching of mobile breast cancer screening units by optimization methods

Michael Schroeder, Martin Berger

3 - Solution Methods for the Net Optimization Problem

Twan Dollevoet, Kristiaan Glorie

■ WE-06

Wednesday, 16:00-17:30

Goudriaan Room 2

Text Mining and Clustering

Chair: *Ralf Stecking*

1 - Clustering for Data Privacy and Classification Tasks

Klaus Bruno Schebesch, Ralf Stecking

2 - Lexico-semantic Patterns for Information Extraction from Text

Frederik Hogenboom, Flavius Frasincar, Uzay Kaymak, Franciska de Jong

3 - Exploiting Discourse Structure for Sentiment Analysis of Text

Alexander Hogenboom, Flavius Frasincar, Uzay Kaymak, Franciska de Jong

4 - An Automated Approach for Product Taxonomy Mapping in E-commerce

Damir Vandić, Flavius Frasincar

■ WE-07

Wednesday, 16:00-17:30

Antwerp Room

Hinterland Container Logistics

Chair: *Rob Zuidwijk*

- 1 - **Synchronizing transport requests, containers, and trucks in the hinterland of a container terminal**
Tobias Buer, Jörn Schönberger, Herbert Kopfer
- 2 - **Port-Hinterland Barge Shipping Network Design**
Panagiotis Ypsilantis, Rob Zuidwijk, Morteza Pourakbar
- 3 - **Placing ships in locks using exact and heuristic methods: a decision support tool**
Jannes Verstichel, Patrick De Causmaecker, Greet Vanden Berghe
- 4 - **The Value of Information in Container Transport**
Rob Zuidwijk, Albert Veenstra

■ WE-08

Wednesday, 16:00-17:30

Penn Room 1

Scheduling

Chair: *Marc Uetz*

1 - Approximating the k-Splittable Capacitated Network Design Problem

Ehab Morsy

2 - An IP formulation and algorithms for an E/T parallel machine scheduling problem

Rainer Xavier de Amorim, Rosiane deFreitas, Eduardo Uchoa

3 - Automated Mechanism Design for a Sequencing Problem

Marc Uetz, Ruben Hoeksma

■ WE-09

Wednesday, 16:00-17:30

Diamond Room 1

Meta-Heuristics and Multi-criteria Programming

Chair: *Matthias Klumpp*

- 1 - **Simulation-based optimization methods for setting production planning parameters**
Margaretha Gansterer, Christian Almeder, Richard Hartl
- 2 - **Variable neighbourhood search for the CLSP with sequence dependent setups**
Dirk Van Eikenhorst
- 3 - **Relativity determination for efficiency in DEA**
Matthias Klumpp

■ WE-10

Wednesday, 16:00-17:30

Diamond Room 2

Inventory II

Chair: *Marko Jaksic*

1 - Myopic Replenishment Policies for Inventory Systems with Lost-Sales

Marco Bijvank

2 - Inventory Management with Transshipments under Fill Rate Constraints

Andreas Serin, Bernd Hillebrand

3 - Inventory Control with Supply Backordering

Marko Jaksic, Jan C. Fransoo

■ WE-11

Wednesday, 16:00-17:30

Penn Room 2

Supply Chain Optimization II

Chair: *Joachim Arts*

1 - Optimal Capacity and Safety Stock Allocation for Assembly Systems

Stefan Woerner, Marco Laumanns, Stephan Wagner

2 - Optimal Procurement under Market Price and Repair Uncertainties

Guangyuan Yang, Adriana F. Gabor, Jan-Kees van Ommeren, Rommert Dekker

Paper moved from session FA-11

3 - Small is Beautiful: a Framework for Evaluating and Optimizing Compact Storage Systems

Nima Zaerpour

4 - A system approach to repairable stocking and expediting under fluctuating demand

Joachim Arts, Geert-Jan van Houtum

■ WE-12

Wednesday, 16:00-17:30

Van Oldenbarnevelt Room

Production and Distribution Planning

Chair: *Jens Hartmann*

- 1 - Integration of revenue and production management for a manufacturer of multiple products from multiple raw materials**
Alireza Kabirian
- 2 - Combining Production Planning and Rail/Road Distribution Planning for a Multinational Supply-Network**
Frank Meisel, Christian Bierwirth, Thomas Kirschstein
- 3 - Stochastic optimization of operational production planning for fisheries**
Krystina Bakhrankova, Kjetil Midthun, Kristin Tolstad Uggen
- 4 - Quasi-real-time control of integrated production and transport operations**
Jens Hartmann, Thomas Makuschewitz, Bernd Scholz-Reiter

■ WE-13

Wednesday, 16:00-17:30

Mees Auditorium

Railway Networks, Routing and Scheduling

Chair: *Michael Römer*

- 1 - **An interactive optimization framework for the vehicle scheduling problem**
Hanno Schülldorf
- 2 - **Analysis of Micro-Macro Transformations of Railway Networks**
Marco Blanco, Thomas Schlechte
- 3 - **Crew scheduling and benefits from integration of the planning process at a freight railway operator**
Lukas Bach, Twan Dollevoet, Dennis Huisman

■ WE-14

Wednesday, 16:00-17:30

Tokyo Room

Multi-objective optimization

Chair: *Martin Josef Geiger*

- 1 - **An enumerative cutting plane approach to integer linear vector optimization problems.**
Walter Habenicht
- 2 - **Generalized Multiple Objective Bottleneck Problems**
Kathrin Klamroth, Jochen Gorski, Stefan Ruzika
- 3 - **An Interactive Approach to the Bi-objective Inventory Routing Problem**
Martin Josef Geiger, Sandra Huber, Marc Sevaux

■ WE-15

Wednesday, 16:00-17:30

New York Room

Graphs and Networks

Chair: *Derek Verleye*

1 - On the optimal layout of a parking lot

Michael Stiglmayr, Kathrin Klamroth

2 - A copositive program for the Graph Isomorphism Problem

Luuk Gijben, Mirjam Duer

3 - On the number of supported nondominated points of the multiple objective spanning tree problem

Stefan Ruzika, Florian Seipp

4 - An extension of the Gradient method to find optimal solutions for multi-period water production and distribution planning in complex networks

Derek Verleye, El-Houssaine Aghezzaf

■ WE-16

Wednesday, 16:00-17:30

Oscar Auditorium

Young Participant with Most Academic/Practical Impact Awards

Chair: *Johann Hurink*

Chair: *John Poppelaars*

1 - From structures to heuristics to global solvers

Timo Berthold

2 - Applications of Operations Research to Chronic Disease Management

Mariel Lavieri

■ WE-17

Wednesday, 16:00-17:30

New Orleans Room

Resource allocation

Chair: *Ger Koole*

1 - The Stochastic Dynamic Distance Optimal Partitioning Problem and a generalized k-server Problem

R. Hildenbrandt

2 - Solving a stochastic territory design problem via a stochastic load balancing framework

Monica Elizondo-Amaya, Roger Z. Rios-Mercado, David Morton, Erhan Kutanoglu

3 - Managing the Risks of Staff Planning Policies

Susanne Wruck

4 - Adaptive Blending in Call Centers

Ger Koole, Benjamin Legros, Oualid Jouini

■ TA-03

Thursday, 9:00-10:30

Leeuwen Room 1

Energy Storages: Location and Operation

Chair: *Katrin Schulz*

- 1 - **Comparison of heuristics towards approaching a scheduling and capacity planning MINLP for hydrogen storage in chemical substances**
Simon Schulte Beerbühl, Magnus Fröhling, Frank Schultmann
- 2 - **The need for electricity storage systems and their allocation in the German power system**
Sonja Babrowski, Patrick Jochem, Wolf Fichtner
- 3 - **Combining Optimization and Simulation for planning Water Tanks in Water Supply Systems**
Corinna Hallmann
- 4 - **Influence of fluctuating electricity prices due to renewable energies on heat storage investments**
Katrin Schulz, Matthias Schacht, Brigitte Werners

■ TA-04

Thursday, 9:00-10:30

Leeuwen Room 2

Option Pricing and Market Models

Chair: *Bernd Heidergott*

- 1 - **Nueraire portfolios and utility based price systems under proportional transaction costs**

Jörn Sass

- 2 - **Options Sensitivities with respect to Pay-Off Regions Boundaries**

Bernd Heidergott

■ TA-05

Thursday, 9:00-10:30

Goudriaan Room 1

Ambulance planning

Chair: *Rob van der Mei*

1 - Probabilistic Ambulance Location Model in a Time-dependent Environment

Pieter van den Berg

2 - Near-optimal policies for a Dynamic Ambulance Management model

Thije van Barneveld

3 - Ambulance redeployment policies and the impact of city structure

Caroline Jagtenberg

4 - On Optimal Base Locations and Staffing of Ambulance Services

Martin van Buuren

■ TA-06

Thursday, 9:00-10:30

Goudriaan Room 2

SAMS-solvers

Chair: *Michael Bussieck*

1 - LocalSolver: toward a full mathematical programming solver based on local search

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

2 - A Heuristic for MIPs with Embedded Networks

Christopher Maes

3 - Open-source Quality Assurance and Performance Analysis Tools

Michael Bussieck, Steve Dirkse, Stefan Vigerske

■ TA-07

Thursday, 9:00-10:30

Antwerp Room

Scheduling Applications I

Chair: *Grzegorz Pawlak*

1 - Single truck railway scheduling problem

Grzegorz Pawlak, Jacek Blazewicz, Dawid Kowalski, Gaurav Singh

2 - CSS sprite optimization for web pages

Jakub Marszałkowski, Maciej Drozdowski, Jan Mizgajski, Dariusz Mokwa

3 - Complex Multi-Item Shopping over The Internet with Additional Complicated Discounts

Jedrzej Musiał, Jacek Blazewicz, Pascal Bouvry

4 - Real Parameters Values Optimization in Multi-Agent System

Szymon Wasik, Mateusz Leszner, Jacek Blazewicz

■ TA-08

Thursday, 9:00-10:30

Penn Room 1

Novel problems and methodological advances in response to needs of practitioners

Chair: *Alena Otto*

- 1 - **Scheduling Setups on Multiple Machines with a Single Setup Operator**
Daniel Schnitzler
- 2 - **Column generation based lower bounds for project scheduling problems**
Tobias Paetz, Christoph Schwindt
- 3 - **Adaptive Large Neighborhood Search for the Resource-Constrained Project Scheduling Problem**
Wolfgang Summerauer, Christian Almeder, Richard Hartl
- 4 - **Quantified Combinatorial Optimization**
Thorsten Ederer, Ulf Lorenz, Thomas Opfer

■ TA-09

Thursday, 9:00-10:30

Diamond Room 1

Planning & control in the process industry

Chair: *Simme Douwe Flapper*

1 - Inventory control of a continuous production-inventory system

Steffen Klosterhalfen, Falk Holzhaer

2 - Optimizing the tactical planning in the FMCG industry considering both economic and environmental factors

Martijn van Elzakker, Leonardo Kenji Komay Maia, Neha Raikar, Hans Hoogland, Edwin Zonderman

3 - The Application of Sampling Plan Methods : A Case of Sugar Company

Endy Suwondo, Henry Yuliando, Adi Djoko Guritno

4 - Planning and control of production with recycling via mixing

Simme Douwe Flapper

■ TA-10

Thursday, 9:00-10:30

Diamond Room 2

Coordination and Demand Fulfillment

Chair: *Jaime Cano Belmán*

- 1 - **Coordinating a multi-echelon supply chain facing demand uncertainty: Spanning vs. pair-wise revenue sharing contracts**
Azarm Yeganehfallah, Hamid Mashreghi
- 2 - **Supply chain coordination under demand uncertainty: Analysis of general continuous quantity discounts**
Hamid Mashreghi, Mohammad Reza Amin Naseri
- 3 - **Advanced stochastic real-time order promising in Make-and-Ship-to-Stock**
Jian Cui, Herbert Meyr
- 4 - **Advanced Demand Fulfillment in Networks**
Jaime Cano Belmán, Herbert Meyr

■ TA-11

Thursday, 9:00-10:30

Penn Room 2

Robust Supply Chain Management

Chair: *Ralf Gössinger*

1 - A Simulation Study of Supply Chain Disruptions Modelling

A??r Genç, Tarik Yilmaz

2 - Robust strategic capacity planning in closed-loop supply chains

Sandra Hallek, Ralf Gössinger

3 - Robust order promising integrating customer behavior

Sonja Kalkowski, Ralf Gössinger

■ TA-12

Thursday, 9:00-10:30

Van Oldenbarnevelt Room

Crowdedness, Evacuation and Inland Shipping

Chair: *Stefan Minner*

1 - Capacity, Crowding and Passenger Information

Paul Bouman, Leo Kroon, Gabor Maroti, Peter Vervest

2 - Evaluation and Planning Models for Evacuation Sites

Takehiro Furuta, Ken-ichi Tanaka

3 - Methods for lock scheduling with ship-dependent handling times

Ward Passchyn, Dirk Briskorn, Sofie Coene, Frits Spijksma

■ TA-13

Thursday, 9:00-10:30

Mees Auditorium

Integer programming

Chair: *Frits Spieksma*

1 - An Integer Programming Model for the Hospitals Resident Problem with Couples

Iain McBride

2 - The Red-Blue Transportation Problem

Dries Goossens, Wim Vancroonenburg, Federico Della Croce, Frits Spieksma

3 - Polyhedral Results for the Hypergraph Assignment Problem

Olga Heismann, Ralf Borndörfer, Achim Hildenbrandt

4 - HUHFA: A Framework for Facet Classification

Achim Hildenbrandt, Olga Heismann, Francesco Silvestri, Gerhard Reinelt, Ralf Borndörfer

■ TA-14

Thursday, 9:00-10:30

Tokyo Room

Vehicle Routing with Time Windows

Chair: *Alf Kimms*

- 1 - **Granular Tabu Search for the Vehicle Routing Problem with Time Windows**
Michael Schneider, Fabian Schwahn
- 2 - **Branch-and-Price on the Split Delivery Vehicle Routing Problem with Time Windows and Alternative Delivery Periods**
Heiko Breier, Timo Gossler
- 3 - **Branch and Price for the pollution routing problem**
Said Dabia, Tom Van Woensel
- 4 - **The Vehicle Routing Problem with Time Windows, Collaboration between Freight Carriers, and a Rolling Planning Horizon**
Christoph Reiners, Alf Kimms

■ TA-15

Thursday, 9:00-10:30

New York Room

Robust communication networks

Chair: *Arie Koster*

1 - ROBUKOM: Robust Optimization of Communication Networks

Arie Koster

2 - Optimization of flexible multi-layer telecommunication networks under demand uncertainty

Uwe Steglich, Thomas Bauschert

3 - 0-1 Multiband Robust Optimization

Fabio D'Andreagiovanni, Christina Büsing, Annie Raymond

4 - Constructing Multi-Band Uncertainty Sets for Robust Optimization Problems

Christina Büsing, Fabio D'Andreagiovanni, Arie Koster, Manuel Kutschka

■ TA-17

Thursday, 9:00-10:30

New Orleans Room

Nonlinear Optimization I

Chair: *Mirjam Duer*

- 1 - **On the optimality conditions for Stochastic Dynamic Optimization**
Jan Brinkhuis
- 2 - **A New Method for Parameter Estimation of the GNL Model Using Real-Coded GA**
Yasuhiro Iida, Kei Takahashi, Takahiro Ohno
- 3 - **A new error bound result for Generalized Nash Equilibrium Problems and its algorithmic application**
Markus Herrich, Axel Dreves, Francisco Facchinei, Andreas Fischer, Andreas Fischer

■ TB-02

Thursday, 11:00-12:30

Veder Room

Capacity Control

Chair: *Thomas Vossen*

1 - A single-leg airline revenue management problem in continuous-time

J.b.g. Frenk, Semih Sezer, A. Muzaffer Arslan

2 - Computing tight upper bounds for network revenue management

David Sayah

3 - Reductions of Approximate Linear Programs for Network Revenue Management

Thomas Vossen, Dan Zhang

■ TB-03

Thursday, 11:00-12:30

Leeuwen Room 1

Environmental Management

Chair: *Florian Denz*

1 - Techno-economic analysis and evaluation of recycling measures for iron and steel slags

Christoph Meyer, Matthias Gerhard Wichmann, Thomas Spengler

2 - Supporting Investment Decisions in Green Manufacturing Production Systems

Soumia Ichoua, Agnes Pechmann

3 - Implications of energy demand and supply characteristics for energy-oriented scheduling

Florian Denz

■ TB-04

Thursday, 11:00-12:30

Leeuwen Room 2

Financial Modeling, Optimization and Risk

Chair: *Ursula Walther*

- 1 - **Efficient dimension reduction in interest rate modelling by global optimization**
Ralf Werner
- 2 - **DEA Modelling for Efficiency Optimization of Indian Banks using Negative Data Sets**
Pankaj Kumar Gupta, Seema Garg
- 3 - **How to improve credit risk models? A conceptional design at graph theory and semantic web**
Torsten Rex, Mario Straßberger

■ TB-05

Thursday, 11:00-12:30

Goudriaan Room 1

Healthcare modelling and optimization

Chair: *Johann Hurink*

1 - A broader view on health care system design and modelling

Nico Vandaele, Catherine Decouttere

2 - Duty and workstation scheduling for physicians at hospitals

Jens Brunner

3 - Clustering clinical departments for wards to achieve a prespecified blocking probability

Theresia van Essen, Johann Hurink

■ TB-06

Thursday, 11:00-12:30

Goudriaan Room 2

SAMS-modelling

Chair: *Ovidiu Listes*

1 - An IBM-certified course on modeling with IBM ILOG CPLEX Optimization Studio

Claudius Steinhardt, Melanie Reuter, Hans Schlenker, Robert Klein, Stefan Nickel

2 - Recent Enhancements in GAMS

Lutz Westermann

3 - Object Oriented GAMS API: Java, Python and .NET

Clemens Westphal, Michael Bussieck, Lutz Westermann

4 - Advanced optimization modeling enabled by the Generated Math Program (GMP) library in AIMMS

Ovidiu Listes

■ TB-07

Thursday, 11:00-12:30

Antwerp Room

Scheduling Applications II

Chair: *Sigrid Knust*

1 - A classification scheme for storage unloading and loading problems

Jana Lehnfeld

2 - Storage planning in intermodal rail-road terminals

Florian Bruns, Sigrid Knust

3 - Two-stage scheduling in shelf-board production: A case study

Sigrid Knust, Stefan Waldherr

■ TB-08

Thursday, 11:00-12:30

Penn Room 1

Job Shop Scheduling

Chair: *Han Hoogeveen*

- 1 - **Optimizing NEH Schemes for Complex Flow Shops with Genetic Programming**
Christian Rathjen, Stefan Bock
- 2 - **Genetic Algorithm Approaches for a Job Shop Scheduling: A Real Case Study**
Tarik Yilmaz, A??r Genç
- 3 - **A GRASP approach for the job shop scheduling problem with the objective of minimizing the total weighted tardiness**
Jens Kuhpfahl, Christian Bierwirth
- 4 - **Exact solution methods for the flexible job shop problem using column generation**
Han Hoogeveen, Robin Cijvat, J.m. van den Akker

■ TB-09

Thursday, 11:00-12:30

Diamond Room 1

Maintenance Planning II

Chair: *Geert-Jan van Houtum*

- 1 - **Improving product design and maintenance through a better understanding of stocks of spare parts and spare assets**
Rob Basten, Jorge Eduardo Parada Puig, Joachim Arts
- 2 - **An opportunistic maintenance policy for components in complex systems under condition monitoring**
Qiushi Zhu, Hao Peng, Geert-Jan van Houtum
- 3 - **A Condition-Based Maintenance Policy for a Continuously Deteriorating Multi-Unit System with Aperiodic Inspections**
Minou Olde Keizer, Ruud Teunter
- 4 - **The Loss and Failure Process of Sugar Production in Indonesia : A Case**
Henry Yuliando, Adi Djoko Guritno, Endy Suwondo

■ TB-10

Thursday, 11:00-12:30

Diamond Room 2

Demand Modeling

Chair: *Arnd Huchzermeier*

- 1 - **Serving an Uncertain Season: When and How to Enter the Market**
Jochen Schlapp, Moritz Fleischmann
- 2 - **Dynamic Lot-sizing Model with Advance Demand Information for Online Retailers**
Yeming Gong
- 3 - **Improving Demand Forecast Accuracy in a Continuous High—Low Pricing Environment with Multiple Customer Segments**
Arnd Huchzermeier

■ TB-11

Thursday, 11:00-12:30

Penn Room 2

Supply Chain Optimization III

Chair: *Joaquim Gromicho*

1 - Leveling the in- and outbound shipments in distribution centers

Stefanie Schlutter, Thomas Bauer

2 - Modelling and Analysis of Biomass Boilers Supply Chains

Fereshteh Mafakheri, Fuzhan Nasiri

3 - Loading pallets and containers with practical restrictions

*Joaquim Gromicho, Maria Teresa Alonso Martínez, Ramon Alvarez-Valdes, Jelke van Hoorn,
Francisco Parreño, Gerhard Post*

■ TB-12

Thursday, 11:00-12:30

Van Oldenbarnevelt Room

Facility Location and Logistics

Chair: *Teresa Melo*

1 - Linear location-inventory models for service parts logistics

Abdullah Dasci

2 - Optimization of logistic networks for renewable resources from by-products considering cascade utilization

Mohammad Sadegh Taskhiri

3 - A multi-period logistics network design problem with transportation mode selection and outsourcing opportunities

Teresa Melo, Maria Cortinhal, Maria João Lopes

■ TB-13

Thursday, 11:00-12:30

Mees Auditorium

Decomposition methods

Chair: *Stefan Minner*

1 - Benders Decomposition for large-scale Linear Bilevel Problems with binary leader variables

Pirmin Fontaine, Stefan Minner

2 - Solving staircase structured problems via Dantzig-Wolfe Reformulation

Martin Bergner, Marco Lübbecke

3 - Evaluating the quality of a Dantzig-Wolfe decomposition via graph modularity

Annika Thome, Marco Lübbecke

■ TB-14

Thursday, 11:00-12:30

Tokyo Room

Airline Applications

Chair: *Taieb Mellouli*

1 - Multi-Objective Mathematical Modelling for Aircraft Landing by Simultaneous Minimization of Time and Cost

Syedmirsad Mokhtarimousavi, Hossein Rahami, Mahmoud Saffarzadeh, Ezaz Sadegh Vaziri

2 - Air freight transport in Baltic Sea region - Perspectives and necessary developments

Joachim R. Daduna

3 - Anticipation in Airline Crew Pairing Optimization: Results from a Real World Case Study

Michael Römer, Taieb Mellouli

■ TB-15

Thursday, 11:00-12:30

New York Room

Branch-and-Price

Chair: *J.m. van den Akker*

1 - Branch-and-Price for the k-Club Partitioning and Covering Problems

Stefan Irnich, Fabio Furini, Roberto Wolfler-Calvo

2 - Combining Different Pricing Approaches for Branch-and-Price Algorithms

Michael Bastubbe, Marco Lübbecke, Christian Puchert

3 - Column generation for the demand robust shortest path problem

J.m. van den Akker, Paul Bouman, Han Hoogeveen, Denise Tonissen

■ TB-17

Thursday, 11:00-12:30

New Orleans Room

Conic Optimization

Chair: *Mirjam Duer*

- 1 - **Handelman's hierarchy for the maximum stable set problem**
Zhao Sun, Monique Laurent
- 2 - **Linear cone programs: Structure and generic properties.**
Georg Still, Mirjam Duer, Bolor Jargalsaikhan
- 3 - **Order of solutions in conic programming**
Bolor Jargalsaikhan, Mirjam Duer, Georg Still
- 4 - **Cutting planes for completely positive conic problems**
Mirjam Duer

■ TC-01

Thursday, 13:00-13:45

Rotterdam Hall

Roundtable Discussion (see page 28/29)

Chair: *Marc Salomon*

■ TD-01

Thursday, 14:00-14:45

Rotterdam Hall

Semi-plenary speaker: GOR Science Prize

Chair: *Stefan Nickel*

■ TD-09

Thursday, 14:00-14:45

Diamond Room 1

Semi-plenary speaker: Kalyan Talluri

Chair: *Robert Klein*

1 - Research trends in dynamic pricing and revenue management

Kalyan Talluri

■ TD-10

Thursday, 14:00-14:45

Diamond Room 2

Semi-plenary speaker: Andrea Lodi

Chair: *Erwin Pesch*

1 - Performance Variability in Mixed-Integer Programming

Andrea Lodi

■ TD-12

Thursday, 14:00-14:45

Van Oldenbarnevelt Room

Semi-plenary speaker: Leo Kroon

Chair: *Leena Suhl*

1 - Public Transport: planning and real-time control

Leo Kroon

■ TD-13

Thursday, 14:00-14:45

Mees Auditorium

Semi-plenary speaker: Dick den Hertog

Chair: *Dennis Huisman*

1 - Practical robust optimization: an introduction

Dick den Hertog

■ TE-02

Thursday, 15:15-16:45

Veder Room

Dynamic Pricing

Chair: *Arnoud den Boer*

- 1 - **A dynamic customer-centric pricing approach for the product line pricing problem with non-unit demand**
Michael Neugebauer
- 2 - **Optimality conditions in Cartel Equilibrium Optimization Model**
Michal Fendek, Eleonora Fendekova
- 3 - **Risk-averse Dynamic Pricing**
Jochen Gönsch, Michael Hassler, Robert Klein
- 4 - **Dynamic pricing of low-priority users in wireless networks**
Arnoud den Boer

■ TE-03

Thursday, 15:15-16:45

Leeuwen Room 1

Modeling Gas Transportation: Yesterday, Today, and Tomorrow

Chair: *Claudia Stangl*

- 1 - **Network optimization at germany's leading gas transmission company**
Uwe Gotzes
- 2 - **Optimal Looping of Pipelines in Gas Networks**
Ralf Lenz, Robert Schwarz
- 3 - **Checking Feasibility in Stationary Models of Gas Transportation Networks**
Claudia Stangl, Rüdiger Schultz
- 4 - **Some Remarks on Stochastic Programming in Energy**
Rüdiger Schultz

■ TE-04

Thursday, 15:15-16:45

Leeuwen Room 2

Topics in Covered Bond Modeling

Chair: *Ralf Werner*

1 - Towards stochastic modeling of German Covered Bonds

Manuela Spangler, Ralf Werner

2 - Extended JLT Model

Yang Yan

3 - On the Valuation of German Covered Bonds - One-Period Approaches

Max Hughes, Manuela Spangler, Ralf Werner

4 - Preemption, leverage, and financing constraints

Michi Nishihara, Takashi Shibata

■ TE-05

Thursday, 15:15-16:45

Goudriaan Room 1

Home healthcare routing; ambulance planning

Chair: *Stefan Nickel*

- 1 - **A comparative study of computational solution methods for the Home Health Care Routing and Scheduling Problem with Interdependent Services**
Dorota Slawa Mankowska, Frank Meisel, Christian Bierwirth
- 2 - **Data driven ambulance optimization considering dynamic and economic aspects**
Dirk Degel, Lara Wiesche, Brigitte Werners
- 3 - **Ambulance Planning with and without Region Borders**
Melanie Reuter, Theresia van Essen, Stefan Nickel, Johann Hurink

■ TE-06

Thursday, 15:15-16:45

Goudriaan Room 2

Public Transport and Bike Sharing

Chair: *Dirk Christian Mattfeld*

1 - **Cyclic Crew Scheduling**

Marcel van Kooten Niekerk, J.m. van den Akker, Han Hoogeveen

2 - **Planning for robust and cost-efficient operations in public transport: Integrated vehicle and crew scheduling with time windows for scheduled trips**

Bastian Amberg, Boris Amberg, Natalia Kliewer

3 - **Optimization approaches to the resource allocation in bike sharing systems**

Dirk Christian Mattfeld, Patrick Vogel

■ TE-07

Thursday, 15:15-16:45

Antwerp Room

Scheduling Applications III

Chair: *Corinna Kaufmann*

- 1 - **Quality-Oriented Scheduling of Projects with a Flexible Project Structure**
Carolin Kellenbrink
- 2 - **Work-in-process in multi-criteria scheduling: Some results**
Natalia Prischepov
- 3 - **Application of Scheduling Theory to the Bus Evacuation Problem**
Corinna Kaufmann

■ TE-08

Thursday, 15:15-16:45

Penn Room 1

Resource Constrained Scheduling

Chair: *Roland Braune*

- 1 - **A hybrid CP-SAT approach for the exact solution of the multi-mode resource-constrained project scheduling problem**

Alexander Schnell, Richard Hartl

- 2 - **Solving the resource-constrained multi project scheduling problem with flexible resource usage**

Torben Schramme, Leena Suhl

- 3 - **Scheduling on Multi-Capacitated Resources with Flexibility and Variable Task Profiles**

Roland Braune, Karl Doerner

■ TE-09

Thursday, 15:15-16:45

Diamond Room 1

Production and Inventory control

Chair: *Jan Necil*

1 - Optimizing the production planning at a sawmill with linear programming and simple heuristics

Maria Anna Huka, Manfred Gronalt

2 - Determining optimal discount policies for a supplier in B2B relationships

Viktoryia Buhayenko, Dirk Van Eikenhorst

3 - A heuristic approach to the Generalized-Blocks-Relocation-Problem in a steel plate block storage

Jan Necil, Felix Brandt, Anne Meyer, Stefan Nickel, Sergey Polyakovskiy

■ TE-10

Thursday, 15:15-16:45

Diamond Room 2

Closed-loop supply chains

Chair: *Irena Okhrin*

- 1 - **Optimal control of a hybrid production system for customized products with combined manufacturing and remanufacturing**

Leena Steinke, Kathrin Fischer

- 2 - **Collection of Recyclable Materials with Unknown Filling Rate**

Maria Elbek, Sanne Wøhlk

- 3 - **Dynamic lot sizing with minimum order quantity and remanufacturing**

Irena Okhrin, Knut Richter

■ TE-11

Thursday, 15:15-16:45

Penn Room 2

Real Life Applications in Supply Chain Management

Chair: *Bruce Hartman*

- 1 - **An Interactive Approach to a Real-World Sales Territory Design Problem**
Matthias Bender, Werner Heid, Jörg Kalcsics, Anne Meyer, Stefan Nickel
- 2 - **Determining Product Frequencies and Produce-Up-To Levels in a Single Facility Multi-Item Production System with Stochastic Demands**
Philipp Zeise
- 3 - **Optimization of Sales & Operations Planning at Shell Chemicals Europe**
Thijs Van Dongen, Dave van den Hurck, Nort Thijssen, Pascal Brakonier
- 4 - **Chassis Pooling and Profit Allocation at the Chicago Dry Port Complex**
Bruce Hartman

■ TE-12

Thursday, 15:15-16:45

Van Oldenbarnevelt Room

Warehousing

Chair: *René de Koster*

1 - Class-based Storage with Space Sharing in Unit Load Warehouses

Xiaolong Guo, René de Koster, Yugang Yu

2 - Analyzing alternate vehicle allocation strategies in mobile rack-based order-pick systems

René de Koster, Debjit Roy, Shobhit Nigam

3 - Dual-load retrieval in puzzle-based storage systems

Masoud Mirzaei, René de Koster

■ TE-13

Thursday, 15:15-16:45

Mees Auditorium

Combinatorial Optimization

Chair: *Rosiane deFreitas*

- 1 - **An Integer Programming Approach to the Hospital/Residents Problem with Ties**
Augustine Kwanashie, David Manlove
- 2 - **Sequencing problems with uncertain parameters and the OWA criterion**
Adam Kasperski, Pawel Zielinski
- 3 - **Moving bins from conveyor belts onto pallets using FIFO queues**
Frank Gurski, Jochen Rethmann, Egon Wanke
- 4 - **Constraint programming algorithms to determine the position of atoms in a molecule**
Clarice Santos, Rosiane deFreitas

■ TE-14

Thursday, 15:15-16:45

Tokyo Room

Vehicle Routing Applications and Network Design

Chair: *Rommert Dekker*

- 1 - **On the modeling of recharging stops in context of vehicle routing problems**
Stefan Frank, Henning Preis, Karl Nachtigall
- 2 - **Fuel consumption costs of routing uncertainty**
Stephan Unger, William Cheung
- 3 - **Service network design for an intermodal container network with flexible due dates/times and the possibility of using subcontracted transport**
Bart Van Riessen, Rudy Negenborn, Rommert Dekker, Gabriel Lodewijks

■ TE-15

Thursday, 15:15-16:45

New York Room

Traveling Salesman Problem and Branch-and-Bound

Chair: *Bruce Golden*

1 - White-box optimization from historical data

Qing Chuan Ye, Sicco Verwer, Yingqian Zhang

2 - Computing an Upper Bound for the Longest Edge in an Optimal TSP-Solution

Hans Achatz, Peter Kleinschmidt

3 - The Hierarchical Traveling Salesman Problem: Some Worst-Case Results

Bruce Golden, Kiran Panchangam, Yupei Xiong, Benjamin Dussault, Edward Wasil

■ TE-17

Thursday, 15:15-16:45

New Orleans Room

Nonlinear Optimization II

Chair: *Mirjam Duer*

- 1 - **Vector duality for convex vector optimization problems by means of the quasi interior of the ordering cone**

Sorin-Mihai Grad, Emilia-Loredana Pop

- 2 - **On Farkas' Lemma and the Hahn-Banach Theorem**

Lenka Plohakova

- 3 - **Farkas' Lemma, Gale's Theorem, and Linear Programming: the Infinite Case in an Algebraic Way**

David Bartl

■ FA-02

Friday, 9:00-10:30

Veder Room

Revenue Management in Non-Service Industries

Chair: *Jochen Gönsch*

1 - Revenue Management in a Regenerate-To-Order Environment

Felix Herde

2 - The Impact of Consumer Returns on a Manufacturer Multichannel Strategy

Paolo Letizia

3 - Optimal operation of a combination of energy storage and renewable energy sources

Michael Hassler, Jochen Gönsch

4 - Integrating Keyword Advertising and Revenue Management in the Online Travel Industry

Thomas Görtz, Jella Pfeiffer, Henning Schmidt

■ FA-03

Friday, 9:00-10:30

Leeuwen Room 1

Simulation and System Dynamics

Chair: *Henk Akkermans*

- 1 - **Protecting Critical Infrastructures: Computational Red Teaming for Agent-Based Simulations**
Silja Meyer-Nieberg, Erik Kropat
- 2 - **Wisdom of Crowds in Social Networks with Structural Shocks**
Jia-Ping Huang, Bernd Heidegott, Ines Lindner
- 3 - **The effects of customer misclassification on cross-training in call centers**
Andreas Schwab, Burak Buke
- 4 - **Steady as she goes? A case study of growth robustness analysis in ship-building**
Henk Akkermans

■ FA-04

Friday, 9:00-10:30

Leeuwen Room 2

Portfolio Optimization

Chair: *Olaf Menkens*

1 - The Efficient Frontiers of the Mean —Risk Portfolio Selection Problems

Marius Radulescu, Sorin Radulescu, Constanta Zoie Radulescu

2 - Robustness Analysis of Evolutionary Algorithms to Portfolio Optimization against Errors in Asset Means

Omar Rifki

3 - Costs and Benefits of Crash Hedging

Olaf Menkens

■ FA-05

Friday, 9:00-10:30

Goudriaan Room 1

Healthcare planning and scheduling

Chair: *Ger Koole*

1 - Nursing home staffing: gaining more insight into scale and skill-mix efficiencies

Dennis Moeke, Ger Koole

2 - Discharge Planning to Mitigate Bed Block and ER Overcrowding

Rene Bekker, Jonathan Helm, Mark Van Oyen

3 - Patient Appointment Scheduling in Hospitals

Sarah Kirchner, Marco Lübbecke, Christina Büsing

4 - Nurse assignment to endoscopy unit rooms at the Centre hospitalier universitaire de Sherbrooke

Mélisende Brazeau, Alain Hertz

■ FA-06

Friday, 9:00-10:30

Goudriaan Room 2

SAMS-decision-support

Chair: *Kostja Siefen*

- 1 - **The history of System Dynamics for strategic planning in the electric power industry- Implications for the energy transition in Germany**
Armin Leopold, Bo Hu
- 2 - **Resource Scheduling Services — A Fusion of Cloud Computing and Advanced Planning**
Christian Gahm, Bastian Dünnwald
- 3 - **Optimal timetables at RWTH Aachen University**
Florian Dahms, Gerald Lach, Marco Lübbecke
- 4 - **Requirements Engineering for Mathematical Optimization in Service Environments**
Kostja Siefen, Florian Stapel, Lars Beckmann

■ FA-07

Friday, 9:00-10:30

Antwerp Room

Container Terminal Operations

Chair: *Frederik Schulte*

- 1 - **New research directions in Yard Operations in Container Terminals**
Iris F.A. Vis, Hector Carlo, Kees Jan Roodbergen
- 2 - **Integrated Scheduling Optimization of Multiple Straddle Carriers and a Gantry Crane Loading and Unloading Trains at a Deep-sea Terminal**
Amir Hossein Gharehgozli, Leo Kroon, René de Koster
- 3 - **Strategies to deal with uncertainty in the berth allocation problem**
Nitish Umang, Michel Bierlaire, Alan Erera
- 4 - **Simulation Requirements for (Empty) Container Repositioning in Liner Shipping with Sustainability Aspects**
Frederik Schulte

■ FA-08

Friday, 9:00-10:30

Penn Room 1

Staff Scheduling

Chair: *Marco Schulze*

1 - A Column Generation Approach to Home Care Staff Routing and Scheduling

Susumu Morito, Chen Ying Wen, Hiroki Hayashi, Atsushi Torigoe, Shigeo Okamoto, Yuki Matsukawa, Nao Taniguchi

2 - Workload Balancing in Transportation Crew Rostering

Guvenc Sahin, Fardin Dashty Saridarq

3 - Refinements for solving the Vehicle Routing and Truck Driver Scheduling Problem

Asvin Goel, Thibaut Vidal

4 - Combined staff and machine scheduling in the context of underground mining

Marco Schulze, Jürgen Zimmermann

■ FA-09

Friday, 9:00-10:30

Diamond Room 1

Queuing and Scheduling

Chair: *Tim Lamballais Tessensohn*

- 1 - **Performance analysis of closed-loop assembly lines with general processing times and finite buffer spaces**
Svenja Lagershausen
- 2 - **Performance analysis of heterogeneous queueing systems under time-dependent conditions**
Gregor Selinka, Raik Stolletz
- 3 - **Hot strip mill scheduling under consideration of energy consumption**
Karen Puttkammer, Matthias Gerhard Wichmann, Thomas Spengler
- 4 - **Estimating performance of a warehouse with a robotic fulfillment system**
Tim Lamballais Tessensohn

■ FA-10

Friday, 9:00-10:30

Diamond Room 2

Perishability in Supply Chain Management

Chair: *Jacqueline Bloemhof*

- 1 - **A one-warehouse, multi-newsvendor distribution systems with resupply and vehicle routing**
Belma Turan, Richard Hartl, Stefan Minner
- 2 - **Incentive schemes to improve order quantity decisions for perishable goods under uncertain demand in a profit center organization**
Guido Voigt, Barbara Schoendube
- 3 - **The inventory management approaches using inventory balance and decision of inventory across supply chain of fresh vegetables**
Adi Djoko Guritno, Endy Suwondo, Henry Yuliando
- 4 - **Sustainable Food Supply Chain Management**
Jacqueline Bloemhof, Jack van der Vorst

■ FA-11

Friday, 9:00-10:30

Penn Room 2

Supply Chain Design

Chair: *Behzad Hezarkhani*

1 - Solution Method for the Inventory Distribution Problem

Takayuki Shiina

2 - On optimal quantities in symmetric transshipment coalitions

Behzad Hezarkhani, Wieslaw Kubiak, Bruce Hartman

Paper moved to session WE-11

Small is Beautiful: a Framework for Evaluating and Optimizing Compact Storage Systems

Nima Zaerpour

■ FA-12

Friday, 9:00-10:30

Van Oldenbarnevelt Room

Routing II

Chair: *Goos Kant*

1 - Combining transportation flows and networks

Marjolein Veenstra

2 - The Vehicle Routing Problem with Private Fleet and Common Carrier

Sybrein Huijink, Goos Kant, René Peeters

3 - Optimizing Transport Logistics by Workload Balancing

Goos Kant

■ FA-13

Friday, 9:00-10:30

Mees Auditorium

Railway Optimization

Chair: *Thomas Schlechte*

1 - Railway timetable rescheduling in case of large disruptions

Lucas Veelenturf, Martin Kidd, Valentina Cacchiani, Dennis Huisman, Leo Kroon, Paolo Toth

2 - Modelling Delay Propagation in Railway Networks

Fabian Kirchhoff

3 - Optimization of a railway line system

Joel van 't Wout, Bart de Keizer, Pieter Fioole

4 - Robust online optimization at motorail terminals

Pascal Lutter, Brigitte Werners

■ FA-14

Friday, 9:00-10:30

Tokyo Room

Distribution, Pickup&Delivery, Dial-a-Ride

Chair: *René de Koster*

- 1 - **Joint distribution of distances to the first and the second nearest facilities**
Masashi Miyagawa
- 2 - **A Comparison of Different Column-Generation Formulations for the Pickup-and-Delivery Problem with Static and Dynamic Time Windows**
Timo Gschwind
- 3 - **The Value of Inaccurate Advanced Information in the Dynamic Dial-a-Chauffeur Problem**
Niels Agatz, Jordan Srour, Johan Oppen
- 4 - **A Collaborative Approach in City Distribution**
Derya Eren Akyol, René de Koster

■ FA-15

Friday, 9:00-10:30

New York Room

Mixed Integer Programming

Chair: *Tobias Achterberg*

- 1 - **Compact Mixed-Integer Formulations for Multi-Entity and Multi-Period Problems**
Mernout Burger
- 2 - **Heuristic Approaches for Staircase-Structured Mixed Integer Programs**
Christian Puchert, Marco Lübbecke
- 3 - **Recent Improvements in IBM ILOG CPLEX Optimization Studio**
Tobias Achterberg

■ FA-17

Friday, 9:00-10:30

New Orleans Room

Nonlinear Optimization and Applications

Chair: *Mirjam Duer*

- 1 - **Computing accurate solutions for linear programming models from computational biology**
Ambros Gleixner, Joshua Lerman, Matthias Miltenberger
- 2 - **Optimal pricing policy of a Monopolistic Two-Sided Network**
Falk Meyerholz
- 3 - **Advances in Modeling, Optimization and Control of Stochastic Dynamics - Applications in Finance, Economics, Biology and Environment**
Gerhard-Wilhelm Weber, Erdem Kilic, Yeliz Yolcu Okur, Fatma Yerlikaya Ozkurt, Azar Karimov, Nadi Serhan Aydin
- 4 - **Keeping a Learned Society Young**
Gustav Feichtinger, Vladimir Veliov, Joshua R. Goldstein, Herbert Dawid

■ **FB-01**

Friday, 11:00-11:45

Rotterdam Hall

Semi-plenary speaker: Rommert Dekker

Chair: *Rob Zuidwijk*

- 1 - **Maritime Transportation sails on the waves of OR**
Rommert Dekker

■ **FB-09**

Friday, 11:00-11:45

Diamond Room 1

Semi-plenary speaker: Stein W. Wallace

Chair: *Rüdiger Schultz*

1 - Stochastic Programming: Do we really need it?

Stein W. Wallace

■ **FB-12**

Friday, 11:00-11:45

Van Oldenbarnevelt Room

Semi-plenary speaker: Nelly Litvak

Chair: *Flavius Frasincar*

1 - Algorithms for Web graphs - can we handle big data?

Nelly Litvak

■ **FB-13**

Friday, 11:00-11:45

Mees Auditorium

**Semi-plenary speaker: Erik
Demeulemeester**

Chair: *Florian Jaehn*

- 1 - Robust project scheduling**
Erik Demeulemeester

■ FC-01

Friday, 12:00-13:00

Rotterdam Hall

**Closing and Plenary: Steve Sashihara
(see page 27)**

Chair: *Albert Wagelmans*
