EURO 2018

Short Program

July 11, 2018

Sunday, 17:30-19:00

■ SA-01

Sunday, 17:30-19:00 - UPV Nexus

Opening Session

Stream: Opening and Closing
Chair: *Ramon Alvarez-Valdes*
Chair: *Ruben Ruiz*

1 - Opening session
Ramon Alvarez-Valdes, Ruben Ruiz

Monday, 8:30-10:00

■ MA-01

Monday, 8:30-10:00 - UPV Nexus

Six Decades of Interior Point Methods: From Periphery to Glory

Stream: Keynotes
Chair: *Attila Gilanyi*

1 - Six Decades of Interior Point Methods: From Periphery to Glory
Tamás Terlaky

■ MA-02

Monday, 8:30-10:00 - SOUTH BUILDING UV S101

Scheduling Practice

Stream: Scheduling Practice
Chair: *Daniel Guimarans*

1 - Project scheduling in real-world test laboratories
Florian Mischek, Nysret Musliu

2 - Heuristic approaches for scheduling jobs and vehicles in a cyclic flexible manufacturing system
Martin Gutjahr, Sophie Parragh, Hans Kellerer

3 - A mixed integer programming model for airline fleet maintenance scheduling.
David Torres Sanchez

4 - A decision support system to assist airport operators solving terminal disruptions ASAP
Daniel Guimarans, Arjen Peters, Younes Boulaksil

■ MA-03

Monday, 8:30-10:00 - SOUTH BUILDING UV S103

Facility Location I

Stream: Location Analysis and Optimization
Chair: *Robert Aboolian*

1 - A Lagrangian relaxation method for solving the p-median radius formulation
Minerva Martin del Campo, Sergio García Quiles

2 - Heuristic framework to reduce aggregation errors in location models
Carolina Castañeda P., Daniel Serra

3 - Location problems with continuous demand on a polygon with holes: characterising structural properties of geodesic Voronoi diagrams
Thomas Byrne, Jörg Kalcsics

4 - Mathematical characterization of interregional freight flows by road
Javier Rubio-Herrero, Jesús Muñuzuri

■ MA-04

Monday, 8:30-10:00 - SOUTH BUILDING UV S104

Dynamic and Stochastic Scheduling

Stream: Dynamic and Stochastic Scheduling
Chair: *Wim Vancroonenburg*

1 - A reinforcement learning based algorithm to schedule multi-category patients at a multi-facility hospital
Usha Mohan, Varun Jain

2 - A tactical planning model for allocating resources to a project under uncertainty
Tetsuo Iida, Ken-ichi Suzuki

3 - An event-driven project planning model with a Bayesian network based approach
Ken-ichi Suzuki, Tetsuo Iida, Akinori Yokota

4 - Chance-constrained admission scheduling for elective surgical patients
Wim Vancroonenburg

■ MA-05

Monday, 8:30-10:00 - SOUTH BUILDING UV S105

Results on Benders' Decomposition

Stream: Mixed-Integer Linear and Nonlinear Programming
Chair: *Alfredo Moreno*

1 - Simultaneously exploiting two formulations: an exact Benders decomposition approach
Richard Lusby, Stefan Ropke, Mette Gamst, Simon Spoorendonk

2 - A joint inventory-location problem under periodic review with generalized Benders decomposition
Francisco Tapia-Ubeda, Pablo A. Miranda, Guillermo Cabrera-Guerrero

3 - A Benders decomposition algorithm for quadratic network design problem
Emine Gundogdu, Sinan Gürel

4 - The road restoration crew scheduling and routing problem: accelerated Benders decomposition using meta-heuristics
Alfredo Moreno, Pedro Munari, Douglas Alem

■ MA-06

Monday, 8:30-10:00 - SOUTH BUILDING UV S106

Stochastic Models and Queueing

Stream: Stochastic Models and Queueing
Chair: *Sarah Dendievel*

1 - QMCD approach for perishability models: the (S,s) control policy with lead time
Yonit Barron, Opher Baron

2 - Three-moment approximation for the mean queue time of a GI/G/1 queue
Kan Wu

3 - A discrete-time two-server queue where one server is only intermittently available
Freek Verdonck, Herwig Bruneel, Sabine Wittevrongel

4 - The power series alorithm for a queueing system with batch arrivals
Sarah Dendievel, Dieter Fiems

■ MA-07

Monday, 8:30-10:00 - SOUTH BUILDING UV S107

Analytic Hierarchy Process I

Stream: Analytic Hierarchy Process / Analytic Network Process
Chair: *Alessio Ishizaka*

1 - Solar energy plant project selection with hesitant fuzzy linguistic term sets based AHP decision making method
Veysel Çoban, Sezi Cevik

2 - Identifying the influencers on twitter: the case of the world championships in track cycling
Amparo Baviera-Puig, Jose Maria Lamiran Palomares, Tomas Baviera

3 - Distribution center location - allocation problem for a stationery manufacturer
Ozay Ozaydin, Ozge Tas, Begum Oktay

4 - ANPSort for sorting alternative with interdependent criteria
Alessio Ishizaka

■ MA-08

Monday, 8:30-10:00 - SOUTH BUILDING UV S108

Multi-Objective Combinatorial Optimization

Stream: Combinatorial Optimization I
Chair: *Matthias Ehrgott*

1 - The multiobjective Dijkstra's algorithm
Antonio Sedeño-Noda, Marcos Colebrook

2 - Leveraging single-objective heuristics to solve multi-objective problems: applications in vehicle routing
Piotr Matl, Richard Hartl, Thibaut Vidal

3 - Solving a bi-objective stochastic facility location problem by branch-and-cut
Sophie Parragh, Walter Gutjahr, Fabien Tricoire

4 - Bi-objective branch-and-cut algorithms based on LP relaxation and bound sets
Matthias Ehrgott, Sune Lauth Gadegaard, Lars Relund Nielsen

■ MA-09

Monday, 8:30-10:00 - SOUTH BUILDING UV S109

The Role of Mathematical Optimization in Data Science I

Stream: European Working Group: Data Science Meets Optimization
Chair: *Vanesa Guerrero*

1 - Tree-structured data clustering
Derya Dinler, Mustafa Kemal Tural, Nur Evin Ozdemirel

2 - Dealing with heterogeneous data via constrained lasso
M. Remedios Sillero-Denamiel, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo

3 - DCA for robust principal component analysis
Hoai Minh Le, Vo Xuan Thanh

4 - On mathematical optimization to interpret factor analysis
Vanesa Guerrero, Emilio Carrizosa, Dolores Romero Morales, Albert Satorra

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■ MA-10

Monday, 8:30-10:00 - SOUTH BUILDING UV S110

Decision Aiding Methods I

Stream: Multiple Criteria Decision Aiding
Chair: *Salvatore Corrente*
Chair: *Milosz Kadzinski*

1 - Redefining the concordance index in ELECTRE by means of OWA aggregation operators
Aida Valls, Jonathan Orama

2 - On the use of semantic criteria in ELECTRE in a touristic recommender system
Antonio Moreno, Miriam Martinez-Garcia, Aida Valls, Joan Borràs

3 - Negative interactions between criteria are not necessary in MCDA
Brice Mayag, Denis Bouyssou

4 - Selection of a sustainable third-party reverse logistics provider based on the robustness analysis of an outranking graph kernel conducted with ELECTRE I and SMAA
Milosz Kadzinski, Kannan Govindan, Grzegorz Miebs

■ MA-11

Monday, 8:30-10:00 - SOUTH BUILDING UV S111

Data Envelopment Analysis (DEA) and Performance Measurement

Stream: DEA: Theory
Chair: *Jesus T. Pastor*

1 - A survey on measuring and decomposing overall efficiency in data envelopment analysis
Juan Aparicio, Jesús T. Pastor, José L. Zofío

2 - A data envelopment analysis toolbox for MATLAB
Javier Barbero Jiménez, José L. Zofío, Inmaculada C. Álvarez

3 - Technical efficiency in the Spanish virgin olive oil protected designations of origin: what is their real performance?
Fernando Vidal Giménez, Jesús T. Pastor, Juan Aparicio, Lidia Ortiz

4 - Does the CCD Malmquist index measures total factor productivity?
Jesus T. Pastor, Juan Aparicio

■ MA-12

Monday, 8:30-10:00 - SOUTH BUILDING UV S112

Multiobjective Fuzzy Optimization

Stream: Fuzzy Optimization
Chair: *Mariano Jimenez-Lopez*

1 - A better approach for solving a fuzzy multiobjective programming problem
Beatriz Hernández-Jiménez, Rafaela Osuna-Gómez, Gabriel Ruiz-Garzón, Antonio Rufián-Lizana

2 - On the use of preference-based evolutionary multiobjective optimization for solving a credibilistic portfolio selection model
Ana Belen Ruiz, Rubén Saborido, José D. Bermúdez, Mariano Luque, Enriqueta Vercher

3 - A goal programming model for solving preferences expressed by importance weights: an application to allocate assets upon corporate sustainability criteria
Mariano Jimenez-Lopez, Amelia Bilbao-Terol, Mar Arenas-Parra

4 - A fuzzy goal programming approach tightening aspiration levels to weighted preferences
Manuel Díaz-Madroñero, Mariano Jimenez-Lopez, Josefa Mula

■ MA-13

Monday, 8:30-10:00 - SOUTH BUILDING UV S201

Supply Chain Management I

Stream: Supply Chain Management II
Chair: *Zelong Yi*

1 - Supply chain profit distribution under uncertainty
Songsong Liu

2 - Effects of trust on price contract design in a supply chain
Hangfei Guo, Mahmut Parlar, Min Zhang

3 - Metrics and methods for improving resilience in agribusiness supply chains
Golnar Behzadi, Michael O'Sullivan, Tava Olsen

4 - Sustainability building of an agricultural supply chain with a capital-constrained farmer in developing economies
Zelong Yi

■ MA-14

Monday, 8:30-10:00 - SOUTH BUILDING UV S202

On Proximal Algorithms for Structured Optimization Problems

Stream: Nonlinear Programming: Methods
Chair: *Ting Kei Pong*

1 - A successive difference-of-convex approximation method for a class of nonconvex nonsmooth optimization problems
Tianxiang Liu, Ting Kei Pong, Akiko Takeda

2 - a family of inexact sqa methods for non-smooth convex minimization with provable convergence guarantees based on the luo-tseng error bound property
Man-Chung Yue

3 - Fast method for non-smooth non-convex minimization
Peng Zheng

4 - Iteratively reweighted l1 algorithms with extrapolation
Ting Kei Pong

■ MA-15

Monday, 8:30-10:00 - SOUTH BUILDING UV S203

Selective Vehicle Routing and Extended Network Design Problems

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Jana Ries*
Chair: *Pablo A. Miranda*

1 - Hazard and time of exposure as objectives in HM transportation
Andrés Bronfman, German Paredes-Belmar, Vladimir Marianov, Diego Beneventti

2 - Dynamic pricing for multi-period home delivery
Alejandro Lamas

3 - Advanced goal programming formulations for an insular traveling salesman problem with fairness concerns
Pablo A. Miranda, Jana Ries, Dylan Jones

4 - An instance-based algorithmic performance study for the INTSP using a co-evolutionary based solution approach
Jana Ries, Pablo A. Miranda

■ MA-16

Monday, 8:30-10:00 - SOUTH BUILDING UV S115

Social Networks: Community Detection and Information Propagation I

Stream: Network Optimization and Social Networks
Chair: *Mario Ruthmair*

1 - Robust StQP and community detection in social networks
Michael Kahr, Immanuel Bomze, Markus Leitner

2 - Parsimonious formulations for low-diameter clusters
Austin Buchanan, Hosseinali Salemi

3 - Lagrangean relaxation based heuristics to solve influence maximization in social networks
Evren Guney

4 - Least cost influence propagation in (social) networks
Mario Ruthmair, Matteo Fischetti, Michael Kahr, Markus Leitner, Michele Monaci

■ MA-17

Monday, 8:30-10:00 - SOUTH BUILDING UV S205

Accounting, Auditing and Taxation

Stream: Operational Research in Financial and Management Accounting
Chair: *Matthias Amen*

1 - Opportunities for earnings management offered by IAS 36
Matthias Amen

2 - The cooperative bargaining game of audits - regulatory provisions for truthful reporting and independent audits
Tobias Filusch, Sascha H. Moells

3 - The constant-growth valuation model and firm-specific inflation - theory & empirical evidence
Stefan Laun, Sascha H. Moells

4 - The impact of tax legislation on inventory and supplier selection models
Hua Jin, Patrick Beullens

■ MA-18

Monday, 8:30-10:00 - SOUTH BUILDING UV S206

Algorithms in Convex Optimization

Stream: Convex Optimization
Chair: *Alfredo Iusem*

1 - Non-linear conjugate gradient method for vector optimization
Luis Roman Lucambio Perez, Leandro Prudente

2 - Gradient projection methods for the n-coupling problem
Sangho Kum

3 - The mathematical structure of the mathematical programming
Javier Diaz, Luis Moreno

4 - Splittting methods for complementary eigenvalue problems
Alfredo Iusem

■ MA-19

Monday, 8:30-10:00 - SOUTH BUILDING UV S207

Vector and Set-Valued Optimization I

Stream: Vector- and Set-Valued Optimization
Chair: *Lidia Huerga*
Chair: *Vicente Novo*

1 - Global stability results for interval optimization problems
Ruben Lopez

2 - A multiobjective trust region algorithm
Jana Thomann, Gabriele Eichfelder

3 - A global solution method for nonconvex multiobjective optimization
Julia Niebling, Gabriele Eichfelder

4 - Limit behaviour of Henig approximate proper solutions in vector optimization
Lidia Huerga, César Gutiérrez, Vicente Novo, Miguel Sama

■ MA-20

Monday, 8:30-10:00 - SOUTH BUILDING UV S301

Advances in Decision and Sensitivity Analysis

Stream: Decision Analysis and Decision Support Systems
Chair: *Emanuele Borgonovo*

1 - An interactive Bayesian method for multicriteria sorting problems
Canan Ulu

2 - Multidimensional attitudes in intertemporal choice
Veronica Roberta Cappelli

3 - A comparison of variance-based and moment-independent sensitivity analysis approaches
Samuele Lo Piano, Emanuele Borgonovo, Andrea Saltelli

4 - Information density in sensitivity analysis and optimization
Emanuele Borgonovo

5 - Copula theory and probabilistic sensitivity measures
Elmar Plischke, Emanuele Borgonovo

■ MA-21

Monday, 8:30-10:00 - SOUTH BUILDING UV S303

Robust Project Management Approaches

Stream: Project Management and Scheduling
Chair: *Izack Cohen*

1 - Lessons learnt from solvable cases of determining optimal policies for the RCPSP with stochastic activity durations
Erik Demeulemeester

2 - A distributionally robust approach to project planning
Ernst Roos, Dick den Hertog

3 - Stochastic dual dynamic integer programming for financial portfolio and network revenue management
Andy Sun

4 - The robust multi-mode resource constrained project scheduling problem
Izack Cohen, Noemie Sellam Balouka

■ MA-22

Monday, 8:30-10:00 - SOUTH BUILDING UV S304

Data Mining in Business Analytics

Stream: Analytics, Data Science and Data Mining
Chair: *Koen W. De Bock*

1 - The effects of word-of-mouth and promotion on online marketplaces
I-Chi Lin, Mei-Ting Tsai, Quang Thy Lam

2 - Problematic issues of the sustainable development of real estate market and its assessment opportunities
Linda Kauskale, Ineta Geipele

3 - Data mining based customer response prediction for a specific campaign in Penti
Fadime Üney-Yüksektepe, Neslişah Aral, Merve Mutlu, Sevra Çiçekli

4 - Properties of business cycles of post-communist countries in the European Union
Karol Szomolányi, Martin Lukáčik, Adriana Lukáčiková

■ MA-23

Monday, 8:30-10:00 - SOUTH BUILDING UV S305

Nurse Rostering

Stream: Timetabling
Chair: *Pieter Smet*

1 - Preference scheduling for nurses under Danish legislation
Elin Bjørk Bodvarsdottir, Niels-Christian Bagger

2 - Rescheduling strategies for nurse scheduling
Lena Wolbeck, Natalia Kliewer

3 - A mathematical modeling approach for robust nurse rostering
Toni Wickert, Pieter Smet, Greet Vanden Berghe

4 - A new compact integer programming formulation for the nurse rostering problem
Pieter Smet

■ MA-24

Monday, 8:30-10:00 - SOUTH BUILDING UV S306

Financial Mathematics and OR I

Stream: Financial Mathematics and OR
Chair: *Norio Hibiki*

1 - Optimal pension fund management under low interest rate environment using simulation-based multi-period optimization
Rei Yamamoto

2 - Stress testing model for macro stress testing and specific events
Muneki Kawaguchi

3 - The performance of multilevel Monte Carlo using Apache Spark
Hitoshi Inui

4 - Estimating forward looking return distribution with the generalized recovery theorem
Takuya Kiriu, Masatake Ito, Norio Hibiki

■ MA-25

Monday, 8:30-10:00 - SOUTH BUILDING UV S307

CYBECO Session on Cybersecurity and Cyber-Insurance

Stream: Fintech: Economic and Financial Challenges in Cryptocurrencies
Chair: *Jose Vila*

1 - Assessing supply chain cyber risks
Alberto Redondo Hernández, Alberto Torres Barrán

2 - Can protection motivation theory provide a framework to help us understand cyberinsurance uptake?
Dawn Branley-Bell, Pamela Briggs

3 - Cyber risk measurement with ordinal data
Paolo Giudici

4 - Nudging optimal cyber-insurance strategies
Jose Vila, Pamela Briggs, Yolanda Gomez, Dawn Branley-Bell

■ MA-26

Monday, 8:30-10:00 - SOUTH BUILDING UV S308

Line Planning and Network Design in Public Transport

Stream: Public Transportation I
Chair: *Pieter Vansteenwegen*

1 - Optimization methods for the trip runtime determination problem
Marjan van den Akker, Marcel van Kooten Niekerk, Han Hoogeveen

2 - Determining and evaluating alternative line plans in (near) out-of-control situations
Paul Bouman, Rolf Van Lieshout, Dennis Huisman

3 - Local evaluation techniques in bus line planning
Evert Vermeir, Pieter Vansteenwegen

4 - Flexible bus lines for congested areas
Pieter Vansteenwegen, Elina Avila-Ordóñez

■ MA-27

Monday, 8:30-10:00 - SOUTH BUILDING UV S309

Remanufacturing Operations

Stream: Production, Service and Supply Chain Management
Chair: *Mahdi Abolghasemi*

1 - Dynamic programming models for joint incentive and dispatching decisions for collection centers in remanufacturing
Mehmet Alegoz, Onur Kaya

2 - Remanufacturing as a competitive strategy
Xiang Zhu

3 - Hierarchical forecasting in supply chain
Mahdi Abolghasemi

■ MA-28

Monday, 8:30-10:00 - SOUTH BUILDING UV S310

Optimization Models in Multiple Classifier Systems

Stream: Multiple Classifier Systems and Applications
Chair: *Sureyya Ozogur-Akyuz*

1 - Statistical tests for forecasting model selection in meta learning: a new approach
Sasan Barak, Sven F. Crone

2 - Improved MIP-formulations and suited solution procedures for the parking lot layout planning (PLLP) problem
Konrad Stephan, Nils Boysen, Felix Weidinger

3 - Integrating individual and aggregate diversity in top-N recommendation
Ethem Canakoglu, Ibrahim Muter, Tevfik Aytekin

4 - Ensemble learning by disciplined convex and concave programming
Pinar Karadayi Atas, Sureyya Ozogur-Akyuz

■ MA-29

Monday, 8:30-10:00 - SOUTH BUILDING UV S311

Game Theory, Solutions and Structures I

Stream: Game Theory, Solutions and Structures
Chair: *Encarnación Algaba*

1 - Associated consistency, value and graphs
Florian Navarro, Gerard Hamiache

2 - Supermodular functions on finite distributive lattices
Michel Grabisch, Tomas Kroupa

3 - Superweak differential marginality and the weighted Shapley values
André Casajus

4 - Solutions for games with a hierarchical structure
Encarnación Algaba, Rene van den Brink

■ MA-30

Monday, 8:30-10:00 - SOUTH BUILDING UV S312

Evolutionary metaheuristics

Stream: Metaheuristics
Chair: *Robert Manger*

1 - Genetic programming approach for concurrent real-time optimization of detecting unexpected tasks in embedded systems design process
Adam Górski, Maciej Ogorzałek

2 - Determination of GNSS / levelling geoid by reducing model points with PSO
Mehmet Akif Sahman, Kemal Tutuncu, Ekrem Tusat

3 - An estimation of distribution algorithm based on p-median model for cell formation problem
Saber Ibrahim, Bassem Jarboui

4 - An evolutionary algorithm for the robust maximum weighted independent set problem
Ana Klobučar, Robert Manger

■ MA-31

Monday, 8:30-10:00 - SOUTH BUILDING UV S313

Behaviour in Models I

Stream: Behavioural OR
Chair: *Rudolf Vetschera*

1 - Data-driven behavioral models of water reservoir operators
Matteo Giuliani, Andrea Castelletti, Jonathan Herman

2 - Influence modeling: mathematical programming representations of persuasion under either risk or uncertainty
William Caballero, Brian Lunday

3 - Managing complex adaptive systems: a resource/agent modelling perspective
Ross Kazakov, Susan Howick, Alec Morton

4 - Using the Zeuthen-Hicks bargaining model to identify a fixed pie bias in negotiations
Rudolf Vetschera

■ MA-32

Monday, 8:30-10:00 - SOUTH BUILDING UV S314

Game Theory Models for Transportation

Stream: Routing, Logistics, Location and Transportation
Chair: *Namchul Shin*

1 - Attacker-defender model against QR-adversaries for cyber security in logistics management
Kam-Fung Cheung, Michael Bell, Behnam Fahimnia, Federico Bettini

2 - Collaborative allocation of transportation via combinatorial auctions: central vs. individual mechanisms
Daniel Nicola

3 - Game theoretical analysis of channel power structures for two-manufacturers-two-retailers
Tatsushi Nishi

4 - Creating shared value from collaborative logistics systems
Namchul Shin

■ MA-33

Monday, 8:30-10:00 - SOUTH BUILDING UV S315

Emerging Applications in Game Theory

Stream: Variational Inequalities
Chair: *Patrizia Daniele*

1 - On a family of transportation network cooperative games
Giorgio Gnecco, Yuval Hadas, Marcello Sanguineti

2 - The impact of budget constraints on the interaction between fund-raising and procurement operations
Fuminori Toyasaki, Emel Arikan, Lena Silbermayr

3 - Game theoretic scenarios of cybersecurity investment models in a sellers-buyers market
Monica-Gabriela Cojocaru, Spencer Kirbyson

4 - How to increase the impact of disaster relief: a study of transportation rates, framework agreements and product distribution
Timo Gossler, Tina Wakolbinger, Anna Nagurney, Patrizia Daniele

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■ MA-34

Monday, 8:30-10:00 - SOUTH BUILDING UV S113

Risk Management for Insurance

Stream: Insurance and Pension Risk Management
Chair: *Susanna Levantesi*

1 - Enterprise risk management and economies of scale and scope: evidence from the German insurance industry
Thomas Berry-Stoelzle, Muhammed Altuntas, John David Cummins

2 - Benchmark loss distributions in insurance regulation
Cosimo Munari, Valeria Bignozzi, Matteo Burzoni

3 - Securities lending in insurance
Enrico Biffis

■ MA-48

Monday, 8:30-10:00 - 4D UPV B.3

Optimisation Models for Humanitarian Logistics

Stream: Humanitarian Operations
Chair: *Begoña Vitoriano*

1 - Lexicographic optimization in a time-dependent evacuation model
M. Teresa Ortuno, Inmaculada Flores, Gregorio Tirado, Begoña Vitoriano

2 - E-voucher distribution routing and planning for Syrian refugee camps in Turkey
Ramez Kian, Gunes Erdogan, Sibel Salman, Bahar Yetis Kara, Muhittin Hakan Demir, Ehsan Sabet, Sander de Leuw

3 - Routing of mobile pharmacies to address drug stock-out inequity in developing countries
Rajan Batta, Biplab Bhattacharya, Li Lin

4 - Strategic facility location and tactical resources allocation under uncertainty for natural disaster response
Adán Rodriguez, Begoña Vitoriano, M. T. Ortuno, Laureano Fernando Escudero, Juan Francisco Monge

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■ MA-49

Monday, 8:30-10:00 - 4D UPV B.4

IBM Research Applications I

Stream: IBM Research Applications
Chair: *Andrea Simonetto*

1 - Transmission-constrained unit commitment: a decomposition-based approach
Claudio Gambella, Jakub Marecek, Sara Pezic Djukic, José María Fernández Ortega, Martin Mevissen, Mustafa Pezic

2 - Optimal microgrid design - a piecewise linear approximation
Ramachandra Rao Kolluri, Julian de Hoog

■ MA-50

Monday, 8:30-10:00 - 4D UPV 1.1

Logistics and Transportation in Biomass-Based Supply Chains

Stream: Biomass-Based Supply Chains
Chair: *Taraneh Sowlati*

1 - Combining dynamic vehicle routing with multiple stock size cutting stock problem in forestry harvesting
Laura Climent

2 - Searching synergies between timber production and non-wood forest products for multi-objective forest management
Mikko Kurttila, Timo Pukkala, Jari Miina

3 - Regulation and benchmarking: a formative evaluation of Portuguese wastewater services using composite indicators
Ana Camanho, Alda Henriques, Pedro Amorim, Jaime Gabriel Silva

4 - Optimization of forest-based biomass logistics
Taraneh Sowlati, Krishna Teja Malladi

■ MA-51

Monday, 8:30-10:00 - 4D UPV 1.2

OR for Sustainable Development in Developing Countries

Stream: OR for Sustainable Development
Chair: *Olabode Adewoye*

1 - Measuring footprint in supply chain: an important contribution in achieving green supply chain
Rajbir Kaur, Sadia Samar Ali

2 - A comparison between multi-objective optimization approaches for the harmonization of surveillance requirements and maintenance
Pablo Martorell

■ MA-52

Monday, 8:30-10:00 - 4D UPV 1.3

Health Care Management

Stream: OR for Health and Care I
Chair: *Piotr Lukasiak*
Chair: *Rommert Dekker*

1 - Queueing models in balancing hospital's capacity and patient wait times
Susan Li, Zhimin Huang

2 - Scheduling MRI appointments: a case study in Osmangazi University Hospital
Emine Akyol Ozer, Zehra Kamisli Ozturk, Asli Ergezer, Derya Bayar, Gürdeniz Hökmen

3 - A literature review on the vaccine supply chain
Rommert Dekker, Evelot Duijzer, Willem van Jaarsveld

■ MA-53

Monday, 8:30-10:00 - 4D UPV 1.4

Quality Management

Stream: OR in Quality Management
Chair: *Rafael Sanchez-Marquez*

1 - Evaluating service quality of an art museum in South Korea using a multiple assessment model
Jimin Park, Sukran Kim, Jaewoo Chung

2 - Combination of empirical quantile forecasts to determine the safety stock
Juan Ramon Trapero Arenas, Nikolaos Kourentzes, Manuel Cardós, Ester Guijarro, Eugenia Babiloni

3 - Quality management system diagnosis
Rafael Sanchez-Marquez

■ MA-54

Monday, 8:30-10:00 - 4D UPV 1.6

Sustainable Supply Chains

Stream: Energy Economics, Environmental Management and Multicriteria Decision Making
Chair: *Renzo Akkerman*

1 - ToBLoOM - triple bottom line optimization modelling for sustainable supply chains under uncertainty
Ana Barbosa-Povoa, Bruna Mota, Ana Carvalho, Maria Isabel Gomes

2 - Quantitative modelling for resource efficient supply chains: a systematic review
Ursula Davis, Alok Choudhary, Grammatoula Papaioannou, Ravi Shankar

3 - Strategic capacity planning in process industries under water scarcity
Sai Jishna Pulluru, Paloma Aparicio Escuder, Renzo Akkerman

■ MA-55

Monday, 8:30-10:00 - 4D UPV 2.1

Speed Networking

Stream: Making an Impact I
Chair: *Ruth Kaufman*

1 - Speed networking and EURO working group on practice of OR
Ruth Kaufman

■ MA-56

Monday, 8:30-10:00 - 4D UPV 2.2

OR in Neuroscience

Stream: OR in Neuroscience
Chair: *Dorit Hochbaum*

1 - Voxel-MARS and CMARS: methods for early detection of Alzheimer's disease by classification of structural brain MRI
Gerhard-Wilhelm Weber, Alper Çevik

2 - Spatial separability in hub location problems with an application to brain connectivity networks
Taghi Khaniyev, Samir Elhedhli, Fatih Safa Erenay

3 - Dynamic models of the spread of neurodegenerative diseases
Hana Tomaskova, Richard Cimler, Jitka Kühnová, Ondřej Dolezal, Dalibor Cimr, Dalibor Cimr

4 - HNCcorr: a novel combinatorial optimization approach for neuronal cell identification in calcium imaging movies
Dorit Hochbaum, Quico Spaen, Roberto Asín

■ MA-60

Monday, 8:30-10:00 - 4D UPV B.5

ROADEF

Stream: EURO Special Sessions
Chair: *Eric Bourreau*

Monday, 10:30-12:00

■ MB-01

Monday, 10:30-12:00 - UPV Nexus

Optimization and Music Data Science

Stream: Keynotes
Chair: *Teresa Leon*

1 - Optimization and Music Data Science
Elaine Chew

■ MB-02

Monday, 10:30-12:00 - SOUTH BUILDING UV S101

Scheduling Practice in Manufacturing

Stream: Scheduling Practice
Chair: *Miriam Zacharias*

1 - Dispatching rules selection for machines and AMHS scheduling
Yung-Hsun Tsai, Ken-Hsuan Chen, Gen-han Wu

2 - Line-side material placement to minimize walking time at moving assembly lines
Helmut Sedding

3 - Measuring effectiveness of scheduling jobs with earliness and tardiness costs: a case study
Andrés Muñoz-Villamizar, Javier Santos, Jairo R. Montoya-Torres, María Jesús Alvarez

4 - Machine learning in hybrid flow shop scheduling problems with unrelated machines
Miriam Zacharias

■ MB-03

Monday, 10:30-12:00 - SOUTH BUILDING UV S103

Facility Location II

Stream: Location Analysis and Optimization
Chair: *Mehdi Amiri-Aref*

1 - Combining three facility location problems
Ana Dolores López-Sánchez, Jesus Sanchez-Oro, Manuel Laguna, Alfredo G. Hernandez-Diaz

2 - A gradual covering location problem with different facility types & customer preferences
Hande Kucukaydin, Necati Aras

3 - Optimal algorithms for two variants of inverse undesirable center location models on graphs
Behrooz Alizadeh

4 - The flood-adaptive facility location problem
Mehdi Amiri-Aref, Maliheh Hashemi Tilenoi

■ MB-04

Monday, 10:30-12:00 - SOUTH BUILDING UV S104

Dynamic and Stochastic Scheduling in Logistics

Stream: Dynamic and Stochastic Scheduling
Chair: *Heimir Thorisson*

1 - Dynamic allocation of fire vehicles in preparedness phase for bush fires
Reena Kapoor

2 - A honey bees mating optimization algorithm with path relinking for the vehicle routing problem with stochastic demands
Yannis (Ioannis) Marinakis, Magdalene Marinaki

3 - A mixed integer model to dynamic deployment of traffic surveillance system
Roozbeh Ebrazi, S. Mehdi Hashemi, Mina Gholizadeh Atani

4 - Vessel berthing schedules under the influence of emergent and future conditions
Heimir Thorisson, Thomas L Polmateer, James H Lambert

■ MB-05

Monday, 10:30-12:00 - SOUTH BUILDING UV S105

Vehicle Routing

Stream: Mixed-Integer Linear and Nonlinear Programming
Chair: *Inmaculada Rodríguez Martín*

1 - Dynamic parking allocation problem in urban areas
Marko Mladenovic, Thierry Delot, Gilbert Laporte, Christophe Wilbaut

2 - A selective pickup and delivery vehicle routing problem with handling cost
Yali Li, Jun Yang, Ling Zhao, Yuanyuan Zhou

3 - An optimization framework for one-way electric vehicle-sharing systems with the combination of operator-based and user-based relocation
Ye Zou, Chao Yang, Min Teng

4 - An exact approach for the periodic vehicle routing problem with driver consistency
Inmaculada Rodríguez Martín, Juan José Salazar González, Hande Yaman

■ MB-06

Monday, 10:30-12:00 - SOUTH BUILDING UV S106

Consumer Behavior and Pricing I

Stream: Demand and Supply Management in Retail and Consumer Goods
Chair: *Tamer Boyaci*

1 - Analyzing retail market basket data by unsupervised machine learning methods
Harald Hruschka

2 - Flexible estimation of time-varying effects for frequently purchased retail goods
Winfried Steiner, Bernhard Baumgartner, Daniel Guhl, Thomas Kneib

3 - Dynamic pricing with multiunit purchases
Rouven Schur, Robert Klein

4 - Brand positioning and consumer taste information
Tamer Boyaci, Arcan Nalca, Saibal Ray

■ MB-07

Monday, 10:30-12:00 - SOUTH BUILDING UV S107

Analytic Hierarchy Process II

Stream: Analytic Hierarchy Process / Analytic Network Process
Chair: *Josef Jablonsky*

1 - Enhancing sustainable competitiveness of small and medium-sized enterprises using the analytic hierarchy process
Debashree De, Prasanta Kumar Dey

2 - Perception-based interval type-2 fuzzy AHP-QFD approach for evaluation of a service quality
M.Bahar Baskir

3 - Student consumers' decision-making process
Emrah Koksalmis, Gulsah Hancerliogullari Koksalmis

4 - Analytic hiararchy process as a ranking tool for efficient units in DEA models
Josef Jablonsky

■ MB-08

Monday, 10:30-12:00 - SOUTH BUILDING UV S108

Complexity Aspects of Linear and Integer Linear Programming

Stream: Combinatorial Optimization I
Chair: *Sergei Chubanov*

1 - Disjunctive conic cuts: the good, the bad, and implementation
Julio Góez

2 - Pyramidally solvable cases of the bipartite TSP
Vladimir Deineko

3 - The load planning and sequencing problem for double-stack intermodal trains
Moritz Ruf, Jean-François Cordeau, Emma Frejinger

4 - Integer optimization with verification oracles
Sergei Chubanov

■ MB-09

Monday, 10:30-12:00 - SOUTH BUILDING UV S109

The Role of Mathematical Optimization in Data Science II

Stream: European Working Group: Data Science Meets Optimization
Chair: *Vanesa Guerrero*

1 - On the construction of optimal randomized classification trees
Cristina Molero-Río, Rafael Blanquero, Emilio Carrizosa, Dolores Romero Morales

2 - Stochastic DCA for group feature selection in multi-class classification
Bach Tran, Hoai An Le Thi, Hoai Minh Le, Duy Nhat Phan

3 - Class probability estimation for SVM with asymmetric costs
Sandra Benítez-Peña, Rafael Blanquero, Emilio Carrizosa, Pepa Ramírez-Cobo

4 - Some improvements of SVM and SVR for functional data
M. Asuncion Jimenez-Cordero, Rafael Blanquero, Emilio Carrizosa, Belen Martin-Barragan

■ MB-10

Monday, 10:30-12:00 - SOUTH BUILDING UV S110

Decision Aiding Methods II

Stream: Multiple Criteria Decision Aiding
Chair: *Salvatore Corrente*
Chair: *Milosz Kadzinski*

1 - Measuring sustainable development in the education domain using multi-criteria methods: a case study
Marzena Filipowicz-Chomko, Ewa Roszkowska

2 - Multi-criteria decision making methods: theoretical aspects & impossibility results
Chergui Zhor, Moncef Abbas

3 - On importance indices in multicriteria decision making
Mustapha Ridaoui, Michel Grabisch, Christophe Labreuche

4 - Rankings comparisons: the case of resilience assessment of countries' electricity supply
Marco Cinelli, Patrick Gasser, Milosz Kadzinski, Matteo Spada, Peter Burgherr, Stefan Hirschberg

■ MB-11

Monday, 10:30-12:00 - SOUTH BUILDING UV S111

DEA Theory I

Stream: DEA: Theory
Chair: *Timo Kuosmanen*

1 - BCC- and CCR-efficiencies under monoradial and biradial scaling
Andreas Kleine, Andreas Dellnitz, Wilhelm Rödder

2 - Efficiency measurement with products and partially desirable co-products
Wanghong Li

3 - Profitability and scale elasticity in data envelopment analysis
Alireza Amirteimoori

4 - Synergies in joint production of multiple outputs
Timo Kuosmanen

■ MB-12

Monday, 10:30-12:00 - SOUTH BUILDING UV S112

Fuzzy Optimization I

Stream: Fuzzy Optimization
Chair: *Dobrila Petrovic*

1 - A single variable method for solving min-max programming problem with addition-min fuzzy relational inequalities
Sy-Ming Guu, Yan-Kuen Wu

2 - New approach to forecast time series from a fuzzy point of view
Abel Rubio Fornés, José D. Bermúdez, Enriqueta Vercher

3 - A new fuzzy linear programming model for aggregate production planning for a supplier in the automotive industry
Ivan Djordjevic, Dobrila Petrovic

■ MB-13

Monday, 10:30-12:00 - SOUTH BUILDING UV S201

Supply Chain Management II

Stream: Supply Chain Management II
Chair: *Jonathan Balasingham*

1 - Service offerings via shipment consolidation in supply chain logistics
M. Ali Ülkü

2 - Operational optimization of a small scale LNG supply chain
Slawomir Pietrasz, Frédéric Legrand, Gabrielle Menard, Ksenia Goloubeva

3 - Order fulfillment policies for ship-from-store operations
Bahriye Cesaret, Armagan Bayram

4 - A model for online subscription based merchandise box operations
Jonathan Balasingham, Ayca Erdogan

■ MB-14

Monday, 10:30-12:00 - SOUTH BUILDING UV S202

Fixed Point Algorithms in Optimisation I

Stream: Nonlinear Programming: Methods
Chair: *Matthew Tam*

1 - The asymptotic behavior of compositions of firmly nonexpansive mappings
Adriana Nicolae

2 - Optimal rates of linear convergence of the averaged alternating modified reflections method for two subspaces
Rubén Campoy García, Francisco Javier Aragón Artacho

3 - Convergence properties of fixed point algorithms in the presence of perturbations
Rafal Zalas

4 - On projection methods for phase retrieval
Hieu Thao Nguyen

■ MB-15

Monday, 10:30-12:00 - SOUTH BUILDING UV S203

New Trends in Shared-connected and Low-emission Human and Freight Transportation Systems I

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Francesca Guerriero*
Chair: *Luigi Di Puglia Pugliese*
Chair: *Giusy Macrina*

1 - Efficient solutions for the vehicle routing problem with occasional drivers and time windows
Paola Festa, Daniele Ferone, Francesca Guerriero

2 - The online vehicle routing problem with occasional drivers
Giusy Macrina, Claudia Archetti, Francesca Guerriero

3 - A savings-based model for two-shipper cooperative routing
Giovanna Miglionico, Manlio Gaudioso, Giovanni Giallombardo

4 - Cooperation among classical vehicles and drones: new opportunities for last-mile delivery process
Luigi Di Puglia Pugliese, Francesca Guerriero

■ MB-16

Monday, 10:30-12:00 - SOUTH BUILDING UV S115

Social Networks: Community Detection and Information Propagation II

Stream: Network Optimization and Social Networks
Chair: *Mario Ruthmair*

1 - A parallel algorithm using VNS with shared memory and message passing interface for community detection in complex networks
Gilles Caporossi, Eglantine Camby, Sylvain Perron

2 - The expected distance based on random walks in graphs
Eglantine Camby, Gilles Caporossi, Marcia Paiva, Segatto Marcelo

3 - Exact IP-based approaches for the longest induced path problem
Dmytro Matsypura, Alexander Veremyev, Oleg Prokopyev, Eduardo Pasiliao

■ MB-17

Monday, 10:30-12:00 - SOUTH BUILDING UV S205

Accounting, Insolvency and Rating

Stream: Operational Research in Financial and Management Accounting
Chair: *Sascha H. Moells*

1 - Determinants of issuer credit ratings and the firm's decision to be rated: an international empirical study
Vladlena Prysyazhna, Sascha H. Moells

2 - Investment and financing decisions in the presence of time-to-build
Haejun Jeon

3 - Performance evaluation of two-stage distress models
Mohammd Mahdi Mousavi

4 - Corporate insolvency prediction model in short-term perpective: the case of Lithuania
Kristina Sutiene, Kestutis Luksys, Kristina Kundeliene

■ MB-18

Monday, 10:30-12:00 - SOUTH BUILDING UV S206

Linear Programming

Stream: Convex Optimization
Chair: *Pál Burai*

1 - Locating binding constraints in LP-problems
Eirini Nikolopoulou, George Manoussakis, George S. Androulakis

2 - Lipschitz modulus of the optimal value function in linear programming: the relationship with calmness modulus
Maria Jesús Gisbert Francés, Maria Josefa Cánovas, Juan Parra, F. Javier Toledo-Melero

3 - Interior point methods for power flow optimization problem including wind power generation
Luciana Casacio, Aurelio Oliveira, João Batista Lopes

4 - Matrix reordering and iterative methods for linear systems solving in interior point methods
Aurelio Oliveira, Wellington Rodrigues, Marta Velazco

■ MB-19

Monday, 10:30-12:00 - SOUTH BUILDING UV S207

Vector and Set-Valued Optimization II

Stream: Vector- and Set-Valued Optimization
Chair: *César Gutiérrez*

1 - On solving convex vector optimization problems
Andrea Wagner

2 - Time consistency of the mean-risk problem
Gabriela Kovacova, Birgit Rudloff

3 - Existence of approximate strict solutions of optimization problems
Juan Luis Ródenas, César Gutiérrez, Vicente Novo

4 - A Weierstrass theorem for weakly efficient solutions of vector equilibrium problems
César Gutiérrez, Vicente Novo, Juan Luis Ródenas

■ MB-20

Monday, 10:30-12:00 - SOUTH BUILDING UV S301

Group Decision Processes

Stream: Decision Analysis and Decision Support Systems
Chair: *Ricardo Ribeiro*

1 - A GDSS for evaluating the criteria weights in multicriteria decision analysis with PROMETHEE
Pierre Kunsch

2 - A novel recommendation approach for group items
Li-Ching Ma

3 - Participative design methodology for spatial data warehouse: application to farmland biodiversity data
Amir Sakka, Guy Camilleri, Lucile Sautot, Pascale Zaraté, Sandro Bimonte

4 - Enhancing efficiency on productive processes using process and social collaborations mining
Ricardo Ribeiro, Cesar Analide, Orlando Belo

■ MB-21

Monday, 10:30-12:00 - SOUTH BUILDING UV S303

Workforce Scheduling and Line Balancing I

Stream: Project Management and Scheduling
Chair: *Sergey Kovalev*

1 - Human resources scheduling problem in a port container terminal: workload balancing and movement minimization
Kaoutar Chargui, Abdelghani Bekrar, Abdellah El Fallahi, Mohamed Reghioui

2 - Assembly line worker assignment and balancing problem: review, benchmark and pending issues
Cristobal Miralles, Marcus Ritt, Alysson Costa, Mayron César Oliveira Moreira

3 - Decomposition methods for cost and tardiness reduction in aircraft manufacturing flow lines
Alexander Biele, Lars Moench

4 - An optimal workforce assignment problem for a paced assembly line at the line design stage
Sergey Kovalev, Xavier Delorme, Alexandre Dolgui, Mikhail Y. Kovalyov

■ MB-22

Monday, 10:30-12:00 - SOUTH BUILDING UV S304

Big Data Analytics and Smart Systems

Stream: Analytics, Data Science and Data Mining
Chair: *John Wilson*

1 - Implementation of exponential smoothing forecasting method in a GPU for big data problems
Juan Ramon Trapero Arenas, Marco Antonio Villegas García, Diego José Pedregal Tercero

2 - Prediction of frail state of elderlies in smart homes with simulation and sensor systems
Cyriac Azefack, Vincent Augusto, Raksmey Phan

3 - Development of anomaly detection and cause analysis of unmanned robot line
JaeYeol Hong, Jun-Geol Baek

4 - Dynamic modelling of software errors
John Wilson, Dov Teeni

■ MB-23

Monday, 10:30-12:00 - SOUTH BUILDING UV S305

Employee Timetabling

Stream: Timetabling
Chair: *Troels Martin Range*

1 - A behavioural operational research approach to workforce scheduling problem for integrated healthcare in UK: a case study on chronic kidney disease
Fang He

2 - Shift work scheduling of a 24/7 service operation considering staff well-being
Sanja Petrovic, Jane Parkin, David Wrigley

3 - A framework for the general employee scheduling problem
Lucas Kletzander, Nysret Musliu

4 - Hospital-wide staff rostering: from academia to implementation
Troels Martin Range

■ MB-24

Monday, 10:30-12:00 - SOUTH BUILDING UV S306

Financial Mathematics and OR II

Stream: Financial Mathematics and OR
Chair: *Michi Nishihara*

1 - A premium-decomposition refinement of valuing convertible bonds with continuous coupons
Toshikazu Kimura

2 - Equilibrium execution strategies in generalized price impact models
Makoto Simoshimizu, Masamitsu Ohnishi

3 - Financing and investment strategies under information asymmetry
Takashi Shibata, Michi Nishihara

4 - Bankruptcy, liquidation, and fire sales under asymmetric information
Michi Nishihara, Takashi Shibata

■ MB-25

Monday, 10:30-12:00 - SOUTH BUILDING UV S307

Economic and Financial Challenges in Cryptocurrencies

Stream: Fintech: Economic and Financial Challenges in Cryptocurrencies
Chair: *Marco Patacca*

1 - Risk analysis models for cyber insurance
Aitor Couce Vieira, David Rios

2 - Bitcoin rise and fall and market exuberance
Alessandra Cretarola, Gianna Figà-Talamanca

3 - Adequate modeling for the dynamics of cryptocurrencies
Oleg Kudryavtsev, Alexander Grechko, Vasily Rodochenko

4 - Does market attention affect Bitcoin returns and volatility?
Marco Patacca, Gianna Figà-Talamanca

■ MB-26

Monday, 10:30-12:00 - SOUTH BUILDING UV S308

Innovative Urban Mobility Concepts

Stream: Public Transportation I
Chair: *Konrad Steiner*

1 - The on-demand bus routing problem: towards a more performant public transport system
Lissa Melis, Kenneth Sörensen

2 - Smart public transportation services - Morocco case
Kenza Oufaska, Khalid El Yassini, Tarik Zouadi, Mustapha Oudani

3 - Shortest paths in public transportation networks with multiple APIs
Sean Shorten, Dominique Feillet, Alexandre Iglesias

4 - Integrating mobility-on-demand and urban public bus networks
Konrad Steiner, Stefan Irnich

■ MB-27

Monday, 10:30-12:00 - SOUTH BUILDING UV S309

Supplier Relationships

Stream: Production, Service and Supply Chain Management
Chair: *Nader Azad*

1 - After-sales emergency supply contracts with asymmetric information
Sajjad Rahimi Ghahroodi

2 - Supplier audit information sharing and responsible sourcing
Albert Ha

3 - Optimal investment decisions for recovery from disruptions in the decentralized supply chains
Nader Azad, Elkafi Hassini, Manish Verma

4 - Collaboration and coordination mechanism design and practice in sustainable supply chains
Amy Zeng

■ MB-28

Monday, 10:30-12:00 - SOUTH BUILDING UV S310

Multiple Classifier Systems and Applications I

Stream: Multiple Classifier Systems and Applications
Chair: *Pinar Karadayi Atas*

1 - A multi-criteria framework for ensemble learning
Nikolaos Matsatsinis, Theodore Flokos, Alkaios Sakellaris, Konstantina Miteloudi

2 - Building profit-sensitive classifiers for maximum profit
Eugen Stripling, Bart Baesens, Seppe vanden Broucke

3 - Analysis of healthcare service utilization by mixture of hidden Markov model
Nazanin Esmaili, Massimo Piccardi, Federico Girosi

4 - A novel ensemble pruning approach for ANN-based churn prediction ensemble models
Sureyya Ozogur-Akyuz, Koen W. De Bock, Pinar Karadayi Atas

■ MB-29

Monday, 10:30-12:00 - SOUTH BUILDING UV S311

Power and Influence Models

Stream: Game Theory, Solutions and Structures
Chair: *Josep Freixas*

1 - Classes of influence games
Xavier Molinero, Maria Serna

2 - Limit theorems for power indices
Sascha Kurz

3 - Power and bloc formation in a consociational democracy: lessons from the Lebanese republic
Frank Steffen, Mostapha Diss

4 - Extension and characterization of majority decision in a multiple-input multiple-output context
Josep Freixas, Montserrat Pons

■ MB-30

Monday, 10:30-12:00 - SOUTH BUILDING UV S312

Local search based metaheuristics

Stream: Metaheuristics
Chair: *Omer Ozkan*

1 - Ranking-based heuristic algorithm for competitive facility location
Algirdas Lančinskas, Pascual Fernandez, Blas Pelegrin, Julius Žilinskas

2 - Dynamic stochastic tourist trip design problem with clustered POI
Airam Expósito Márquez, Simona Mancini, Julio Brito, José Andrés Moreno-Pérez

3 - A computational study on the maximum dispersion problem
Mahdi Moeini

4 - A memetic algorithm based matheuristic for satellite broadcast scheduling problem
Omer Ozkan, Sezgin Kilic

■ MB-31

Monday, 10:30-12:00 - SOUTH BUILDING UV S313

Behavioural Impacts in OR-Supported Processes I

Stream: Behavioural OR
Chair: *Gilberto Montibeller*

1 - Online weight elicitation: is there really an issue?
Alice H. Aubert, Judit Lienert

2 - Individual differences in model comprehension and use: a study of cognitive styles and cognitive mapping
Ilkka Leppanen, L. Alberto Franco

3 - Attractiveness bias: how the decision situation influences the willingness-to-pay for information
Jan Lenard Rother, Christian Koester, Maximilian Vincent Reimer

4 - Behavioral challenges in policy analysis with conflicting objectives
Gilberto Montibeller

■ MB-32

Monday, 10:30-12:00 - SOUTH BUILDING UV S314

Supply Chains

Stream: Routing, Logistics, Location and Transportation
Chair: *Mojtaba Araghi*

1 - Scheduling of pick-up or delivery tasks for autonomous robots via dispatching rules
Azmi Cibi, Tahir Ozdemir, Inci Saricicek, Ahmet Yazici

2 - Coverage planning to account for acoustical properties associated with emergency warning sirens
Hiroyuki Goto, Alan Murray

3 - The impact of sustainable packaging used in land transfer operations
Cristian Camilo Aparicio Peralta, Ana Halabi Echeverry, Cesar Augusto Bernal-Torres

4 - Optimizing distribution and pricing strategy for a cold chain enhanced by sensor technologies
Mojtaba Araghi, Sara Babaee

■ MB-33

Monday, 10:30-12:00 - SOUTH BUILDING UV S315

Data Mining and Statistics I

Stream: Data Mining and Statistics
Chair: *Florian Hauck*

1 - Application of machine learning-for cost estimation in customized furniture production
Virginijus Marcinkevicius, Viktor Medvedev, Olga Kurasova, Tomas Vedlūga

2 - Machine learning based feeder bus routing design
So Young Sohn, Chung Park, Jungpyo Lee

3 - Hidden footage of fluid actors: the evolutionary process of memberships in online communities
Changwoo Suh, Habin Lee

4 - Railway delay analytics: a data-driven approach to identify systematic train delays and measure the quality of timetables
Florian Hauck, Natalia Kliewer

■ MB-34

Monday, 10:30-12:00 - SOUTH BUILDING UV S113

Pension Schemes and Risk Taking

Stream: Insurance and Pension Risk Management
Chair: *Massimiliano Menzietti*

1 - Peer effects in risk taking: evidence from Germany
Sophie-Madeleine Roth, Mark J. Browne, Annette Hofmann, Andreas Richter, Petra Steinorth

2 - Annuity risk management by longevity swaps in minimal Martingale measure
Tadashi Uratani

3 - Pension Schemes versus Real Estate
Valeria D Amato, Emilia Di Lorenzo, Steven Haberman, Marilena Sibillo, Roberto Tizzano

4 - Adjustment mechanisms for notional defined contribution pension systems
Susanna Levantesi, Massimiliano Menzietti

■ MB-48

Monday, 10:30-12:00 - 4D UPV B.3

Preparedness and Response in Disaster Logistics

Stream: Humanitarian Operations
Chair: *Sibel Salman*

1 - Minimizing latency in post-disaster road clearance operations
Meraj Ajam, Vahid Akbarighadikolaei, Sibel Salman

2 - Performance of alternative linear objective functions in effectiveness fairness trade-off
Gökalp Erbeyoğlu, Ümit Bilge

3 - A multi-stage stochastic programming model for disaster response planning
Damla Kesikburun, Roozbeh Qorbanian, Sinem Özkan, Deniz Türsel Eliiyi

4 - Improving post-disaster road network accessibility by strengthening links against failures
Eda Yücel, Sibel Salman, Idil Arsik

■ MB-49

Monday, 10:30-12:00 - 4D UPV B.4

IBM Research Applications II

Stream: IBM Research Applications
Chair: *Andrea Simonetto*

1 - Correlation of multidimensional risk factors for pricing water infrastructure insurance
Samuel Chege Maina, Nathan Wangusi

2 - Scenario planning for enterprise risk management
Mark Feblowitz

3 - A federated optimization approach to real-time urban-scale ridesharing
Andrea Simonetto, Julien Monteil, Claudio Gambella

■ MB-50

Monday, 10:30-12:00 - 4D UPV 1.1

OR for Developing Countries I

Stream: OR for Developing Countries
Chair: *Gordon Dash*
Chair: *Nina Kajiji*
Chair: *Herman Mawengkang*

1 - Impact of world heritage site designation on tourism industry growth in developing countries: the super slack-based Malmquist index approach
Seyedkeyvan Hosseini, Agnieszka Lejkowska

2 - Vaccination tour planning in remote areas of South India
Georg Gutjahr, Prema Nedungadi

3 - Social contact network models for measles control strategies in Tanzania
Seán McGarraghy, Herieth Rwezaura

4 - Efficiency assessment of smart sustainable cities based on network data envelopment analysis
Sadiye Sadanoglu

■ MB-51

Monday, 10:30-12:00 - 4D UPV 1.2

OR for Sustainable Built Environment

Stream: OR for Sustainable Development
Chair: *Tatjana Vilutiene*

1 - Optimum design of bridges considering long-term criteria
Tatiana Garcia-segura, Víctor Yepes, Eugenio Pellicer, Laura María Montalbán Domingo

2 - Integrated advanced technologies for sustainable BIM-based building refurbishment
Jovita Starynina, Leonas Ustinovichius, Mantas Vaisnoras

3 - Empirical study of BIM-based building life cycle: case of Net-UBIEP project
Tatjana Vilutiene, Arvydas Kiaulakis

■ MB-52

Monday, 10:30-12:00 - 4D UPV 1.3

Health Care Modelling (ORAHS) I

Stream: OR for Health and Care I
Chair: *Sally Brailsford*

1 - **Patient flow model for the EMS in the Netherlands**
Geert-Jan Kommer

2 - **Developing a simulation tool to support decisions around the commissioning of anticoagulation services for patients with atrial fibrillation**
Christos Vasilakis, Neophytos Stylianou

3 - **Medication inventory management for automatic dispensing systems**
Vera Tilson, Gregory Dobson

4 - **Hybrid simulation for healthcare**
Sally Brailsford

■ MB-53

Monday, 10:30-12:00 - 4D UPV 1.4

Quality Control Applications

Stream: OR in Quality Management
Chair: *Javier Neira Rueda*

1 - **A metaheuristic method for quality control chart design under autonomation**
U. Mahir Yıldırım, Ozgur Toy

2 - **Showing the impact of processes improvements on the performance of Khorasan Regional Electricity Company (Mashhad, Iran) using the six sigma strategy**
Khatere Ghorbani-Moghadam, Narjes Sabeghi, Ladan Behroozi, Hamid Reza Yousefzadeh

3 - **Control charts for highly censored observations on the left. A contribution to processes with censored observations**
Javier Neira Rueda, Andrés Carrión

■ MB-54

Monday, 10:30-12:00 - 4D UPV 1.6

Multiobjective Decision Support

Stream: Energy Economics, Environmental Management and Multicriteria Decision Making
Chair: *Jochem Jonkman*

1 - **A multi-objective methodology applied to decision support for high-pressure thermal processes in food treatment**
Benjamin Ivorra, Miriam Ruiz Ferrández, Juana Lopez Redondo, Pilar M. Ortigosa, Angel Manuel Ramos

2 - **Multi-objective optimization for metering device location in water supply networks**
Joaquín Izquierdo, Jorge Francés-Chust, Manuel Herrera, Idel Montalvo Arango

3 - **A goal-programming model for the WEEE recovery operations planning**
Sule Itir Satoglu, Alperen Bal

4 - **Decision support modelling for food processing chains**
Jochem Jonkman, Jacqueline Bloemhof, Albert van der Padt

■ MB-55

Monday, 10:30-12:00 - 4D UPV 2.1

Measuring Impact of OR projects...and Beyond!

Stream: Making an Impact I
Chair: *Matteo Pozzi*

1 - **Measuring impact of OR projects...and beyond!**
Matteo Pozzi

■ MB-56

Monday, 10:30-12:00 - 4D UPV 2.2

Optimization in Renewable Energy Systems I

Stream: Optimization in Renewable Energy Systems
Chair: *Adelaide Cerveira*

1 - **Techno-economic and environmental efficiency in electricity generation in Latin America: a dual DEA approach**
Felipe Henao, Julián Benavides, Juan Pablo Viteri

2 - **The net demand methodology applied to wind power generation series in a long-term energy planning context**
Fernando Luiz Cyrino Oliveira, Paula Maçaira, Yasmin Cyrillo, Reinaldo Souza, Gustavo Amador

3 - **Energy markets: methods for optimization of transport infrastructure**
Olesya Grigoreva, Alexander Vasin

4 - **Optimizing the design of wind farms with ditch sharing**
Adelaide Cerveira, Amaro de Sousa, Eduardo Pires, José Baptista

■ MB-57

Monday, 10:30-12:00 - 4D UPV 2.3

Algorithms for Sequencing

Stream: Computational Biology, Bioinformatics and Medicine
Chair: *Aleksandra Swiercz*

1 - **Combinatorial models for biomolecule structure alignment**
Piotr Lukasiak

2 - **Operator assignment in parallel assembly cells with cell loading and product sequencing**
Yiyo Kuo, Yen-Po Chen, Yu Cheng Wang

3 - New validation methods for complex biological systems analysis based on time-dependent Petri nets
Jakub Olszak, Marcin Radom, Piotr Formanowicz

4 - An OLC approach to De Novo assembly - GRASShopPER assembler
Aleksandra Swiercz, Wojciech Frohmberg, Michal Kierzynka, Pawel Wojciechowski, Piotr Zurkowski, Jan Badura, Artur Laskowski, Marta Kasprzak, Jacek Blazewicz

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■ MB-58

Monday, 10:30-12:00 - 4D UPV 2.4

OR in Regular Study Programs

Stream: OR Education
Chair: *Gerhard-Wilhelm Weber*

1 - Econometric modeling of the determinants of academic achievement of students of a university in Chile
Hanns de la Fuente-Mella, Laura Villalón

2 - Language at home and student math performance in tertiary education: evidence from a German case study
Nora Dörmann, Horst Entorf

3 - Voice recognition algorithm applied to processes of authentication in distance education
Guadalupe Pascal, Julián E. Tornillo, Oscar M. Pascal, Javier M. Moguerza, Andrés Redchuk

4 - Master's degree program on game theory and operations research
Yaroslavna Pankratova, Leon Petrosyan, Elena Gubar

■ MB-59

Monday, 10:30-12:00 - 4D UPV 2.5

OR Advances in Agri-Food Systems

Stream: OR Advances in Agribusiness
Chair: *Jorge E. Hernández*
Chair: *Leandro Antonelli*

1 - A decision support model integrating quality data in fresh food supply chains
Magdalena Leithner, Christian Fikar

2 - How to support decision making processes in agribusiness through the GRUS system
Pascale Zaraté, Amir Sakka

3 - The use of glossaries to define consistent models on agricultural contexts
Leandro Antonelli, Alejandro Fernández, Jorge E. Hernández

4 - Mathematical models of food security
Natalia Meshcheryakova, Fuad Aleskerov, Sergey Shvydun

■ MB-60

Monday, 10:30-12:00 - 4D UPV B.5

Meet the editors ITOR

Stream: EURO Special Sessions
Chair: *Celso Ribeiro*

1 - Meet the Editors - International Transactions in Operational Research (ITOR)
Celso Ribeiro, Kenneth Sörensen, Luk Van Wassenhove, M. Grazia Speranza

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Monday, 12:30-14:00

■ MC-01

Monday, 12:30-14:00 - UPV Nexus

Systems Modeling Impacting Policy: The Role Of Group Model Building In Cambodia

Stream: Keynotes
Chair: *Christos Vasilakis*

1 - Systems Modeling Impacting Policy: The Role Of Group Model Building In Cambodia
David Matchar

■ MC-02

Monday, 12:30-14:00 - SOUTH BUILDING UV S101

Manufacturing Scheduling

Stream: Scheduling Practice
Chair: *Francesco Aggogeri*

1 - A deep learning approach for dispatching problems in large flexible manufacturing systems
Cheng-Hung Wu, Fang-Yi Zhou, Cheng-Juei Yu

2 - Scheduling jobs to minimize makespan in a multiple product permutation flow shop with intermingling and learning effects
Şeyda Ilgaz, Gultekin Kuyzu, Salih Tekin

3 - A multi-objective invasive weed optimization algorithm for a tri-objective dual-resource constrained flexible job shop scheduling problem
Shima Javanmard, Sasan Barak, Seyed Taghi Akhavan Niaki

4 - Prognostics based robust design to strengthen mechanical system functionalities
Francesco Aggogeri, Angelo Merlo, István Németh, Nicola Pellegrini, Alberto Borboni, Amit Eytan, Claudio Taesi

■ MC-03

Monday, 12:30-14:00 - SOUTH BUILDING UV S103

Hub Location

Stream: Location Analysis and Optimization
Chair: *Gabriel Luque*

1 - A p-hub covering location problem with elastic demand
Armin Lüer-Villagra, Víctor Larrea-Chiriboga, German Paredes-Belmar, Vladimir Marianov

2 - A bilevel dynamic maximal hub location problem for freight transportation
Roghayyeh Alizadeh, Tatsushi Nishi

3 - A new mathematical model for multiple allocation tree-of-hubs location problem
Betul Kayisoglu, İbrahim Akgün

4 - Anytime algorithms for multi-objective hub location problems
Gabriel Luque, Enrique Dominguez, Francisco Chicano, Ana Belen Ruiz

■ MC-04

Monday, 12:30-14:00 - SOUTH BUILDING UV S104

Dynamic and Stochastic Scheduling in Production

Stream: Dynamic and Stochastic Scheduling
Chair: *Alejandro Arbelaez*

1 - Stochastic scheduling of parallel machines under processing time variability
İbrahim Akgün, Selçuk Gören, Rahime Şeyma Bekli, Muhammed Sutcu

2 - DQN-based dispatching method for unmanned production line composed of multiple CNC machines
Kyuchang Chang, Jun-Geol Baek

3 - Multi-objective optimization of job shop scheduling with risk of stablity
Shudong Sun

4 - Online scheduling of combinatorial problems
Alejandro Arbelaez, Robinson Duque, Juan F. Diaz

■ MC-05

Monday, 12:30-14:00 - SOUTH BUILDING UV S105

Heuristics for Salesman and Postman Problems

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Miguel Reula Martín*

1 - A variable neighborhood search with tabu conditions for the roaming salesman problem
Masoud Shahmanzari, Deniz Aksen

2 - Picker routing in AGV-assisted order picking systems
Maximilian Löffler, Nils Boysen, Christoph Glock, Michael Schneider

3 - A solution method for the traveling salesman problem (TSP) using five sequential deterministic heuristic algorithms
Luis Moreno, Javier Diaz, Julian Gonzalez

4 - A heuristic algorithm for the distance-constrained generalized directed rural postman problem
Miguel Reula Martín, Angel Corberan, Jose Maria Sanchis, Isaac Plana

■ MC-06

Monday, 12:30-14:00 - SOUTH BUILDING UV S106

Consumer Behavior and Pricing II

Stream: Demand and Supply Management in Retail and Consumer Goods
Chair: *Winfried Steiner*

1 - Dynamic pricing strategies for perishable products
Cansu Altintas, Shaunak Dabadghao, Zumbul Atan, Tarkan Tan

2 - Influencing consumer shopping behavior by expiration date based pricing of fresh products
René Haijema

3 - The effects of a promotion on store traffic, conversion, and consumer expenditures: evaluation with a prediction approach
Leonardo Epstein, Ignacio Inostroza-Quezada

4 - A data mining approach to predict e-commerce customer behavior
Ebru Dilara Arslan, Büşra Altunan, Merve Seyis, Merve Birer, Fadime Üney-Yüksektepe

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■ MC-07

Monday, 12:30-14:00 - SOUTH BUILDING UV S107

Analytic Hierarchy Process III

Stream: Analytic Hierarchy Process / Analytic Network Process
Chair: *Petr Fiala*

1 - Sustainable fixed capital's budget allocation by applying the P&S method
Majid FathiZahraei, Abolfazl Yari, Azita Asadi

2 - Determination of electric bus technology to improve the public transportation using AHP-TOPSIS methods
Mustafa Hamurcu, Tamer Eren

3 - Selection of gas mask using an integrated intuitionistic fuzzy AHP and TOPSIS (IF-AHP&TOPSIS) method: a case study
Elif Kilic Delice, Tuba Adar

4 - Dynamic supply network analysis by DEMATEL and ANP
Petr Fiala

■ MC-08

Monday, 12:30-14:00 - SOUTH BUILDING UV S108

Optimal Location Problems

Stream: Combinatorial Optimization I
Chair: *Ivana Ljubic*

1 - An exact algorithm for the perfect edge domination problem
Abilio Lucena

2 - Cost and fairness optimization in facility location
Carlo Filippi, Gianfranco Guastaroba, M. Grazia Speranza

3 - Benders decomposition for covering location problems
Ivana Ljubic, Jean-François Cordeau, Fabio Furini

■ MC-09

Monday, 12:30-14:00 - SOUTH BUILDING UV S109

The Role of Mathematical Optimization in Data Science III

Stream: European Working Group: Data Science Meets Optimization
Chair: *Philipp Baumann*

1 - An optimization model for credit score based offer management in telecommunication sector
Ayse Seda Yavuz, Erinc Albey

2 - A matheuristic for binary classification of data sets using hyperboxes
Derya Akbulut, Cem Iyigün, Nur Evin Ozdemirel

3 - Particle swarm optimization based regression
Donghee Yoon, SeJoon Park, Nagyoon Song, Suemin Kim, Dohyun (Norman) Kim

4 - Scaling up similarity-based machine learning models: new geometric algorithms for sparse computation
Philipp Baumann, Dorit Hochbaum, Quico Spaen

■ MC-10

Monday, 12:30-14:00 - SOUTH BUILDING UV S110

Decision Aiding Methods III

Stream: Multiple Criteria Decision Aiding
Chair: *Salvatore Corrente*
Chair: *Milosz Kadzinski*

1 - Ranking sensitivity-based importance measures in multi-outputs models
Claudio Miguel Rocco

2 - Value-focused thinking and multi-criteria group decision making for systematically valuing the energy transition
Tim Hoefer, Rüdiger von Nitzsch, Reinhard Madlener

3 - A study on the anonymity of individual preferences in group decision making
Matteo Brunelli

4 - Multiobjective models for planning problems
Maria Barbati, Salvatore Corrente, Salvatore Greco

■ MC-11

Monday, 12:30-14:00 - SOUTH BUILDING UV S111

DEA Theory II

Stream: DEA: Theory
Chair: *Wen-Chih Chen*

1 - Efficiency and performance assessment in DEA technique with time series data
Zohreh Moghaddas, Mohsen Vaez-Ghasemi

2 - Competitive pricing using efficient frontier
Alireza Davoodi

3 - A novel two-stage double bootstrapped I-distance global assurance region DEA model
Milan Radojicic, Gordana Savic, Veljko Jeremic

4 - DEA performance evaluation with a dual-role factor
Wen-Chih Chen

■ MC-12

Monday, 12:30-14:00 - SOUTH BUILDING UV S112

Fuzzy Optimization II

Stream: Fuzzy Optimization
Chair: *Manuel Díaz-Madroñero*

1 - Divergence measures under imprecision
Susana Montes, Ignacio Montes, Ángel Riesgo

2 - Mathematical properties and possible applications of IFS-IBA approach
Pavle Milosevic, Aleksandar Rakicevic, Ana Poledica, Bratislav Petrovic

3 - Computational methods for constructing a group ranking from uncertain data
María Luisa Martínez, Esther Dopazo, Mauricio Ruiz-Tagle

4 - Reducing costs by using fuzzy techniques in inventory management
Ester Guijarro, Eugenia Babiloni, Maria J. Canos, Lourdes Canos, Vicente Liern

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■ MC-13

Monday, 12:30-14:00 - SOUTH BUILDING UV S201

Supply Chain Management III

Stream: Supply Chain Management II
Chair: *Ileana Perez*

1 - Competitive and cooperative decisions in distribution network
Natalia Nikolchenko, Nikolay Zenkevich

2 - How should your supply chain adjust with product innovation?
Mojtaba Mahdavi, Tava Olsen

3 - Modeling and simulation of supply chains with different risk attitudes from participants by using Petri nets
Biljana Panić, Dragana Makajic-Nikolic, Maja Hadziahmetović, Mirko Vujosevic

4 - Improving decisions in inventory management: a solution supported by teamwork- ABC-AHP
Ileana Perez, Julian Arias, Daniela Gallego, Rocio Poveda-Bautista

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■ MC-14

Monday, 12:30-14:00 - SOUTH BUILDING UV S202

Fixed Point Algorithms in Optimisation II

Stream: Nonlinear Programming: Methods
Chair: *Matthew Tam*

1 - An enhanced formulation for successfully solving graph coloring problems with the Douglas–Rachford algorithm
Francisco Javier Aragón Artacho

2 - Fixed point iterations in the context of nonnegative matrix factorization
Patrick Groetzner

3 - The steepest descent method for computing Riemannian center of mass on Hadamard manifolds
João Carlos Souza, Glaydston de Carvalho Bento, Sandro Dimy Barbosa Bitar, João Xavier da Cruz Neto, Paulo Oliveira

4 - Union nonexpansive operators and applications
Matthew Tam

■ MC-15

Monday, 12:30-14:00 - SOUTH BUILDING UV S203

New Trends in Shared-connected and Low-emission Human and Freight Transportation Systems II

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Francesca Guerriero*
Chair: *Luigi Di Puglia Pugliese*
Chair: *Giusy Macrina*

1 - Optimizing vehicle relocations in one-way electric carsharing systems
Maurizio Bruglieri, Fabrizio Marinelli, Ornella Pisacane

2 - Impact of battery state of charge on cost optimal routes for hybrid and plug-in electric vehicles
Simgenil Arslan, Orkun Karabasoglu

3 - An exact approach for routing a fleet of green vehicles with capacitated fuel stations
Simona Mancini, Maurizio Bruglieri, Ornella Pisacane

4 - A column generation approach for an emission minimizing vehicle routing problem
Martin Behnke

■ MC-16

Monday, 12:30-14:00 - SOUTH BUILDING UV S115

Network Optimization

Stream: Network Optimization and Social Networks
Chair: *Markus Leitner*

1 - Efficient algorithms for the budget-constrained minimum cost flow problem
Clemens Thielen, Michael Holzhauser, Sven Krumke

2 - Benders cut-and-solve: a versatile tool for network optimization
Carlos Zetina, Ivan Contreras, Jean-François Cordeau

3 - An exact resolution method based on adaptive partitions for the stochastic fixed charge multicommodity flow problem
Cristian David Ramirez Pico, Eduardo Moreno

4 - Variables aggregation and Benders decomposition for solving large-scale extended formulations
Markus Leitner, Bernard Fortz

■ MC-17

Monday, 12:30-14:00 - SOUTH BUILDING UV S205

Stochastic Optimization Problems - Theory and Applications

Stream: Stochastic and Robust Optimization
Chair: *Milos Kopa*

1 - Multistage multivariate nested distance: an empirical analysis
Sebastiano Vitali, Milos Kopa, Vittorio Moriggia

2 - Dynamic model of market with uninformed market maker
Martin Smid, Milos Kopa

3 - Pharmaceutical R&D pipeline management under uncertainty
Elvan Gokalp, Juergen Branke

4 - Stochastic optimization with endogenous randomness - contamination techniques
Milos Kopa

■ MC-18

Monday, 12:30-14:00 - SOUTH BUILDING UV S206

Theoretical Investigations in Convex Optimization

Stream: Convex Optimization
Chair: *Attila Gilanyi*

1 - Cyclically antimonotone vector equilibrium problems
Mihaela Berchesan(Miholca)

2 - generalized derivatives of the optimal value of a linear program with respect to matrix coefficients
Daniel De Wolf

3 - Bilinear programming: a robust optimization perspective
Ahmadreza Marandi, Jianzhe Zhen, Dick den Hertog, Lieven Vandenberghe

4 - Bernstein–Doetsch type theorems for set-valued functions
Attila Gilanyi, Carlos Gonzalez, Kazimierz Nikodem, Zsolt Pales

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■ MC-19

Monday, 12:30-14:00 - SOUTH BUILDING UV S207

Vector and Set-Valued Optimization III

Stream: Vector- and Set-Valued Optimization
Chair: *Marius Durea*

1 - Necessary conditions in set optimization
Truong Q. Bao

2 - On the stability of the directional regularity
Marian Dumitru Pantiruc

3 - Henig efficiency in vector optimization problems with variable ordering structure
Elena-Andreea Florea, Marius Durea, Radu Strugariu

4 - Optimality conditions and a barrier method in convex optimization without convex representation
Marius Durea

■ MC-20

Monday, 12:30-14:00 - SOUTH BUILDING UV S301

Advances in Modeling Uncertainty and Incomplete Preference Information

Stream: Decision Analysis and Decision Support Systems
Chair: *Eeva Vilkkumaa*

1 - Preferences in spatial decision making
Jay Simon, L. Robin Keller

2 - Spatial multi-attribute decision analysis: axiomatic foundations and incomplete preference information
Juuso Liesiö, Mikko Harju, Kai Virtanen

3 - A portfolio approach for optimizing safety measures in dynamic Bayesian networks
Alessandro Mancuso, Michele Compare, Ahti Salo, Enrico Zio

4 - Scenario-based multicriteria portfolio model for building a robust and proactive strategy
Eeva Vilkkumaa, Petri Rikkinen, Juuso Liesiö

■ MC-21

Monday, 12:30-14:00 - SOUTH BUILDING UV S303

Workforce Scheduling and Line Balancing II

Stream: Project Management and Scheduling
Chair: *Evgeny Gurevsky*

1 - A new mathematical formulation with search-space reduction techniques for the multi-manned assembly line balancing problem
Adalberto Sato Michels, Thiago Cantos Lopes, Celso Gustavo Stall Sikora, Leandro Magatão

2 - Supplying assembly lines: a case study
Aida Saez-Mas, Angel Ruiz, José P. Garcia-Sabater, Julio J. Garcia-Sabater

3 - Mixed model sequencing in two-sided assembly lines
Mary Kurz, Anas Al-Ghazi

4 - Optimality-based cuts generation for robust balancing of paced production lines with blocks of uncertain parallel tasks and space restrictions
Aleksandr Pirogov, Evgeny Gurevsky, André Rossi, Alexandre Dolgui

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■ MC-22

Monday, 12:30-14:00 - SOUTH BUILDING UV S304

Efficient Algorithms for Optimization Problems

Stream: Multiobjective Optimization
Chair: *Pascal Halffmann*

1 - Scalarization in vector optimization with arbitrary domination sets
Petra Weidner

2 - Column generation in biobjective linear programming
Andrea Raith, Siamak Moradi, Matthias Ehrgott

3 - The job sequencing and tool switches problem: properties of its solution and bounds
Horacio Yanasse

4 - Can we approximate a weight set decomposition?
Pascal Halffmann, Stefan Ruzika

■ MC-23

Monday, 12:30-14:00 - SOUTH BUILDING UV S305

Shift and Task Scheduling

Stream: Timetabling
Chair: *Ferdinand Becker*

1 - A column generation approach for the shift design and rostering problem in airport ground handling
Joost van Twist, Murat Firat, Cor Hurkens

2 - A rough set approach to the multinational chain multi-skilled staff scheduling problem with supporting cooperation
Teng-Sheng Su

3 - Staff rostering for check-in counters with both period-based and task-based demands
Lishun Zeng, Mingyu Zhao, Shuai Tian

4 - Planning cross-docking operations - integrating truck and workforce scheduling
Ferdinand Becker, Hagen Salewski, Hans Corsten

■ MC-24

Monday, 12:30-14:00 - SOUTH BUILDING UV S306

Financial Mathematics and OR III

Stream: Financial Mathematics and OR
Chair: *Masanori Ozawa*

1 - High frequency sampling and international continuous-time stochastic processes
A. Can Inci

2 - CPPI-STAR: triggered insurance portfolio strategies with time varying multiples based on regime switching asset dynamics
Jean-Luc Prigent, Hachmi Ben Ameur, Fredj Jawadi, Farid Mkaouar

3 - Exploring negative variance in logistics cost for FMCG e-tailer in India
Nilanjan Chattopadhyay

4 - A risk evaluation of the Japanese public pension and the long-term personal pension
Masanori Ozawa, Michael Krause

■ MC-25

Monday, 12:30-14:00 - SOUTH BUILDING UV S307

Model-based Decision Support

Stream: Combinatorial Optimization II
Chair: *Jan van Vuuren*

1 - Simulating the movement of forcibly displaced Syrians using agent-based modelling
Christa de Kock, Brian van Vuuren, Sara S Grobbelaar

2 - Planning model of machinists' work in passenger trains
Izabela Dziaduch, Pawel Hanczar

3 - An exact tree search algorithm for the hot sheet stacking problem
Philipp Fath, David Sayah, Stefan Nickel

4 - Model-based decision support for subjective preference selection
Johan Kellermann, Jan van Vuuren

■ MC-26

Monday, 12:30-14:00 - SOUTH BUILDING UV S308

Network Design and Equilibrium Concepts in Transportation and Location

Stream: Public Transportation I
Chair: *Claus Gwiggner*

1 - Public network design with analytical Benders cuts
Arthur Mahéo, Robin Pearce, Michael Forbes

2 - Route planning for fixed route transit by maximizing OD flow capture
Daisuke Hasegawa, Tsutomu Suzuki

3 - Modelling inbound demand and congestion with Poisson and pre-scheduled random arrivals
Carlo Lancia

4 - Descriptive analysis of sequential location games
Claus Gwiggner

■ MC-27

Monday, 12:30-14:00 - SOUTH BUILDING UV S309

Simulation Models

Stream: Production, Service and Supply Chain Management
Chair: *Dimitris Zissis*

1 - Towards quantitative risk evaluation for supply chains
Birgit Mösl, Dietmar Neubacher, Nikolaus Furian

2 - Simulating storage policies for an automated grid-based warehouse system
Michaela Wissing, Kevin Tierney, Christoph Weskamp

3 - A hybrid simulation based approach to optimize organizational structures of maintenance operations
Nikolaus Furian, Dietmar Neubacher, Clemens Gutschi

4 - Coordination in decentralized models through multi-stage games
Dimitris Zissis, Panagiotis Kyriazis, George Ioannou, Apostolos Burnetas

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■ MC-28

Monday, 12:30-14:00 - SOUTH BUILDING UV S310

Multiple Classifier Systems and Applications II

Stream: Multiple Classifier Systems and Applications
Chair: *Koen W. De Bock*

1 - Unsupervised feature selection for autoencoder
Suemin Kim, Donghee Yoon, Dohyun (Norman) Kim

2 - Segmentation of media users according to life value
Kuratomo Oyo, Takako Yamada, Hiroaki Sandoh

3 - Automatic forecasting support system for business analytics applications based on unobserved components models
Diego José Pedregal Tercero, Marco Antonio Villegas García, Diego Villegas

4 - Measuring customer lifetime value with a zero-inflated inverse Gaussian model
Mee Chi (Meko) So, Christine Currie, Christopher Bayliss

■ MC-29

Monday, 12:30-14:00 - SOUTH BUILDING UV S311

Game Theoretical Models and Applications I

Stream: Game Theory, Solutions and Structures
Chair: *Joaquin Sánchez-Soriano*

1 - Measurement of indirect control in corporate shareholding structures
Izabella Stach, Cesarino Bertini, Gianfranco Gambarelli, Jacek Mercik

2 - The pairwise egalitarian contribution set for multi-choice transportation games
Natividad Llorca, Mariana Rodica Branzei, Elisabeth Gutierrez, Joaquin Sánchez-Soriano

3 - Tax federalism and cooperative games
Emilio Calvo

4 - Profit allocation in transportation systems under bounded rationality
Joaquin Sánchez-Soriano, Natividad Llorca

■ MC-30

Monday, 12:30-14:00 - SOUTH BUILDING UV S312

Neighbourhood search

Stream: Metaheuristics
Chair: *Adolfo Urrutia Zambrana*

1 - A biased-randomized iterative variable neighborhood descent to solve the integrated hybrid flow-shop and vehicle routing problem
Leandro Martins, Sara Hatami, Eliana Maria Gonzalez-Neira, Angel A. Juan, Jairo R. Montoya-Torres

2 - Consistent neighborhood search for two-dimensional vector packing
Mirsad Buljubasic, Michel Vasquez

3 - Large neighborhood search algorithm for buffer allocation problem
Mehmet Ulaş KoyuncuoĞlu, Leyla Demir

4 - On the tourist itinerary creation: a variable neighborhood search for solving the generalized orienteering problem
Adolfo Urrutia Zambrana, Gregorio Tirado, Alfonso Mateos

■ MC-31

Monday, 12:30-14:00 - SOUTH BUILDING UV S313

Descriptive Studies of Decision Making

Stream: Behavioural OR
Chair: *Konstantinos Katsikopoulos*

1 - **The use of round numbers in preference representation**
Ewa Roszkowska, Gregory Kersten, Tomasz Wachowicz

2 - **Simple methods of portfolio decision making: what do we lose and what do we gain?**
Ian Durbach

3 - **The attention economy of online search: a natural experiment**
Shashwat Pande, Christopher Holland, Konstantinia Papamichail, Peter Kawalek

4 - **One-reason decision making!?**
Konstantinos Katsikopoulos, Ozgur Simsek, Jan Malte Lichtenberg, Gregory Wheeler

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■ MC-32

Monday, 12:30-14:00 - SOUTH BUILDING UV S314

Maritime Transportation

Stream: Routing, Logistics, Location and Transportation
Chair: *Anisa Rizvanolli*

1 - **The traffic assignment problem (TAP) on lattice and circular network geometries**
Sam O'Neill, Ovidiu Bagdasar, Stuart Berry, Nicolae Popovici

2 - **Uncertainty in maritime inventory routing problem: comparing approaches**
Filipe Rodrigues

3 - **Strategic planning of dry port-based distribution systems**
Jenn-Rong Lin, Andrew Andrew, Emrah Demir, Anthony Beresford

4 - **Vessel crew scheduling in ship management: a modelling approach**
Anisa Rizvanolli, Ole John

■ MC-33

Monday, 12:30-14:00 - SOUTH BUILDING UV S315

Data Mining and Statistics II

Stream: Data Mining and Statistics
Chair: *Kemal Özkan*

1 - **Comparison of machine learning classification algorithms performances in consumer credit-risk scoring**
Mervan Aksu

2 - **Data analytics for value determination: an application on data for aircraft spare parts**
Clemens Wickboldt, Natalia Kliewer, Natalia Kliewer

3 - **Dependence-biased conditional permutation importance for variable selection**
Gianluca Gazzola, Myong-Kee Jeong

4 - **Optimized parameters for bell-shaped error function in recommender system**
Kemal Özkan, Seke Erol, Yusuf Kartal, Tolga Ünal, Mahmut Kasap

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■ MC-34

Monday, 12:30-14:00 - SOUTH BUILDING UV S113

Numerical and Simulation Methods in Finance I

Stream: Numerical and Simulation Methods in Finance
Chair: *Gordon Dash*

1 - **Practical considerations for credit price optimisation**
Marius Smuts, Fanie (SE) Terblanche

2 - **Forecasting crude oil futures prices using global macroeconomic news sentiment**
Paresh Date, Zryan Sadik, Gautam Mitra

3 - **Hedging home price risks**
William Mingyan Cheung, Li Bao, Stephan Unger

4 - **Modeling statewide 2018 tax-induced regime shifts through artificial intelligence and big data analytics**
Nina Kajiji, Gordon Dash, Domenic Vonella

■ MC-48

Monday, 12:30-14:00 - 4D UPV B.3

Practice-Based Research in Humanitarian Logistics

Stream: Humanitarian Operations
Chair: *Harwin De Vries*

1 - **Donation management for menu planning at soup kitchens**
Marjolein Buisman, René Haijema, Renzo Akkerman, Jacqueline Bloemhof

2 - **Location planning and inventory management of emergency medical centers for post-disaster**
Mehmet Kursat Oksuz, Sule Itir Satoglu

3 - **Design of water supply networks and source selection for slums by using mixed-integer programming**
Lea Rausch, John Friesen, Peter Pelz

4 - **Do optimization models for humanitarian operations need a paradigm shift? The case of evidence-based vehicle planning**
Harwin De Vries, Luk Van Wassenhove

■ MC-49

Monday, 12:30-14:00 - 4D UPV B.4

Moments in History of OR

Stream: Moments in History of OR
Chair: *Graham Rand*
Chair: *Gerhard-Wilhelm Weber*

1 - **La Nova Scientia: rewriting the history of operational research**
Roberto Rossi

2 - **Design of decision support systems for large infrastructure projects: a review**
Carolina Toczycka

3 - **Sixty years of European OR conferences: a UK perspective**
Graham Rand

■ MC-50

Monday, 12:30-14:00 - 4D UPV 1.1

OR for Developing Countries II

Stream: OR for Developing Countries
Chair: *Herman Mawengkang*

1 - **An optimization model for planning and scheduling of seafood product with quality traceability in Aceh province of Indonesia**
Devy Mathelinea, Herman Mawengkang

2 - **An integer optimization model for managing industries hazardous waste disposal**
Avery Boy Detinty, Herman Mawengkang

3 - **A combined approach for solving a scheduling problem in periodic heterogeneous vehicle routing problems**
Ellis Mardiana Panggabean, Herman Mawengkang

4 - **An optimal decision model for hospital capacity management planning problem**
Suryati Sitepu, Herman Mawengkang

■ MC-51

Monday, 12:30-14:00 - 4D UPV 1.2

Circular Supply Chains

Stream: Environmental Sustainability in Supply Chains
Chair: *Gerald Reiner*

1 - **Sustainable sourcing with recycled materials: a contribution towards circular economy**
Patricia Rogetzer, Lena Silbermayr, Werner Jammernegg

2 - **Responsible supply chain decision making considering circularity**
Boualem Rabta, Gerald Reiner

3 - **When remanufacturing meets product quality improvement: the impact of production cost**
Weihua Zhang, Gendao Li, Marc Reimann

4 - **Transition to circular supply chains induced by new business models**
Gerald Reiner, Stefan Gold, Boualem Rabta, Tanja Olip

■ MC-52

Monday, 12:30-14:00 - 4D UPV 1.3

Health Care Modelling (ORAHS) II

Stream: OR for Health and Care I
Chair: *Kursad Bilgili*

1 - **Analytics in prioritizing access to hepatitis C treatment in U.S. prisons**
Turgay Ayer

2 - **Using simulation modelling for evaluating a national colorectal cancer screening programme in Chile**
Richard Guerrero-Ludueña

3 - **Foodborne transmission mechanisms for norovirus: a study for the UK's food standards agency**
David Lane, Elke Husemann, Darren Holland, Abdul Khaled

4 - **A simulation based decision support toolkit for informing the management of patients with diabetes**
Kursad Bilgili, Eren Demir, Reda Lebcir, Anne Kilvert, Jonathan Rippen, Eileen Richardson

■ MC-53

Monday, 12:30-14:00 - 4D UPV 1.4

Demand and Supply Management

Stream: Operations/Marketing Interface
Chair: *Yongbo Xiao*

1 - **Push, pull, and supply chain risk averse attitude**
Jian Chen

2 - **Quality information disclosure strategies in a supply chain with duopoly retailers**
Xiaosong Ding, Jihong Zhang, Jianbo Xu

3 - **A new framework for naval inventory models**
Javier Salmeron, Duncan Ellis

4 - **Dynamic pricing in a trade-in program with replacement and new customers**
Yongbo Xiao, Jian Chen

■ MC-54

Monday, 12:30-14:00 - 4D UPV 1.6

Business Models, Policies and Customers

Stream: Energy Economics, Environmental Management and Multicriteria Decision Making
Chair: *Davide Vurchio*

1 - **Environmental performance of servicizing and selling business models**
Mehmet Ali Kanatlı, Ozgen Karaer

2 - **An approach for understanding residential electricity consumption**
Gulcan Petricli, Gül Gökay Emel

3 - A CSR innovation research based on design thinking methodology: insight from material topic identification process
Pin-Rui Hwang

4 - Energy use, productivity and exporting: a firm level analysis for developing countries
Davide Vurchio, Pierluigi Montalbano, Silvia Nenci

■ MC-55

Monday, 12:30-14:00 - 4D UPV 2.1

Fast and Furious: Lightning Talks on Applied OR

Stream: Making an Impact I
Chair: *Ruth Kaufman*

1 - Fast and furious: lightning talks
Ruth Kaufman

■ MC-56

Monday, 12:30-14:00 - 4D UPV 2.2

Optimization in Renewable Energy Systems II

Stream: Optimization in Renewable Energy Systems
Chair: *Ida Græsted Jensen*

1 - Use of image analysis methods to determine the chlorine content of refuse derived fuel
Aysun Özkan, Kemal Özkan, Şahin Işık, Zerrin Günkaya, Müfide Banar

2 - Wind turbine power forecasting by LSTM recurrent neural networks using CNTK platform
Serap Ulusam Seckiner, Muhammet Zara, Yunus Eroglu

3 - A simplistic method for representing renewable gasses and fuels in an energy systems optimisation model
Ida Græsted Jensen, Frauke Wiese, Rasmus Bramstoft

■ MC-57

Monday, 12:30-14:00 - 4D UPV 2.3

Algorithms for Structure

Stream: Computational Biology, Bioinformatics and Medicine
Chair: *Joanna Miskiewicz*

1 - Conflict graphs in pseudoknot modelling
Marta Szachniuk, Tomasz Żok, Kacper Figurski, Mariusz Popenda

2 - Discovery and characterization of cryptochrome destabilizer small molecules enhancing the apoptosis
Seref Gul, Mehmet Tardu, Halil Kavakli, Metin Turkay

3 - N-way junction modeling and analysis
Jakub Wiedemann, Maciej Miłostan, Marta Szachniuk, Ryszard Adamiak

4 - Computational analysis and visualization of G-quadruplex structures
Joanna Miskiewicz, Mariusz Popenda, Joanna Sarzynska, Maciej Antczak, Tomasz Żok, Marta Szachniuk

■ MC-58

Monday, 12:30-14:00 - 4D UPV 2.4

Teaching OR/MS I

Stream: OR Education
Chair: *Pedro Castellucci*

1 - MODGRAF: a tool to support teaching network problems
Mariusz Kaleta

2 - Sharing experiences of designing and teaching quantitative methods online
Mahmut Sonmez

3 - Mobile learning as strategy for teaching OR
Laura Plazola Zamora, Sara Marín, Alejandra Gomez Padilla

4 - Teaching how to model
Pedro Castellucci, Alysson Costa

■ MC-59

Monday, 12:30-14:00 - 4D UPV 2.5

Risk and Uncertainty in Agri-Food Systems

Stream: OR Advances in Agribusiness
Chair: *Jorge E. Hernández*
Chair: *Leandro Antonelli*

1 - Modelling agri-food supply chain risks using total interpretive structural modelling and fuzzy MICMAC analysis
Guoqing Zhao, Shaofeng Liu

2 - Fuzzy model to increase vegetables quality with a collaboration program under uncertainty
Ana Esteso, Mareva Alemany, Angel Ortiz

3 - A new 0-1 mixed integer wheat supply network design model proposal that decreases the number of vehicle rounds
Abdullah Oktay Dündar, Mahmut Tekin, Kenan Peker, Mehmet Akif Sahman, Ismail Karaoglan

4 - Modelling spatially distributed refuge areas and sterile insect releases in a Bt sugarcane agroecosystem
Dirk Human, Linke Potgieter

■ MC-60

Monday, 12:30-14:00 - 4D UPV B.5

EURO Doctoral Dissertation Award I

Stream: EURO Special Sessions
Chair: *Richard Hartl*

1 - **Computation of equilibria on integer programming games**
Margarida Carvalho

2 - **Large-scale network optimization: Steiner tree problems**
Martin Luipersbeck

3 - **Logistics networks with intermediate stops - designing innovative and green solutions**
Maximilian Schiffer

Monday, 14:30-16:00

■ MD-01

Monday, 14:30-16:00 - UPV Nexus

Quantitative models embedded in decision-support tools for healthcare applications

Stream: Keynotes
Chair: *Sibel Salman*

1 - **Quantitative models embedded in decision-support tools for healthcare applications**
Pinar Keskinocak

■ MD-02

Monday, 14:30-16:00 - SOUTH BUILDING UV S101

Industry 4.0 Production Planning

Stream: Scheduling Practice
Chair: *Maria Mavri*

1 - **Qualitative assessment of the influence of manufacturing complexity drivers onto production planning problems in the context of Industrie 4.0**
Dennis Horstkemper, Bernd Hellingrath

2 - **Modeling and simulation of a production system with an Industry 4.0 approach, as a new learning environment through the use of virtual tools**
Luis Omar Alpala, David Zambrano, Dayana Vallejo, Luis Vallejo

3 - **Future research areas for supply chain management containing blockchain technology**
Emine Bozoklar, Ebru Yılmaz

4 - **Is it cheaper to print a good or to manufacture it using traditional techniques? Cost always makes matter.**
Maria Mavri, Evgenia Fronimaki

■ MD-03

Monday, 14:30-16:00 - SOUTH BUILDING UV S103

Facility Location in Supply Chains I

Stream: Location Analysis and Optimization
Chair: *Abdullah Dasci*

1 - **Locating hydrogen refueling stations with a capacitated flow capturing location model**
Kai Zhang, Yu Song

2 - **A warehouse location-transportation model for pharmaceutical distribution planning**
Eli Angela Vitor Toso, Aura Jalal

3 - A strategic model for location and route planning for a service parts distribution system
Ajinkya Tanksale, F. Tevhide Altekin, Abdullah Dasci, Hazal Ercan, Guvenc Sahin

4 - An iterative BTST method for the multi-Weber problem
Atsuo Suzuki

■ MD-04

Monday, 14:30-16:00 - SOUTH BUILDING UV S104

Corporate Finance and Portfolio Management

Stream: New Challenges in Investment Strategies, Risk and Financial Modelling
Chair: *Victor Dragota*

1 - Portfolio selection under cumulative prospect theory with piecewise exponential value functions
Suleyman Ozekici, Nuri Şensoy

2 - Optimal financing strategy when considering R&D innovation
Jiang Wang, Changchang Wu, Lihua Chen

3 - A hybrid belief rule based decision support system for assessing credit risk for mortgage lending
Swati Sachan, Jian-Bo Yang, Dong-Ling Xu

4 - Dividend policy: estimating the duration of making systematically bad decisions
Victor Dragota, Camelia Delcea

■ MD-05

Monday, 14:30-16:00 - SOUTH BUILDING UV S105

Exact Methods for Vehicle Routing Problems I

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Roberto Roberti*

1 - An exact algorithm for the static repositioning problem in bike sharing systems
Jose M. Belenguer, Enrique Benavent, Julio Daza Escorcia

2 - An exact method for the multi-trip VRP with time windows
Rosario Paradiso, Roberto Roberti, Demetrio Laganà, Wout Dullaert

3 - Decomposition algorithms for the multi-modal ridesharing routing problem
David Pisinger, Miriam Enzi, Sophie Parragh, Matthias Prandtstetter

4 - An exact method for the consistent vehicle-routing problem
Roberto Roberti, Dominik Goeke, Michael Schneider

■ MD-06

Monday, 14:30-16:00 - SOUTH BUILDING UV S106

Retail Distribution Planning I

Stream: Demand and Supply Management in Retail and Consumer Goods
Chair: *Heinrich Kuhn*

1 - Branch-and-cut and heuristic algorithms for an inventory routing problem with perishable products
Aldair Alvarez, Jean-François Cordeau, Raf Jans, Pedro Munari, Reinaldo Morabito

2 - Order policies for a perishable product in retail
Karin G.J. Pauls-Worm, Eligius M.T. Hendrix

3 - On the issuing rules and agreements in a divergent retail supply network to reduce the waste and increase the freshness of perishable products
Rob Broekmeulen, Karel van Donselaar

4 - Design challenges and performance analysis of the pick-support AGV system
Kaveh Azadeh, Debjit Roy, René de Koster

■ MD-07

Monday, 14:30-16:00 - SOUTH BUILDING UV S107

Analytic Hierarchy Process IV

Stream: Analytic Hierarchy Process / Analytic Network Process
Chair: *Jozsef Temesi*

1 - Preference elicitation from pairwise comparison matrices by evolutionary computing
Ludmil Mikhailov

2 - A study on the application of multi-criterion decision making with quantitative data to research and development budget process in Korea
Yoon Been Lee

3 - An MCDM-integrated maximum coverage approach for positioning of military surveillance systems
Fatma Çarman, Ceren Tuncer Sakar

4 - Correction of the elements of a pairwise comparison matrix: concepts and methods
Jozsef Temesi

■ MD-08

Monday, 14:30-16:00 - SOUTH BUILDING UV S108

Advances in Combinatorial Optimization

Stream: Combinatorial Optimization I
Chair: *Silvano Martello*
Chair: *Paolo Toth*

1 - Longitudinal analysis of heuristic performance
Steven Verwerft, Kenneth Sörensen

2 - Finding shortest pairs of paths with the fewest shared labels
Marta Pascoal, Joao Clímaco

3 - A mixed integer linear programming model for rolling stock rebalancing
Federico Farina, Dennis Huisman, Roberto Roberti, Shadi Sharif Azadeh

4 - A robust optimization approach for the cyclic job shop problem
Idir Hamaz, Laurent Houssin, Sonia Cafieri

■ MD-09

Monday, 14:30-16:00 - SOUTH BUILDING UV S109

The Role of Mathematical Optimization in Data Science IV

Stream: European Working Group: Data Science Meets Optimization
Chair: *Vanesa Guerrero*

1 - A branch-and-price approach to find optimal decision trees
Murat Firat, Guillaume Crognier, Adriana F. Gabor, Yingqian Zhang

2 - Predicting review helpfulness: an open problem?
Anne-Sophie Hoffait, Ashwin Ittoo

3 - Interpretable deep learning models for financial applications
Pavankumar Murali

4 - Optimized re-ranking approaches for a doctor recommender system
Hongxun Jiang

■ MD-10

Monday, 14:30-16:00 - SOUTH BUILDING UV S110

Decision Aiding Methods IV

Stream: Multiple Criteria Decision Aiding
Chair: *Nelson Hein*

1 - Paraconsistent logic in the economic-financial evaluation of Brazilian companies
Adriana Kroenke, Nelson Hein, Luana Sara Bizzato, Eliane Andrade

2 - Multi-criteria utility models with veto related preference structures - investigation of methods and properties
Andrej Bregar

3 - Assessing energy retrofit strategies for public buildings: an application of the ELECTRE-TRI nC model
Marta Bottero, Giuseppina Ciulla, José Rui Figueira, Salvatore Greco, Grazia Napoli, Federico Dell'Anna

4 - Performance of Brazilian companies: an evaluation through moderate pessimism
Nelson Hein, Adriana Kroenke, Vinicius Jacintho

■ MD-11

Monday, 14:30-16:00 - SOUTH BUILDING UV S111

DEA Theory III

Stream: DEA: Theory
Chair: *Martina Kuncova*

1 - Perception-based evaluation of online ratings through uncertain decision intervals
Francisco Javier Santos Arteaga, Debora Di Caprio

2 - Sensitivity analysis and assurance region of efficiency in data envelopment analysis with integer inputs and outputs
Farhad Hosseinzadeh Lotfi, Mohammad Fallah, Alireza Amirteimoori, Mohsen Vaez-Ghasemi, Bijan Rahmani Parchikolaei, Mohammad Mehdi Hosseinzadeh, Somayeh Razipour-GhalehJough, Hamid Sharafi

3 - Multi-criteria comparison of travel agencies and tour operators in V4 countries
Martina Kuncova, Veronika Hedija

■ MD-12

Monday, 14:30-16:00 - SOUTH BUILDING UV S112

Non-Standard Optimization and Decision-Making Methods I

Stream: Fuzzy Optimization
Chair: *Martin Gavalec*

1 - Condition of order preservation in pairwise comparisons matrix with fuzzy elements
Jaroslav Ramik

2 - Some fuzzy location and connection models
Karel Zimmermann, Martin Gavalec

3 - On scale normalization in pairwise comparisons
Jiri Mazurek

4 - Coordination of fuzzy processes working in regular stages
Martin Gavalec, Daniela Ponce, Karel Zimmermann

■ MD-13

Monday, 14:30-16:00 - SOUTH BUILDING UV S201

Supply Chain Scheduling

Stream: Supply Chain Management II
Chair: *Lina Simeonova*

1 - Cuckoo search for integrating machine scheduling and vehicle routing
Ting-Jhao Jian, Bailu Fang, Gen-han Wu

2 - Definition of a new flow graph to model the constraints of a VRPPD in the RCPSPR
Marina Vinot, Philippe Lacomme

3 - Paint shop scheduling in the automotive supply industry
Felix Winter, Emir Demirović, Nysret Musliu, Christoph Mrkvicka

4 - An integrated mixed method approach for decision making in a multi-facility supply chain: a real life case from the UK steel industry
Lina Simeonova, Niaz Wassan, Said Salhi

■ MD-14

Monday, 14:30-16:00 - SOUTH BUILDING UV S202

Methods for Large-Scale Optimization Problems

Stream: Nonlinear Programming: Methods
Chair: *Zaikun Zhang*

1 - A parallelizable algorithm for orthogonally constrained optimization problems
Xin Liu

2 - A Levenberg-Marquardt method for large nonlinear least-squares problems with dynamic accuracy in functions and gradients
Elisa Riccietti, Stefania Bellavia, Serge Gratton

3 - Accelerated Regularized Newton Methods for minimizing composite convex functions
Geovani Grapiglia, Yurii Nesterov

4 - A space transformation framework for nonlinear optimization
Zaikun Zhang, Serge Gratton, Luis Nunes Vicente

■ MD-15

Monday, 14:30-16:00 - SOUTH BUILDING UV S203

Recent Enhancements in Vehicle Routing

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Luís Gouveia*

1 - Determining the best changes in time windows for vehicle routing problems in a city area
Corrinne Luteyn, Pieter Vansteenwegen

2 - A practical pickup and delivery problem with transfers and time windows
Onur Can Saka, Sibel Salman

3 - The robust vehicle routing problem with time windows: compact model and branch-price-and-cut method
Pedro Munari, Alfredo Moreno, Jonathan De La Vega, Douglas Alem, Jacek Gondzio, Reinaldo Morabito

4 - A new formulation for the Hamiltonian p-median problem
Luís Gouveia, Tolga Bektas, Daniel Santos

■ MD-16

Monday, 14:30-16:00 - SOUTH BUILDING UV S115

Robust Optimization

Stream: Network Optimization and Social Networks
Chair: *Robert Manger*

1 - Design of water usage and treatment networks: an adaptive discretization approach
Sascha Kuhnke, Arie Koster

2 - A robust optimization approach to solve the multi-hub express shipment service problem network design problem
Jose Miguel Quesada, Jean-Charles Lange, Jean-Sébastien Tancrez

3 - Robust operational planning for mobile medical units
Martin Comis, Christina Büsing

4 - Algebraic formulation and solution of robust path problems
Robert Manger, Ana Klobučar

■ MD-17

Monday, 14:30-16:00 - SOUTH BUILDING UV S205

Stochastic Optimization in Energy and Environmental Management

Stream: Stochastic and Robust Optimization
Chair: *Patrick O'Driscoll*

1 - Meeting corporate renewable power targets
Alessio Trivella, Danial Mohseni-Taheri, Selvaprabu Nadarajah

2 - Multistage stochastic programs in waste management
Dusan Hrabec, Pavel Popela, Radovan Šomplák

3 - Optimizing environmental water release decisions in river systems
Simranjit Kaur, Avril Horne, Alysson Costa, Rory Nathan, Joanna Szemis

4 - A multi-period valuation of a topping oil refinery
Patrick O'Driscoll

■ MD-18

Monday, 14:30-16:00 - SOUTH BUILDING UV S206

Financial Modeling and Risk Management

Stream: Decision Making Modeling and Risk Assessment in the Financial Sector
Chair: *Markku Kallio*

1 - Mean-risk optimal portfolio in a behavioral framework
Cristinca Fulga

2 - Rational irrationality: how 'predictable' are investors during financial instabilities?
Mohammad Emambocus, Gurjeet Dhesi, Babar Syed

3 - Markowitz portfolio optimisation using homogeneous subsets
Elmira Mynbayeva, John Lamb

4 - Cooperative mitigation of contagion in financial networks
Markku Kallio, Aien Khabazian

■ MD-19

Monday, 14:30-16:00 - SOUTH BUILDING UV S207

Vector and Set-Valued Optimization IV

Stream: Vector- and Set-Valued Optimization
Chair: *Marcin Studniarski*

1 - Multiobjective approaches based on variable ordering structures for intensity problems in radiotherapy treatment
Thanh Tam Le

2 - Cooperative infrastructure and spectrum sharing in heterogeneous mobile networks
Mauro Passacantando, Lorela Cano, Antonio Capone, Giuliana Carello, Matteo Cesana

3 - On approximate efficiency for nondifferentiable robust multiobjective optimization problems
Tadeusz Antczak

4 - Necessary and sufficient conditions for robust Q-minimal solutions in uncertain vector optimization
Marcin Studniarski, Anna Michalak

■ MD-20

Monday, 14:30-16:00 - SOUTH BUILDING UV S301

Decision Analytical Perspectives on Societal Challenges

Stream: Decision Analysis and Decision Support Systems
Chair: *Juuso Liesiö*

1 - Implications of world mega trends for decision analysis/decision support research
Hannele Wallenius, Jyrki Wallenius

2 - Decision analysis and political processes
Nikolaos Argyris, Simon French

3 - Just society: a decision theoretic perspective
Rakesh Sarin

4 - A collaborative expert system for decision support in public policy
Matthias Wildemeersch, Elena Rovenskaya, Leena Ilmola

■ MD-21

Monday, 14:30-16:00 - SOUTH BUILDING UV S303

Workforce Scheduling and Line Balancing III

Stream: Project Management and Scheduling
Chair: *Evgeny Gurevsky*

1 - Real-time personnel re-scheduling after a minor disruption
Rachid Hassani, Issmail El Hallaoui, Guy Desaulniers

2 - Bi-objective assembly line rebalancing problem with equipment assignment
Selin Özpeynirci, Elif Simsek

3 - Reconfigurable transfer line balancing problem: exact and heuristic methods
Youssef Lahrichi

4 - Set-partition versus set-cover formulations for column generation based solution methodologies for optimal crew scheduling in the airline industry
George Kozanidis, Odysseas Moschopoulos, Christos Kaimakamis

■ MD-22

Monday, 14:30-16:00 - SOUTH BUILDING UV S304

Multicriteria Optimization for Portfolio and Subset Selection

Stream: Multiobjective Optimization
Chair: *Iryna Yevseyeva*

1 - Mean-variance Pareto front approximations with just a handful of Pareto optimal solutions
Janusz Miroforidis, Przemysław Juszczuk, Ignacy Kaliszewski, Dmitry Podkopaev

2 - Multi-criteria based optimisation model for human resource planning in telecommunication operations
Zirui Feng, Grammatoula Papaioannou, Rupal Rana, Jiyin Liu, Anne Liret

3 - The R2 Indicator: a study of its expected improvement when used as a selection criterion
Andre Deutz

4 - Ranking of instructional videos based on flexible TOPSIS
Blanca Pérez-Gladish, Vicente Liern, Enrique Lopez, Cristina Mendaña

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■ MD-23

Monday, 14:30-16:00 - SOUTH BUILDING UV S305

Event Timetabling

Stream: Timetabling
Chair: *Sanja Petrovic*

1 - Euro conference scheduling: the problem is you!
Thomas Stidsen, Pieter Smet, Greet Vanden Berghe

2 - A planning tool for assigning proctors to university exams
Tino Henke, André Scholz, Gerhard Wäscher

3 - Exam scheduling at United States Military Academy West Point
Robin Schuchmann

4 - An integer programming formulation of aposteriori fuzzy MOLP and assessment of efficient solutions via DEA for a case study in course timetabling
Mustafa Mehmet Bayar, Murat Atan, Irmak Uzun-Bayar

■ MD-24

Monday, 14:30-16:00 - SOUTH BUILDING UV S306

Financial Mathematics and OR IV

Stream: Financial Mathematics and OR
Chair: *Betül Kalaycı*

1 - A neural network enhanced volatility component model
Jia Zhai, Yi Cao

2 - Time inconsistent stochastic differential game: theory and an example in insurance
Hong Mao

3 - Dynamic cash management models with loan opportunities
Zimian Zhang

4 - Mutual relevance of investor sentiment and finance by modeling coupled stochastic systems by using MARS
Betül Kalaycı, Ayse Özmen, Azar Karimov, Gerhard-Wilhelm Weber

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■ MD-25

Monday, 14:30-16:00 - SOUTH BUILDING UV S307

Graph Drawing

Stream: Combinatorial Optimization II
Chair: *Rafael Marti*

1 - Resolution of the robust buffer allocation problem using network flows
Pascal Wortel

2 - Non-crossings paths with geographic constraints
Rodrigo Silveira, Bettina Speckmann, Kevin Verbeek

3 - Heuristics for the min-max arc crossing problem in graphs
Arild Hoff, Vicente Campos, Juanjo Peiró, Rafael Marti

4 - Hybrid representations of graphs: complexity results and heuristics
Giuseppe Di Battista

■ MD-26

Monday, 14:30-16:00 - SOUTH BUILDING UV S308

Railway Rapid Transit Systems Planning and Operation

Stream: Public Transportation I
Chair: *David Canca*
Chair: *Eva Barrena*

1 - Heuristic search for the most compact graph for train unit scheduling optimisation
Pedro Jesús Copado Méndez, Raymond S. K. Kwan

2 - Cost evaluation of minimizing energy consumption in railway rapid transit lines timetables
Alejandro Zarzo, David Canca

3 - Static, time dependent and elastic passenger demand in railway timetabling
Eva Barrena, David Canca, Francisco A. Ortega Riejos

4 - On solving the integrated network design and line planning problem with elastic demand
David Canca, Alicia De Los Santos Pineda, Gilbert Laporte, Juan A. Mesa

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■ MD-27

Monday, 14:30-16:00 - SOUTH BUILDING UV S309

Facilities Planning and Design

Stream: Production, Service and Supply Chain Management
Chair: *Daniel Ramon Lumbierres*

1 - An algorithm for designing a hybrid layout
Ana Raquel Xambre

2 - Optimal component compartmentalisation of process plants for modular construction
Timothy Haughton, Panagiotis Angeloudis, Panos Parpas

3 - Applying heuristic techniques for the combined design and scheduling of multiple lines multiproduct batch plants
Floor Verbiest, Trijntje Cornelissens, Johan Springael, Tânia Pinto_Varela, Ana Barbosa-Povoa

4 - A multistage stochastic programming model for the strategic supply chain design
Daniel Ramon Lumbierres, F.-Javier Heredia

■ MD-28

Monday, 14:30-16:00 - SOUTH BUILDING UV S310

Behavioral Foundations of Service Systems

Stream: Service Operations Management
Chair: *Mirko Kremer*

1 - **How observed queue length and service times drive queue behavior in the lab**
Zeynep Aksin, Busra Gencer, Evrim Didem Gunes, Ozge Pala

2 - **Bounded rationality in clearing service systems**
Pelin Canbolat

3 - **Pooling queues in discretionary services**
Guillaume Roels, Mor Armony, Hummy Song

4 - **Mismanaging the quality-speed tradeoff in congested environments**
Mirko Kremer, Francis de Véricourt

■ MD-29

Monday, 14:30-16:00 - SOUTH BUILDING UV S311

Game Theoretical Models and Applications II

Stream: Game Theory, Solutions and Structures
Chair: *Juan Tejada*

1 - **Game-theory approach to selecting the most beneficial inventory management policy: the case of online retailers assortment planning**
Zahra Saberi, Morteza Saberi, Omar Khadeer Hussain, Elizabeth Chang

2 - **Some applications of bankruptcy problems to engineering and management problems**
Maria Teresa EstaÑ, Natividad Llorca, Joaquin Sánchez-Soriano

3 - **Design of a market mechanism to achieve revenue adequacy for TSOS operating HVDC lines**
Andrea Tosatto, Tilman Weckesser, Spyros Chatzivasileiadis

4 - **Game theoretical centrality in social networks with multi-valued nodes**
Juan Tejada, Javier Castro, Daniel Gomez Gonzalez, Elisenda Molina

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■ MD-30

Monday, 14:30-16:00 - SOUTH BUILDING UV S312

Game Theory Applications in Operations and Sustainability

Stream: Game Theory and Operations Management
Chair: *Gokce Esenduran*

1 - **Converting retail food waste into by-product**
Mustafa Hayri Tongarlak

2 - **A parametric analysis of collaborative intermodal transport**
Alberto Giudici

3 - **Supplier development in a multi-tier supply chain**
Pınar Şimşek Yalçın, Ozgen Karaer, Tim Kraft

4 - **Incremental solutions to online generalized multi-item multi-unit combinatorial auctions**
Anup Kumar Sen, Amitava Bagchi

■ MD-31

Monday, 14:30-16:00 - SOUTH BUILDING UV S313

Behavioural OR: General Papers

Stream: Behavioural OR
Chair: *Etienne Rouwette*

1 - **Behavioural operational research within two areas of conflict: an extended classification approach**
Damian Braschczok

2 - **Developing ORBIT: the operational research behavioural interventions toolkit**
Katharina Burger, Leroy White, Martin Kunc, Jonathan Malpass

3 - **Integration and application of problem structuring methods: an application in oil exploration**
Fahad Mehmood

4 - **Physics, foibles and failings: applying the 'behavioural turn' to the breadth of system dynamics practice**
Etienne Rouwette, David Lane

■ MD-32

Monday, 14:30-16:00 - SOUTH BUILDING UV S314

Air Transportation

Stream: Routing, Logistics, Location and Transportation
Chair: *Yagmur Simge Gök*

1 - **Integrated capacity management for airport runway systems**
Stefan Frank, Karl Nachtigall

2 - **Airspace sectorization by graph-and-geometric approach**
Yasufumi Saruwatari, Yoichi Izunaga, Takamori Ukai, Kota Kageyama

3 - **Robust scheduling in airline operations planning: how robust are those schedules?**
Aykan Akincilar

4 - **New efficient heuristics to solve tactical airport check-in allocation problems**
Yagmur Simge Gök, Maurizio Tomasella, Daniel Guimarans, Cemalettin Ozturk

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■ MD-33

Monday, 14:30-16:00 - SOUTH BUILDING UV S315

Data Mining and Statistics III

Stream: Data Mining and Statistics
Chair: *Ozden Gur Ali*

1 - A data-mining based process to early identify breast cancer from metabolomic data
Víctor Manuel Rivas Santos, Pedro José Sánchez-Rovira, Josè Javier Rosell García, Leticia Díaz-Beltrán, Jose Perez del Palacio, Francisca Vicente Area Head Screening & Validation, Caridad Díaz-Navarro, Daniel Franco, Ana Laura Ortega-Granados, Olga Genilloud, Carmen González-Olmedo, Sergio Granados-Principal, Francisco Javier García-Verdejo

2 - Improvement of schools performance with BI implementation
Rose Nelson, Olga Nazarenko

3 - Automatic forecasting of category-store sales considering cross-category effects
Ragip Gurlek, Ozden Gur Ali

4 - Combining local survey data with meta-analysis of global relative risks - studies to more accurately predict prevalence of diseases
Angi Ghanem, Ozden Gur Ali

■ MD-34

Monday, 14:30-16:00 - SOUTH BUILDING UV S113

Numerical and Simulation Methods in Finance II

Stream: Numerical and Simulation Methods in Finance
Chair: *Ana Monteiro*
Chair: *Ayşe Mutlu Derya*

1 - An agent-based model for Korean stock market - KOSPI 200 and interactions among investors
Chansoo Kim, Kyung O Baek, Haneol Cho

2 - Roster design for complex queue systems in banking
Federico Trigos, Alan Vázquez-Alcocer, Leopoldo Cárdenas-Barrón

3 - Kernel density estimation: local cubic polynomial approach with non-arbitrage constraints
Ana Monteiro, Antonio Santos

■ MD-48

Monday, 14:30-16:00 - 4D UPV B.3

OR Applied to Disaster Relief and Development Operations

Stream: Humanitarian Operations
Chair: *Alfonso Pedraza-Martinez*

1 - Multi-criteria optimization for last mile distribution of disaster relief aid: test cases and applications
Begoña Vitoriano, José María Ferrer, F. Javier Martin-Campo, M. Teresa Ortuno, Alfonso Pedraza-Martinez, Gregorio Tirado

2 - Multi-vehicle prize collecting arc routing for connectivity problem
Vahid Akbarighadikolaei, Sibel Salman

3 - OR applications to humanitarian logistics in Latin America
Jaime Mora Vargas

4 - OR applied to humanitarian operations
Alfonso Pedraza-Martinez, Maria Besiou, Luk Van Wassenhove

■ MD-49

Monday, 14:30-16:00 - 4D UPV B.4

OR in Agriculture I

Stream: OR in Agriculture, Forestry and Fisheries
Chair: *Victor M. Albornoz*

1 - Lagrangian decomposition bounds for a crop rotation problem with adjacency constraints
Geraldo Mauri

2 - A multi-objective model to optimize the food resource allocation in dairy systems
Gastón Notte, Pablo Chilibroste, Martin Pedemonte, Hector Cancela

3 - Mathematical models for improving the process of grape reception at Aveleda
Eliana Costa e Silva, Aldina Correia, Isabel Cristina Lopes

4 - Integrated versus hierarchical approach for zone delineation and crop planning under uncertainty
Victor M. Albornoz

■ MD-50

Monday, 14:30-16:00 - 4D UPV 1.1

OR for Developing Countries III

Stream: OR for Developing Countries
Chair: *Milagros Baldemor*
Chair: *Leroy White*

1 - Improving underprivileged children's access to education: a multi-methodology intervention in Hungary
Gabriella Csanyi, Valentina Ferretti

2 - Tackling the compositional nature of water, sanitation and hygiene (WASH) data in statistical analysis
Fatine Ezbakhe, Agustí Pérez-Foguet

3 - Education and environmental awareness in students of civil engineering, César Vallejo University '- Lima East Campus
Cesar Teodoro Arriola Prieto

4 - Implementation and evaluation of the targeting performance of the 4Ps program in Northwestern Philippines
Milagros Baldemor

■ MD-51

Monday, 14:30-16:00 - 4D UPV 1.2

Designing Sustainable Vehicle Operations Management

Stream: Environmental Sustainability in Supply Chains
Chair: *Jutta Geldermann*
Chair: *Christina Scharpenberg*
Chair: *Martin Hrusovsky*

1 - Vehicle routing of mixed fleets with combustion-powered and electric vehicles
Herbert Kopfer, Benedikt Vornhusen, Jan Dethloff

2 - Sustainable vehicle routing of daily goods from small, regional producers
Christina Scharpenberg, Jutta Geldermann

3 - An integrated simulation-optimization for intermodal transport planning under uncertainty: a combination of offline and online planning
Martin Hrusovsky, Emrah Demir, Werner Jammernegg, Tom van Woensel

4 - The potentials and uncertainties associated with the coordinated charging of electric vehicles
Marcel Dumeier, Jutta Geldermann

■ MD-52

Monday, 14:30-16:00 - 4D UPV 1.3

Health Care Modelling (ORAHS) III

Stream: OR for Health and Care I
Chair: *Maria Eugénia Captivo*

1 - A stochastic programming approach for multi-appointment outpatient scheduling in cardiology
Lida Anna Apergi, John Baras, Kenneth Wood, Bruce Golden

2 - Home healthcare staffing and scheduling
Maria I. Restrepo, Louis-Martin Rousseau

3 - Dynamic appointment scheduling with forecasting for priority queuing systems with access time service levels
Ka Yuk Carrie Lin

4 - Optimizing ambulance dispatching and relocation
Maria Eugénia Captivo, Ana Sofia Carvalho, Inês Marques

■ MD-53

Monday, 14:30-16:00 - 4D UPV 1.4

Seru Production and Price/Lead-time Competition and Financial Distress

Stream: Operations/Marketing Interface
Chair: *Kathryn E. Stecke*

1 - Newsvendors' equilibrium strategies under price and lead-time competition
Zhengping Wu

2 - Matching uncertain market demand with seru production design
Yong Yin

3 - Investigating operational factors on the way to financial distress
Nagihan Comez Dolgan

4 - The impact of platform-based product design on product differentiation
Hamed Jalali, Maud Van den Broeke, Inneke Van Nieuwenhuyse

■ MD-54

Monday, 14:30-16:00 - 4D UPV 1.6

Multicriteria Assessment

Stream: Energy Economics, Environmental Management and Multicriteria Decision Making
Chair: *Ana Barbosa-Povoa*

1 - Multi-criteria analysis and consequential lifecycle assessment of solid waste management - an integrated approach
João Clímaco, Anna Bernstad Saraiva, Rogério Valle, Cláudio Fernando Mahler

2 - Exploring the use of multi-criteria decision approaches for chemical alternatives analysis
Charles Corbett, Christian Beaudrie, Tom Lewandowski, Timothy Malloy, Xiaoying Zhou

3 - Evidence for overcoming the efficiency gap by fully integrating the decision process
Christian Schützenhofer

4 - Environmental impact assessment in supply chain design and planning models: goal and scope definition challenges
Bruna Mota, Ana Carvalho, Maria Isabel Gomes, Ana Barbosa-Povoa

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■ MD-55

Monday, 14:30-16:00 - 4D UPV 2.1

Academic-Practitioner Discussion Panel

Stream: Making an Impact I
Chair: *John Hopes*

1 - Academic-practitioner discussion panel: getting the best from each other
Ruth Kaufman

■ MD-56

Monday, 14:30-16:00 - 4D UPV 2.2

Optimization in Renewable Energy Systems III

Stream: Optimization in Renewable Energy Systems
Chair: *Andreas Bley*

1 - Comparing time aggregation techniques in relation to capacity-expansion modeling
Stefanie Buchholz

2 - European industries' energy efficiency and performance under different productive regimes, revealing the role of heterogeneity, path dependence and energy mix
Eirini Stergiou, Kostas Kounetas

3 - Uncertainties and impacts of the demand response in the European power system
Héctor Marañón-Ledesma

4 - A Lagrangian solution approach for multi-sector energy system optimization
Andreas Bley, Frank Fischer, Angela Pape

■ MD-57

Monday, 14:30-16:00 - 4D UPV 2.3

Data Analytics for Bioinformatics

Stream: Computational Biology, Bioinformatics and Medicine
Chair: *Sofiane Oussedik*

1 - Quality criteria for supply optimization: study case in an oncological healthcare institution
Juan Pablo Zamora Aguas, Oscar Mayorga T., Jair Eduardo Rocha-Gonzalez

2 - The use of continuous-time Markov models to disentangle differences in patterns of long-term functioning for children with attention-deficit/hyperactivity disorder
Qi Cao, Roel Frerikks, Jurjen van der Schans, Annabeth Groenman, Pieter Hoekstra, Maarten Postma, Erik Buskens, Jochen Mierau

3 - Integer and constraint programming approaches for long-term care facility location
Mert Paldrak, Gamze Erdem, Gokberk Ozsakalli, Deniz Türsel Eliiyi

4 - Overview of decision optimization for data science experience
Sofiane Oussedik

■ MD-58

Monday, 14:30-16:00 - 4D UPV 2.4

Teaching OR/MS II

Stream: OR Education
Chair: *Aline Leão*

1 - Methods and tools in operations management - experience from inverted-classroom-teaching
Stefan Treitl

2 - Legos and board games as resources for designing student-based learning experiences in optimization
Pablo González-Brevis, Cristian Palma

3 - Playful labs to support the teaching of linear programming
Jainet Bernal Orozco

4 - Taking off with mathematics: an activity for introductory OR courses
Aline Leão, Franklina Toledo, Adaiton Moreira de Oliveira Filho

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■ MD-59

Monday, 14:30-16:00 - 4D UPV 2.5

Supply Chain Modelling and Optimisation

Stream: OR Advances in Agribusiness
Chair: *Jorge E. Hernández*

1 - Determining the space and the percentage of preference of each product category of a department store by using multi criteria decision making methodologies
Gulcin Dinc Yalcin, Zehra Kamisli Ozturk

2 - Routes planning for managing inventory at animal husbandry department
Sanjay Choudhari, Saurabh Chandra

3 - Optimization of cooperative production and distribution schemes in an agro-business model
Jose Velasquez, Camilo Gomez, Liliana Aponte

4 - Review on operational research advances in agri-food supply chains and societal challenges
Jorge E. Hernández, Janusz Kacprzyk, Andrew Lyons, Angel Ortiz, Hervé Panetto

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■ MD-60

Monday, 14:30-16:00 - 4D UPV B.5

Meet the editors of EJOR

Stream: EURO Special Sessions
Chair: *Roman Slowinski*

1 - Some facts about the European journal of operational research (EJOR)
Roman Slowinski, Emanuele Borgonovo, Robert Dyson, José Fernando Oliveira, Steffen Rebennack, Ruud Teunter

2 - The single-item green lot-sizing problem with fixed carbon emissions
Stéphane Dauzere-Peres, Nabil Absi, Safia Kedad-Sidhoum, Bernard Penz, Christophe Rapine

3 - The multi-vehicle traveling purchaser problem with pairwise incompatibility constraints and unitary demands: a branch-and-price approach
Daniele Manerba, Michel Gendreau, Renata Mansini

Monday, 16:30-17:30

■ ME-01

Monday, 16:30-17:30 - UPV Nexus

The Discrete Charm of Districting

Stream: Plenaries
Chair: *Ruben Ruiz*

1 - The Discrete Charm of Districting
Roger Z. Rios-Mercado

Monday, 17:45-19:00

Tuesday, 8:30-10:00

■ TA-01

Tuesday, 8:30-10:00 - UPV Nexus

Community structure in complex networks

Stream: Keynotes
Chair: *Gerhard-Wilhelm Weber*

1 - Community structure in complex networks
Santo Fortunato

■ TA-02

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S101

DEA, Banking, Financial Institutions I

Stream: DEA: Applications
Chair: *Julián Benavides*

1 - Evaluating the performance and ranking of Refah bank branches in Iran by using data envelopment analysis
Mohsen Rostamy-Malkhalifeh, Hossein Rahmati, Mohammad Ali Sahmani, Mohsen Ziaee

2 - Evaluating efficiencies of financial holding companies in Taiwan: an application of copula-based stochastic frontier methods
Chi-Chuan Lee

3 - Introduction to best classification in data envelopment analysis and using it to improve performance of Refah bank branches in Iran
Mohsen Ziaee, Mohammad Ali Sahmani, Hossein Rahmati, Mohsen Rostamy-Malkhalifeh

4 - Efficiency determinants of Brazilian commercial banks
Julián Benavides, Juan Garrido, Guillermo Buenaventura, Felipe Henao

■ TA-03

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S103

Facility Location in Supply Chains II

Stream: Location Analysis and Optimization
Chair: *Jean-Sébastien Tancrez*

1 - The design of resilient food supply chain networks prone to disruptions
Seyed Mohammad Gholami-Zanjani, Walid Klibi, Mohammad Saeed Jabalameli

2 - Evaluating horizontal cooperation in supply chains
Thomas Hacardiaux, Jean-Sébastien Tancrez

3 - A methodology for the design of express service lines
Victor Bucarey, Cristian Cortes, Fernando Ordonez, Bruno Stefoni

4 - Flexibility mechanisms for the design of robust supply chains
Jean-Sébastien Tancrez, Matias Schuster

■ TA-04

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S104

Financial Modelling and Applications

Stream: New Challenges in Investment Strategies, Risk and Financial Modelling
Chair: *Giulia Rotundo*

1 - Evidence regarding external financing in Romanian exporting medium sized enterprises from manufacturing sector
Eduard Gabriel Ceptureanu

2 - Debt growth as a leading indicator for stock returns: evidence from an emerging market
Rouhollah Ebrahimabadi, Gurjeet Dhesi

3 - Capturing long-term coupling and short-term decoupling crude oil and natural gas prices
Hayette Gatfaoui

4 - Estimating enterprise values based on linear optimization
Soeren Guntram Harms, Marcel Clermont, Heinz Ahn

■ TA-05

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S105

Exact Methods for Vehicle Routing Problems II

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Hakan Altunay*

1 - A multidirectional dynamic programming algorithm for the shortest path problem with resource constraints
Ilyas Himmich, Issmail El Hallaoui, Francois Soumis

2 - Branch and cut solution approach for the capacitated location routing problem
Theocharis Metzidakis, Panagiotis Repoussis, Manolis Kritikos, George Ioannou

3 - Mathematical models and an exact algorithm for the heterogeneous vehicle routing problem
Federico Perea, Gilbert Laporte, Ruben Ruiz, Luis Fanjul Peyró

4 - A new mathematical model for the close-open vehicle routing problem
Hakan Altunay

■ TA-06

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S106

Consumer Returns in Retail

Stream: Demand and Supply Management in Retail and Consumer Goods
Chair: *Alexander Hübner*

1 - Selling consumer returns on the secondary market: an OEMs strategy to deal with a non-cooperative retailer
Andrea Borenich, Yanick Dickbauer, Marc Reimann, Gilvan C. Souza

2 - Optimal pricing of points in points plus cash reward programs
Ricardo Montoya

3 - Closed-loop supply chain network design under demand, return and quality uncertainty
Sakine Batun, Kadir Biçe

4 - The relationship between customer satisfaction and service quality in e-commerce
Evripidis Kechagias, George Chatzistelios, Georgios Papadopoulos, Dimitra Kyriou

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■ TA-07

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S107

Analytic Hierarchy Process V

Stream: Analytic Hierarchy Process / Analytic Network Process
Chair: *Massimo Squillante*

1 - A dynamic hybrid modeling approach for global facility location
Hafiz Muhammad Khurram Ali, Khalid Akhtar, Sami Farooq, Mirza Jahanzaib

2 - The AHP in eco gestation of operations: a reuse of organic waste case
Astrid Oddershede, Felipe Reitter, Luis Quezada

3 - A multi-phase decision making approach combining the EFA, AHP and Multi-MOORA for the career choice of undergraduates in department of statistics
Sevgi Abdalla

4 - An experimental approach for comparing inconsistency of multiplicative, additive and fuzzy approaches
Massimo Squillante, Bice Cavallo, Alessio Ishizaka, Maria Grazia Olivieri

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■ TA-08

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S108

Combinatorial Optimization on Graphs I

Stream: Combinatorial Optimization I
Chair: *Francesco Carrabs*

1 - The discrete P-dispersion problem for the close enough traveling salesman problem
Carmine Cerrone, Francesco Carrabs, Raffaele Cerulli, Bruce Golden

2 - A three-stage p-median based exact method for the optimal diversity management problem
Adriano Masone, Antonio Sforza, Claudio Sterle, Igor Vasilyev, Anton Ushakov

3 - On a network function virtualization chaining problem with simple path routing: properties and formulations
Giuliana Carello, Bernardetta Addis, Meihui Gao

4 - A metaheuristic algorithm for the all-colors shortest path problem
Francesco Carrabs, Raffaele Cerulli, Andrea Raiconi

■ TA-09

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S109

The Role of Mathematical Optimization in Data Science V

Stream: European Working Group: Data Science Meets Optimization
Chair: *Adam Elmachtoub*

1 - Small-data, large-scale linear optimziation
Vishal Gupta, Paat Rusmevichientong

2 - Condition number analysis of logistic regression and its implications for standard first-order solution methods
Paul Grigas, Robert M. Freund, Rahul Mazumder

3 - Discovering optimal policies: a machine learning approach to model analysis
Fernanda Bravo, Yaron Shaposhnik

4 - Smart predict, then optimize
Adam Elmachtoub, Paul Grigas

■ TA-10

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S110

Decision Aiding Methods V

Stream: Multiple Criteria Decision Aiding
Chair: *Nguyen Anh Vu Doan*

1 - Better together: improved predictive accuracy of preference disaggregation by discovering structural similarities in preference models
Mohammad Ghaderi, Nuria Agell, Milosz Kadzinski

2 - GAIA-SMAA-PROMETHEE for a hierarchy of interacting criteria
Sally Giuseppe Arcidiacono, Salvatore Greco, Salvatore Corrente

3 - PROMETHEE R: from ranking to rating
Bertrand Mareschal

4 - An alternative weight stability analysis for PROMETHEE II rankings based on inverse optimization
Nguyen Anh Vu Doan, Yves De Smet

■ TA-11

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S111

Uplift Modelling

Stream: Business Analytics
Chair: *Sebastian Maldonado*

1 - Profit-driven decision tree approaches for uplift modeling
Floris Devriendt, George Petrides, Stefan Lessmann, Wouter Verbeke

2 - Sampling techniques for uplift modeling for improved stability and performance
Dimitri Robert, Floris Devriendt, George Petrides, Wouter Verbeke

3 - A survey & experimental evaluation of multiple treatment uplift modeling
Diego Andres Olaya Lasso, Wouter Verbeke

4 - Profit-based credit scoring based on robust optimization and support vector machines
Sebastian Maldonado, Julio López

■ TA-12

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S112

Non-Standard Optimization and Decision-Making Methods II

Stream: Fuzzy Optimization
Chair: *Jaroslav Ramik*

1 - Interval linear programming: checking weak optimality of a given solution is NP-hard
Miroslav Rada, Milan Hladik, Elif Garajová

2 - Determinants of technological innovation capability in high technology and manufacturing firms - using Fuzzy-DEMATEL method
Chi-Hui Wu, Po-Wei Su, Ching-Torng Lin, Thi Phuong Thao Tran

3 - Using multi criteria decision making to select the most appropriate organization of maintenance section in Iran airline
Ahmad Makui

4 - Computing interval eigenvectors of interval fuzzy and max-plus matrices
Ján Plavka, Martin Gavalec

■ TA-13

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S201

Continuous Optimization and Industrial Applications

Stream: Applications Related to Continuous Optimization
Chair: *Sureyya Ozogur-Akyuz*

1 - A unified optimization framework for electrochemical wastewater treatment with continuous energy consumption monitoring
Emine Esra Gerek, Ali Savaş Koparal, Omer Nezih Gerek

2 - Optimal cross-border electricity trading
Maria Flora

3 - Monitoring the multivariate coefficient of variation via optimised control charts
Vicent Giner-Bosch, Philippe Castagliola, J. Carlos García-Díaz, Andrés Carrión

■ TA-14

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S202

Proximal Gradient-Type Algorithms

Stream: Nonlinear Programming: Methods
Chair: *Junfeng Yang*

1 - Some theoretical and numerical analysis for nonsmooth convex regression with cardinality penalty
Wei Bian

2 - Iteratively dynamically reweighted methods for nonconvex regularized problems
Hao Wang

3 - Proximal algorithms with extrapolation for structured nonconvex nonsmooth problems
Bo Wen

4 - On progressive hedging algorithm for multistage stochastic programming and stochastic variational inequalities
Junfeng Yang

■ TA-15

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S203

Vehicle Routing with Time Windows

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Said Dabia*

1 - Logic-based benders decomposition for the heterogeneous fixed fleet vehicle routing problem with time windows
Vinícius Armentano, Ramon Fachini

2 - The stochastic and robust time window assignment vehicle routing problem
Maaike Hoogeboom, Patrick Jaillet, Yossiri Adulyasak, Wout Dullaert

3 - A comparative study of branch-and-price algorithms for vehicle routing with time windows and waiting time costs
Stefano Michelini, Yasemin Arda, Hande Kucukaydin

4 - Cover inequalities for a vehicle routing problem with time windows and shifts
Said Dabia, Stefan Ropke, Tom van Woensel

■ TA-16

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S115

Urban Logistics

Stream: Green Logistics
Chair: *Jan Fabian Ehmke*

1 - Investing in facilities today to reduce routing emissions tomorrow
Fabien Tricoire, Sophie Parragh

2 - A two-echelon vehicle routing problem with unmanned ground vehicles for city logistics
Jakob Puchinger, Shaohua Yu

3 - Optimizing routes with sustainability criteria in transportation management
Lorena Reyes-Rubiano, Laura Calvet, Javier Faulin, Angel A. Juan

4 - Can tolling schemes really reduce emissions of freight transportation in urban area?
Jan Fabian Ehmke, Shu Zhang, Ann Campbell

■ TA-17

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S205

Stochastic Programming in Tactical and Capacity Expansion Planning

Stream: Stochastic and Robust Optimization
Chair: *Laureano Fernando Escudero*

1 - Risk management for rapid transit network capacity expansion planning
Ángel Marín, Luis Cadarso, Laureano Fernando Escudero

2 - Scenario reduction by conditional scenarios
Cesar Beltran-Royo

3 - A tactical planning model with uncertain demand using a two-stage stochastic programming model for a fruit supply chain
LluisM Pla, Wladimir Soto-Silva, Marcela C. Gonzalez-Araya, Jordi Mateo, Francesc Solsona

4 - On strategic and operational uncertainties for capacity expansion planning risk management
Laureano Fernando Escudero, Antonio Alonso-Ayuso

■ TA-18

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S206

Risk Measurement and Modeling

Stream: Decision Making Modeling and Risk Assessment in the Financial Sector
Chair: *Fabio Bellini*

1 - An ordinal information based estimator of risky asset returns
Eranda Cela, Stephan Hafner, Roland Mestel, Ulrich Pferschy

2 - Elicitability and identifiability of measures of systemic risk
Jana Hlavinová, Tobias Fissler, Birgit Rudloff

3 - Generalized Little's law and an asset picking system to model an investment portfolio: a large-scale model
Maria Luisa Ceprini, John D C Little

4 - Dynamic properties of classical and robust Orlicz and Haezendonck-Goovaerts risk measures
Fabio Bellini, Roger Laeven, Emanuela Rosazza Gianin

■ TA-19

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S207

Vector and Set-Valued Optimization V

Stream: Vector- and Set-Valued Optimization
Chair: *Phan Quoc Khanh*

1 - Dynamic origin-destination-matrix estimation for commuter train planning: an entropy-maximization approach
Abderrahman Ait Ali

2 - On generalized-convex constrained multi-objective optimization and application in location theory
Christian Günther

3 - Lipschitz properties of cone-convex set-valued functions
Anh Tuan Vu, Thanh Tam Le

4 - Linear and nonlinear metric regularity and optimality conditions
Phan Quoc Khanh

■ TA-20

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S301

Decision Analysis Applications I

Stream: Decision Analysis and Decision Support Systems
Chair: *Antti Punkka*

1 - The global value of offshore wind energy
Zana Cranmer, Erin Baker

2 - Energy network management of an oil refinery
Elif Mete

3 - Data-driven decision support for maintenance management using unsupervised learning and integer programming
Subanatarajan Subbiah, Talha Badr, Ralf Gitzel

4 - Development of a flexible multi-objective duty roster planning tool
Antti Punkka, Aleksi Porokka

■ TA-21

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S303

Workforce Scheduling and Line Balancing IV

Stream: Project Management and Scheduling
Chair: *Sergey Kovalev*

1 - Parallel machine scheduling with job splitting, sequence-dependent setup times, and limited setup resources
Hyun-Jung Kim, Jun-Ho Lee

2 - A cutting plane approach for the multi-machine precedence-constrained scheduling problem
George Vairaktarakis, Prahalad Venkateshan, Joseph Szmerekovsky

3 - Workforce management in call centers
Marc-Philip Piehl, Michael Manitz

4 - Order batching & sequencing in bucket brigade order picking
Yossi Bukchin, Eran Hanany, Eugene Khmelnitsky

■ TA-22

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S304

Multicriteria Optimization for Scheduling and Transportation Problems

Stream: Multiobjective Optimization
Chair: *Vitor Basto-Fernandes*

1 - A multi-objective approach for a sustainable flexible parallel assembly line: a real case study
Ahmed Mohammed, Irina Harris

2 - A network approach to group decision making portfolios and its application in multiobjective scheduling
Michael Emmerich, Iryna Yevseyeva

3 - Modelling and solution methods for efficient utilization of multiple servers
Nursen Aydin, Ibrahim Muter, Ilker Birbil

4 - Evolutionary multi-objective scheduling for anti-spam filtering throughput optimization
Vitor Basto-Fernandes, Iryna Yevseyeva, Michael Emmerich

■ TA-23

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S305

Course Timetabling

Stream: Timetabling
Chair: *Sanja Petrovic*

1 - A multi-objective approach for university course timetabling problem
Erika Tatiana Ruíz Orjuela, Diego Andrés Carreño Dueñas, Luis Amaya Gonzalez

2 - Course timetabling in a flexible semester structure
Marco Chiarandini

3 - Bi-criteria simulated annealing algorithms for the robust university course timetabling problem
Can Akkan, Ayla Gülcü

4 - An integer programming based scheduling of university wide orientation course activities
Aydin Ulucan, Eren Miski Aydin, Bulent Cekic

■ TA-24

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S306

Financial Mathematics and OR V

Stream: Financial Mathematics and OR
Chair: *Zhongfei Li*

1 - An assessment of long-term investments risk in longevity risk protection
Justyna Majewska, Grażyna Trzpiot

2 - Portfolio selection with minimum regularised covariance determinant estimators
Marco Neffelli, Marina Resta, Maria Elena De Giuli

3 - A variance decomposition in stock portfolios
Javier Giner

4 - A multinomial-tree gambling model
Zhongfei Li

■ TA-25

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S307

Combinatorial Optimization and Logistics Operations

Stream: Combinatorial Optimization II
Chair: *Jiyin Liu*

1 - On emptying a container bay by neural network
Yat-wah Wan, Wen-Fu Yang

2 - Inventory sharing policy for medical supplies in Hong Kong hospitals
King-Wah Anthony Pang, Ping Zhang, Hong Yan

3 - Field scheduling with time windows to minimise the service risk of missing appointments
Chenlu Ji, Rupal Rana, Jiyin Liu

4 - A new approach for the vehicle sharing and workforce scheduling problem
Pol Arias, Rupal Rana, Jiyin Liu

■ TA-26

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S308

Crew Planning

Stream: Public Transportation I
Chair: *Twan Dollevoet*
Chair: *Thomas Breugem*

1 - A matheuristic for the driver scheduling problem with staff cars
Shyam Sundar Govindaraja Perumal, Jesper Larsen, Richard Lusby, Morten Riis, Kasper Sørensen

2 - A column generation approach for railway crew replanning
Thomas Breugem, Twan Dollevoet, Dennis Huisman

3 - Novel formulations for railway crew rostering
Twan Dollevoet, Thomas Breugem, Dennis Huisman

■ TA-27

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S309

Logistics

Stream: Production, Service and Supply Chain Management
Chair: *Sangmoo Shin*

1 - Competition, decision rights, and supply chain structure
Sudheer Gupta

2 - Lifetime extension and an application to PC upgrading
Sha Zhu, Rommert Dekker, Willem van Jaarsveld

3 - Optimal allocation of spares to maximize the window fill rate in a two-echelon exchangeable-item repair system
Michael Dreyfuss, Yahel Giat

4 - How does the Korean textile industry build competitive capabilities? Comparative case studies
Sangmoo Shin, Euisung Jung

■ TA-28

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S310

Service Operations and Supply Chains: A Cross-Section

Stream: Service Operations Management
Chair: *Itir Karaesmen*

1 - Data-driven process mining: discovering treatment approaches for preference-sensitive medical conditions
Feryal Erhun, Katherine Bobroske, Lawrence Huan, Michael Freeman, Anita Cattrell, Jenny Wang, Rich King, Stefan Scholtes

2 - Improving access of low back pain patients through prioritization at a neurosurgery clinic
Esma Gel

3 - Optimal assignment of human resources to a public service organization: the case of using quantitative methods in a qualitative problem
Stelios Koukoumialos, Athanasios Spanos, Michael Vidalis

4 - Coordinating broker's procurement and logistics decisions
Itir Karaesmen

■ TA-29

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S311

Models in Game Theory: Solutions

Stream: Game Theory, Solutions and Structures
Chair: *Amparo Urbano*

1 - A two-step proportional rule for division with multiple characteristics
Miguel A. Hinojosa, Amparo Mármol

2 - Strategic vector-valued games with Rawlsian preferences
Amparo Mármol, Asunción Zapata, Luisa Monroy, Maria de los Angeles Caraballo

3 - Opinion formation and targeting when persuaders have extreme and centrist opinions
Agnieszka Rusinowska, Akylai Taalaibekova

4 - Multiproduct trading of indivisible goods with many sellers and buyers
Amparo Urbano, Ivan Arribas

■ TA-30

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S312

Operations Research Games I

Stream: Game Theory and Operations Management
Chair: *Ana Meca*

1 - Full null player in partition function form
M' Gloria Fiestras-Janeiro, Mikel Álvarez-Mozos, Andrés Jiménez-Losada, José María Alonso-Meijide

2 - Delay allocation in stochastic projects
Juan Carlos Gonçalves, Ignacio García-Jurado, Julian Costa

3 - Warning against recurring risks: an information design approach
Francis de Véricourt, Saed Alizamir, Shouqiang Wang

4 - A tractable network game of atomic dynamic flows
Bo Chen

■ TA-31

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S313

Behaviour in Models II

Stream: Behavioural OR
Chair: *Pekka Laitila*

1 - Does corporate social responsibility impact preferences in ESG portfolio optimization?
Gordon Dash, Nina Kajiji

2 - Simulation of cultural processes and their social impact
Leonidas Sakalauskas

3 - Affective decision making models with applications to social robotics
Si Liu, David Rios Insua

4 - On practical applicability of ranked nodes method for constructing conditional probability tables of Bayesian networks
Pekka Laitila, Kai Virtanen

■ TA-32

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S314

Picking and Location Assignment

Stream: Routing, Logistics, Location and Transportation
Chair: *Zehra Duzgit*

1 - Cooperation strategies for improving the order-picking operations in a synchronized zone picking warehouse
Ying-Chin Ho, Chih-Feng Chou

2 - An integrated cluster-based storage assignment policy
Masoud Mirzaei, Nima Zaerpour, René de Koster

3 - A new method to solve for exact upper bounds for interval transportation problem with uncertain supplies and demands
Kushani De Silva, Mohomed Juman

4 - Design of a warehouse order picking policy system using genetic algorithm
Zehra Duzgit, Ahmet Can Saner, Ozgur Toy

■ TA-33

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S315

Data Mining and Statistics IV

Stream: Data Mining and Statistics
Chair: *Edward Thommes*

1 - Public transport passenger flow analysis and prediction using alternating Markov-modulated linear regression
Nadezda Spiridovska, Irina Jackiva

2 - An application of process mining and association rule mining for indoor customer data
Onur Doğan, Basar Oztaysi

3 - Assessing the prior event rate ratio method via probabilistic bias analysis on Bayesian networks
Edward Thommes, Salaheddin Mahmud, Yinong Young-Xu, Julia Thornton Snider, Robertus van Aalst, Jason Lee, Ayman Chit

■ TA-34

Tuesday, 8:30-10:00 - SOUTH BUILDING UV S113

Reverse Logistics and Remanufacturing Networks

Stream: Sustainable Supply Chains
Chair: *Salvatore Cannella*

1 - Strategic design of multiple lifecycle products for remanufacturing operations
Neil Geismar, M. Serkan Akturk, James Abbey

2 - Inspecting the boomerang when it returns: on the impact of core quality grading on the bullwhip performance of closed-loop supply chains
Borja Ponte, Mohamed Naim, Aris Syntetos, Salvatore Cannella, Roberto Dominguez

3 - On the dynamics of closed-loop supply chain with stochastic remanufacturing lead times
Roberto Dominguez, Salvatore Cannella, Borja Ponte, Mohamed Naim, Aris Syntetos

4 - Bullwhip effect and closed-loop supply chains: systematic review and simulation analysis
Salvatore Cannella, Roberto Dominguez, Borja Ponte, Jose M Framinan

■ TA-48

Tuesday, 8:30-10:00 - 4D UPV B.3

Exploring Dynamic Behaviors in Humanitarian Operations

Stream: Humanitarian Operations
Chair: *Tharcisio Fontainha*

1 - Joint fundraising appeals: allocation rules and conditions that encourage aid agencies' collaboration
Tina Wakolbinger, Fuminori Toyasaki

2 - Improving disaster response processes through the application of the design structure matrix
Tharcisio Fontainha, Paulo Goncalves, Adriana Leiras

■ TA-49

Tuesday, 8:30-10:00 - 4D UPV B.4

OR in Agriculture II

Stream: OR in Agriculture, Forestry and Fisheries
Chair: *Concepcion Maroto*

1 - Risk evaluation of livestock farms by integrating GIS and multicriteria techniques
Áurea Gallego Salguero, Marina Segura, Concepcion Maroto, Consuelo Calafat Marzal, Israel Quintanilla

2 - Which is better for planning the bottling lines of an export-oriented winery: a stochastic linear programming model or a robust optimization model?
Sergio Maturana, Nicolas Villavicencio, Alejandro Mac Cawley

3 - Multi-objective optimization for the selection of wells for a water monitoring campaign of the Patiño aquifer, Paraguay
Christian von Lucken, Liz Báez, Cynthia Emilia Villalba Cardozo, Juan Pablo Nogues

4 - Aggregated linear programming models to estimate emissions of livestock production from animal diets
Concepcion Maroto, Marina Segura, Concepción Ginestar, Baldomero Segura

■ TA-50

Tuesday, 8:30-10:00 - 4D UPV 1.1

Optimization of Biomass-Based Supply Chains

Stream: Biomass-Based Supply Chains
Chair: *Magnus Fröhling*

1 - Designing optimal contracts between biomass processors and producers in the US biofuels industry
Sinem Tokcaer, Ozgur Ozpeynirci, Hayri Onal

2 - The effect of postponement strategies under sequence dependent setup times in the wine industry
Alejandro Mac Cawley, Sergio Maturana, Benjamin Bastidas, Mauricio Varas

3 - Households' decision processes in an agent-based simulation using PROMETHEE
Beatriz Beyer, Lars-Peter Lauven, Jutta Geldermann

4 - Combining GIS and location planning to evaluate biomass utilisation chains
Magnus Fröhling, Andreas Rudi, Charlie Liebscher

■ TA-51

Tuesday, 8:30-10:00 - 4D UPV 1.2

OR for Energy Systems Integration

Stream: Environmental Sustainability in Supply Chains
Chair: *Mel Devine*

1 - Energy sector integration - opportunities and challenges arising from an electrification of heating and transport sectors
Hans Christian Gils

2 - Multi-objective optimal congestion management in the German transmission grid
Manuel Ruppert, Viktor Slednev, Valentin Bertsch, Wolf Fichtner

3 - Soft-linking capacity expansion problems: development of local energy systems connected to the central grid
Stian Backe, Pedro Crespo del Granado, Dimitri Pinel, Asgeir Tomasgard, Magnus Korpås

4 - Modelling demand-side flexibilities from wastewater treatment plants in an integrated energy system
Dana Kirchem, Valentin Bertsch, Juha Kiviluoma, Muireann Lynch, Eoin Casey

■ TA-52

Tuesday, 8:30-10:00 - 4D UPV 1.3

Treatment Scheduling

Stream: OR for Health and Care I
Chair: *Bruno Vieira*

1 - Improving the efficiency of the operating room environment with a generalizable optimization and machine learning model
Margaret L. Brandeau

2 - Stochastic appointment scheduling in a team primary care practice with two nurses and two providers
Ana Muriel, Hyun Jung 'Joanne' Alvarez Oh, Hari Balasubramanian, Ekin Koker

3 - Effective and equitable appointment scheduling in rehabilitation centers
Pinar Keskinocak, Idil Arsik, Kirthana Hampapur, Kristin Goin

4 - Improving timeliness in radiotherapy using discrete-event simulation modeling
Bruno Vieira, Derya Demirtas, Jeroen B. van de Kamer, Erwin W. Hans, Wim van Harten

■ TA-53

Tuesday, 8:30-10:00 - 4D UPV 1.4

Product Line Design, Strategic Consumer Behavior, and Distribution Channel

Stream: Operations/Marketing Interface
Chair: *Ovunc Yilmaz*

1 - The impact of distribution channels on trial-version provision with a positive network effect
Fan Li, Zelong Yi

2 - Managing risk of change based on similarity of propagation effects
Qing Yang

3 - Empirically estimating strategic behavior for hotel standby upgrade programs
Ovunc Yilmaz, Mark Ferguson, Pelin Pekgun, Guangzhi Shang

■ TA-54

Tuesday, 8:30-10:00 - 4D UPV 1.6

OR in Sports

Stream: OR in Sports
Chair: *Stephan Westphal*

1 - Home-away pattern sets: properties, experiments, and flexibility
Frits Spieksma, Dries Goossens

2 - Fair players allocation in ATP tournaments generation
Gabriele Dragotto, Federico Della Croce, Rosario Scatamacchia

3 - Avoiding combinatorial clashes for The Champions Hockey League group stage draw
Stephan Westphal, Martin Dahmen

■ TA-55

Tuesday, 8:30-10:00 - 4D UPV 2.1

Technical Issues in Practice

Stream: Making an Impact I
Chair: *Sofiane Oussedik*

1 - Always count the cost - shortest path calculations in transport logistics
Stefan Hug

2 - IT architectures for OR applications deployment
Sofiane Oussedik

■ TA-56

Tuesday, 8:30-10:00 - 4D UPV 2.2

Optimization of Energy Systems

Stream: Optimization in Renewable Energy Systems
Chair: *Welington de Oliveira*

1 - Energy plant operation and installation plan via stochastic programming
Tomoki Fukuba, Shuichi Isomura, Takayuki Shiina

2 - On the determination of Turkish natural gas balancing and wholesale market prices
Kürşad Derinkuyu, Rabia Taspinar, Furkan Ezer, Melike Yıldız, Seher Onay, Sevde Nur Ozbolat, Pelin Tekin

3 - Optimization of biogas production by anaerobic digestion
Helenice Florentino, Daniela Cantane, Felipe Teles, Leandro Marcucci

4 - Stochastic dual dynamic programming with modified cuts applied to the Brazilian long-term hydrothermal scheduling problem
Welington de Oliveira, Felipe Beltrán, Guilherme Fredo, Erlon Finardi

■ TA-57

Tuesday, 8:30-10:00 - 4D UPV 2.3

Public Health Networks

Stream: Computational Biology, Bioinformatics and Medicine
Chair: *Justyna Rój*

1 - Minimizing health-compromising behaviors via school-based programs: an optimization approach
Banafsheh Behzad

2 - Markovian decision models to design public policies on critical patient units in a public health network
Alejandro Cataldo, Antoine Sauré, Jonathan Patrick

3 - Financial performance index for hospitals: DEA approach. Case of Poland
Justyna Rój

■ TA-58

Tuesday, 8:30-10:00 - 4D UPV 2.4

Teaching OR/MS III

Stream: OR Education
Chair: *Marta Pascoal*

1 - Students' preferences for learning operations research elicited by using qualitative and AHP methods
Marina Segura, Concepcion Maroto, Concepción Ginestar, José Ramónn Navarro

2 - How dropping their worst homework might be prejudicial to your students: an application of Simpson's paradox and its impact on equity
Javier Rubio-Herrero

3 - OR for children: robotic warehouse simulation using Lego Mindstroms
Lin Xie

4 - Introducing network optimization problems to middle school students
Marta Pascoal

■ TA-59

Tuesday, 8:30-10:00 - 4D UPV 2.5

Policy-Enabling Models for the Power Sector

Stream: Technical and Financial Aspects of Energy Problems
Chair: *Afzal Siddiqui*

1 - Analysis of storage and water value in power systems for policymaking on renewable energies
Diego Tejada, Afzal Siddiqui, Sonja Wogrin, Efraim Centeno Hernáez

2 - Switching options in peaking power plants: enticing availability by capacity remuneration
Stein-Erik Fleten, Erik Haugom, Alois Pichler, Carl Ullrich

3 - Utility-scale energy storage in an imperfectly competitive power sector
Ahti Salo, Vilma Virasjoki, Afzal Siddiqui

4 - Economic and environmental consequences of market power in the South-East Europe regional electricity market
Afzal Siddiqui, Verena Viskovic, Yihsu Chen, Makoto Tanaka

■ TA-60

Tuesday, 8:30-10:00 - 4D UPV B.5

EURO Excellence in Practice Award I

Stream: EURO Special Sessions
Chair: *Ulrich Dorndorf*

1 - A combinatorial exchange for fishery access rights
Martin Bichler, Douglas Ferrell, Vladimir Fux, Jacob Goeree

2 - Scheduling the South American qualifiers to the 2018 FIFA World Cup by integer programming
Guillermo Durán, Mario Guajardo, Denis Saure

3 - Operational research as a driver for rural regeneration
Valentina Ferretti, Elisa Gandino

Tuesday, 10:30-12:00

■ TB-01

Tuesday, 10:30-12:00 - UPV Nexus

Putting Operations Research to work

Stream: Keynotes
Chair: *Geir Hasle*

1 - Putting Operations Research to work
Iris F.A. Vis

■ TB-02

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S101

DEA, Banking, Financial Institutions II

Stream: DEA: Applications
Chair: *Lucie Chytilová*

1 - Discriminate analysis and data envelopment analysis with specific data and its application for companies in the Iranian stock exchange
Mohammad Fallah, Farhad Hosseinzadeh Lotfi, Alireza Amirteimoori, Mohsen Vaez-Ghasemi, Bijan Rahmani Parchikolaei, Mohammad Mehdi Hosseinzadeh

2 - Comparative analysis for mapping the relative positions of bank brands: an application of attribute-based perceptual mapping using factor analysis and DEA
Jinal Parikh

3 - The banking sector in Columbia from the perspective of relative efficiency
Gloria Rodriguez-Lozano

4 - Efficiency evaluation using DEA with interval dual-role factors at banking sector of Visegrad Group countries
Lucie Chytilová

■ TB-03

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S103

Facility Location in Transportation Networks

Stream: Location Analysis and Optimization
Chair: *Sanja Petrovic*

1 - Analysis of location model for charging facility considering driving distance
Yohei Kakimoto, Hiroyuki Goto, Yoichi Shimakawa, Hirotaka Takahashi

2 - Greedy, exact and hybrid solution methods applied to the traffic counters location problem in transportation networks
Bruno Vieira, Thayse Ferrari, Glaydston Ribeiro, Romulo Orrico, Nilo Campos Júnior, Leonel Teixeira Júnior, Leonardo Perim

3 - A branch and cut approach for location planning of electric vehicle recharging infrastructure
Paul Göpfert, Stefan Bock

4 - A capacitated directed cycle hub location problem under congestion and uncertainty
Cihan Butun, Sanja Petrovic, Luc Muyldermans

■ TB-04

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S104

Investments and Asset Allocations: Methods and Applications

Stream: New Challenges in Investment Strategies, Risk and Financial Modelling
Chair: *Anna Maria D'Arcangelis*

1 - Multivariate count processes analysis of defaults
Ana Escribano, Mario Maggi

2 - Optimal investment and deferred annuity choice with inflation and labour income risks
Chul Jang, Andrew Clare, Iqbal Owadally

3 - Intertemporal analysis of mutual funds investing in European stocks: the analysis of herding through centrality measures
Giulia Rotundo, Anna Maria D'Arcangelis

■ TB-05

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S105

Vehicle Routing under Uncertainty

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Epaminondas Kyriakidis*

1 - Algorithm for vehicle routing problem under uncertainty
Shuichi Isomura, Tomoki Fukuba, Takayuki Shiina

2 - The vehicle routing problem with dynamic occasional drivers - a multistage formulation
Lars Dahle, Henrik Andersson, Marielle Christiansen, Lars Magnus Hvattum

3 - A mean-variance objective for robust vehicle routing problem with uncertain demands
Marcella Bernardo, Jürgen Pannek

4 - A stochastic vehicle routing problem for the collection of two similar products
Epaminondas Kyriakidis, Constantinos Karamatsoukis, Theodosis Dimitrakos

■ TB-06

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S106

Store Management

Stream: Demand and Supply Management in Retail and Consumer Goods
Chair: *Youssef Boulaksil*

1 - Vertical integration of distribution and inventory management with pooling
Florian Arnold, Kenneth Sörensen, Johan Springael

2 - Solving the backroom layout problem in grocery stores
Maria Pires

3 - An optimization approach for product allocation with integrated shelf space dimensioning in retail stores
Alexander Hübner, Kai Schaal, Tobias Düsterhöft

4 - Optimal cash rationing strategies for a two-product, cash constrained retailer's inventory system under stochastic demand
Youssef Boulaksil

■ TB-07

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S107

Applications in Industrial Engineering

Stream: Analytic Hierarchy Process / Analytic Network Process
Chair: *Gülin Feryal Can*
Chair: *Pelin Toktaş*

1 - Selecting the best contractor company for a defense project by using AHP
Nurdinç Şenay, Muharrem Tasyurek

2 - A novel two stages intutitonistic fuzzy approach proposal based on ANP and matehematical modelling for risk assessment
Yelda Yener, Gülin Feryal Can

3 - AHP based KEMIRA approach for shopping mall selection
Pelin Toktaş, Gülin Feryal Can

4 - An integrated intuitionistic fuzzy approach based on AHP and MIACRA: an application for bevarage manufacturing
Gülin Feryal Can, Kumru Atalay

■ TB-08

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S108

Combinatorial Optimization on Graphs II

Stream: Combinatorial Optimization I
Chair: *Raffaele Cerulli*

1 - Heuristic algorithms for the strong generalized minimum label spanning tree
Andrea Raiconi, Carmine Cerrone, Ciriaco D'Ambrosio

2 - On the single door cross-docking problem
Marcello Sammarra, Manlio Gaudioso, M. Flavia Monaco

3 - A GRASP for the supervised learning minimum cost SAT problem
Giovanni Felici, Paola Festa, Tommaso Pastore, Daniele Ferone, Antonio Napoletano

4 - Optimizing the investments in mobile networks and subscriber migrations for a telecommunication operator
Adrien Cambier, Michael Poss, Rosa Maria Figueiredo, Matthieu Chardy, Adam Ouorou

■ TB-09

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S109

The Role of Data Science in Optimization

Stream: European Working Group: Data Science Meets Optimization
Chair: *Patrick De Causmaecker*

1 - A data-driven model for routing mobile medical facilities
Sibel Salman, Burcin Bozkaya, Eda Yücel, Cemre Gokalp

2 - Constraint learning using tensor (COUNT)
Mohit Kumar, Luc De Raedt, Stefano Teso

3 - Value of product location information in agrifood logistics decision making: a multi-level perspective
Viet Nguyen, Jacqueline Bloemhof

4 - Data, information, knowledge and optimisation.
Patrick De Causmaecker

■ TB-10

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S110

Decision Aiding Methods VI

Stream: Multiple Criteria Decision Aiding
Chair: *Samira El Gibari*

1 - Optimality and boundedness in interval linear programming: complexity and characterization
Elif Garajová, Milan Hladik, Miroslav Rada

2 - A novel FMEA model for machine tool risk analysis
James Liou, Huai-Wei Lo, Yen-Ching Chuang

3 - Sigma-Mu efficiency analysis: a new methodology for evaluating units through composite indices
Menelaos Tasiou, Salvatore Greco, Alessio Ishizaka, Gianpiero Torrisi

4 - A comparison of the MRP-WES method with other MCDM methods based synthetic indicators.
Samira El Gibari, Francisco Ruiz, Jose Manuel Cabello, Trinidad Gomez

■ TB-11

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S111

Customer Relationship Management

Stream: Business Analytics
Chair: *Dries Benoit*

1 - Integrating textual information in customer churn prediction models: a deep learning approach
Arno De Caigny, Kristof Coussement, Koen W. De Bock, Stefan Lessmann

2 - Time series classification for early churn prediction in dynamic networks
Tine Van Calster, María Óskarsdóttir, Bart Baesens, Wilfried Lemahieu

3 - Paradoxes of the retention reaction curve
Igor Sloev

4 - Social ties in customer referral programs
Iris Roelens, Philippe Baecke, Dries Benoit

■ TB-12

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S112

Fuzzy Sets Theory in MCDA

Stream: Fuzzy Optimization
Chair: *Kurt Nielsen*

1 - Techniques to model uncertain input data of multicriteria decision making problems: a literature review
Sarah Ben Amor, Renata Pelissari, Maria Celia de Oliveira, Alvaro Abackerli

2 - Using Fuzzy-DEMATEL method to explore decisive factors in after market of auto lighting industry
Jing Li, Chi-Hui Wu, Ching-Torng Lin, Jian-Ke Huang

3 - Risk assessment of pharmaceutical product distribution using intuitionistic fuzzy FMEA and TOPSIS model
Shahrzad Faghih Roohi, Alp Akcay, Yingqian Zhang, Eelco de Jong

4 - Multi-attribute procurement auctions with fuzzy attributes
Kurt Nielsen

■ TB-13

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S201

Algorithms in Continuous Optimization

Stream: Applications Related to Continuous Optimization
Chair: *Juan Carlos Cortés*

1 - Complexity of an inexact restoration method
Luis Felipe Bueno, José Mario Martínez

2 - Efficient alternating minimization methods for variational edge-weighted colorization models with sphere constraints
Maryam Yashtini

3 - Application of novelty search to the particle swarm optimization algorithm
Juan Carlos Cortés, David Martínez-Rodríguez, Clara Burgos-Simon, José-Ignacio Hidalgo, Rafael-J. Villanueva

■ TB-14

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S202

Sparse Optimisation with Applications

Stream: Nonlinear Programming: Methods
Chair: *Xiaoqi Yang*

1 - Restricted eigenvalue conditions and recovery bounds of l_q regularization problems
Xiaoqi Yang

2 - Lower-order regularization method for group sparse optimization with applications in systems biology
Yaohua Hu, Chong Li, Kaiwen Meng, Jing Qin, Xiaoqi Yang

3 - On the binary Eisenberg-Noe model and its extension
Yu-Hong Dai

4 - Balance analysis of sparsity and robustness for portfolio adjustment problem
Fengmin Xu

■ TB-15

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S203

Real-Life Vehicle Routing I

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Kemal Kaya*

1 - Integrated vehicle and pollster routing
Sandra Gutierrez, Luis Torres, Diego Recalde, Ramiro Torres, Pablo Zuleta, Andrés Miniguano

2 - Ambulance routing under nuclear facility disaster
Gyu M. Lee

3 - Vehicle routing with an endogenous learning effect: an application to offshore plug and abandonment campaign planning
Steffen Bakker

4 - A rich vehicle routing problem involving split deliveries, heterogeneous fleet, and outsourcing option
Kemal Kaya, Gultekin Kuyzu, Salih Tekin

■ TB-16

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S115

Maritime logistics

Stream: Green Logistics
Chair: *Harilaos Psaraftis*

1 - Optimal choice of speed reduction ports for shipping liners
Shuaian Wang

2 - A game theoretic approach to improve compliance to sulphur regulations
Thalis Zis

3 - Real-time schedule recovery in liner shipping service with regular uncertainties and disruption events
Chen Li

4 - The profit maximizing liner shipping problem with flexible frequencies: balancing economic and environmental performance
Harilaos Psaraftis, Massimo Giovannini

■ TB-17

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S205

Applications of Stochastic Optimization

Stream: Stochastic and Robust Optimization
Chair: *Patrizia Beraldi*

1 - Stochastic optimization of simulation models: management of scarce water resources under risk and uncertainty
Alexei Gaivoronski, Giovanni Sechi, Jacopo Napolitano, Paola Zuddas

2 - The capacitated supplier selection problem with total quantity discount and activation costs under demand uncertainty: exact and approximate approaches
Daniele Manerba, Guido Perboli

3 - A stochastic optimization model for healthcare facility network design in a disaster environment
Muge Acar, Onur Kaya

4 - Risk averse management of virtual power plants using stochastic programming
Patrizia Beraldi, Maria Elena Bruni, Antonio Violi, Gianluca Carrozzino

■ TB-18

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S206

Theoretical Developments in Problem Structuring Methods

Stream: Soft OR, Problem Structuring Methods
Chair: *Leroy White*

1 - Constructing problems and choosing methodologies for complex decision contexts
John Mingers

2 - Systemic risk analysis: analytical support to identify priorities from causal risk maps
Susan Howick, Colin Eden, Igor Pyrko

3 - Integrating problem structuring methods and concept-knowledge theory for enabling collective decision-making process for policy design: some hints from Cyprus case study
Irene Pluchinotta, Raffaele Giordano, Dimitrios Zicos, Tobias Krueger, Alexis Tsoukias

4 - Strong RLT1 bounds from decomposable Lagrangean relaxation for some quadratic 0-1 optimization problems with linear constraints
Monique Guignard-Spielberg, Jongwoo Park

■ TB-19

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S207

Vector and Set-Valued Optimization VI

Stream: Vector- and Set-Valued Optimization
Chair: *Elena Molho*

1 - Metric subregularity of the diagonal subdifferential operator and applications
Rita Pini, Monica Bianchi, Gabor Kassay

2 - Limit vector variational inequality problems
Monica Bianchi, Igor Konnov, Rita Pini

3 - Some duality results in set optimization with applications
Elena Molho, Elisa Caprari, Lorenzo Cerboni Baiardi

4 - Primal worst and dual best in robust vector optimization
Elisa Caprari, Elena Molho, Lorenzo Cerboni Baiardi

■ TB-20

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S301

Decision Analysis Applications II

Stream: Decision Analysis and Decision Support Systems
Chair: *Miguel Martínez-Panero*

1 - The effects of operations analysis on the 5th generation aircraft design
Muharrem Tasyurek, Nurdinç Şenay

2 - When is information sufficient for action? Search with unreliable yet informative intelligence
Moshe Kress

3 - Multi-criteria ABC inventory classification using AHP method
Makram Ben Jeddou

4 - Communities of interest and the districting problem
Miguel Martínez-Panero, Verónica Arredondo, Teresa Peña, Federica Ricca

■ TB-21

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S303

Convex Optimization

Stream: Convex, Semi-Infinite and Semidefinite Optimization
Chair: *Agnieszka Prusińska*

1 - Copositive approach to adjustable robust optimization
Markus Gabl

2 - A new fuzzy programming approach to solve bi-level decentralized multi-objective linear fractional programming problem
Tunjo Perić, Tihomir Hunjak

3 - Separable cubic model for solving smooth large-scale unconstrained minimization problems
Carmo Bras, José Mario Martínez, Marcos Raydan

4 - Implicit function and tangent cone theorems for singular inclusions. Applications to nonlinear programming
Agnieszka Prusińska, Ewa Bednarczuk, Alexey Tretyakov

■ TB-22

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S304

Many-Objective Optimization

Stream: Multiobjective Optimization
Chair: *Joao Duro*
Chair: *Robin Purshouse*

1 - Extreme point guided PICEA-g for nadir point estimation in many-objective optimization
Rui Wang, Jianmai Shi

2 - Machine learning analysis of solutions generated by many-objective Pareto local search
Andrzej Jaszkiewicz

3 - Multi-objective optimization for distributed design of complex systems
Joao Duro

4 - Toolkit for benchmarking multiobjective robust optimization algorithms
Shaul Salomon, Robin Purshouse

■ TB-23

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S305

Simulation in Management Accounting and Control

Stream: Agent-Based Simulation in Business and Economics
Chair: *Stephan Leitner*

1 - Cooperative behavior of Q-learning agents in a repeated Cournot oligopoly game
Christian Mitsch

2 - Analyzing the supplier structure in a buyer-supplier model over time: an agent-based model
Kristian Strmenik

3 - Utility maximization under model uncertainty
Ariel Neufeld

4 - An agent-based variant of the hidden-action problem: on the economics of reciprocity
Stephan Leitner, Friederike Wall

■ TB-24

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S306

Optimal Control

Stream: Optimal Control
Chair: *Stefan Wrzaczek*

1 - Gradient methods on strongly convex feasible sets and optimal control of affine systems
Vladimir Veliov

2 - A sequential decision process with stochastic action sets
Adam Narkiewicz

3 - Optimal control of a continuous-time W-configuration assemble-to-order system
Mohsen Elhafsi, Jianxin Fang, Herve Camus

4 - Using vintage structure for a multi-stage optimal control model with random switching time
Stefan Wrzaczek, Ivan Frankovic, Michael Kuhn

■ TB-25

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S307

Districting Problems: Models and Applications

Stream: Combinatorial Optimization II
Chair: *Ozgur Ozpeynirci*

1 - Mathematical model and grasp for the districting problem in home health care services in a rapid-growing Colombian city
Juan G. Villegas, Sebastian Cortes Zapata, Elena Valentina Gutierrez Gutierrez, Juan D. Palacio

2 - Political districting in Turkey: a proposal for more fair representation
Ozgur Ozpeynirci, Hayri Onal, Enver Yakın

3 - Mathematical model for a taxi-carsharing service
Aleksandra Panyukova, Valentina Dudareva

■ TB-26

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S308

Recovery and Congestion in Public Transportation Systems

Stream: Public Transportation I
Chair: *Esteve Codina*

1 - A routes-based heuristic for real-time railway traffic management problem
Ricardo Garcia-Rodenas, Maria Luz Lopez, Luis Cadarso

2 - Energy consumption and passenger compensation policy in disruption management from a microscopic point of view
Luis Cadarso, Ricardo Garcia-Rodenas

3 - Effects of introducing a control delay in real-time railway traffic management
Sofie Van Thielen, Francesco Corman, Pieter Vansteenwegen

4 - A transit network planning model integrating reliability and recoverability aspects
Esteve Codina, Francisca Rosell, Luis Cadarso

■ TB-27

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S309

Capacity Planning

Stream: Production, Service and Supply Chain Management
Chair: *Justus Arne Schwarz*

1 - Optimal supply contract for new product development with risk consideration
Guoqing Zhang, Shiping Zhu

2 - Combined effects of price, process flexibility and modularity for reducing supply-demand mismatch
Nishant K Verma

3 - An integrated production scheduling and workforce capacity planning model and analyses for maintenance repair operations in the airline industry
Fatma Sedanur Ozturk, Kadir Ertogral

4 - Analyzing the impact of finite capacity on sales and operations planning for product rollovers
Justus Arne Schwarz, Baris Tan

■ TB-28

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S310

Service systems

Stream: Service Operations Management
Chair: *Oualid Jouini*

1 - Simulation analytics for emergency medical services
Yong-Hong Kuo, Janny Leung, Colin Graham

2 - Early registration of patients: an empirical investigation of scheduling of emergency surgery rooms
Santamaria-Acevedo Gustavo, Oualid Jouini, Benjamin Legros, Zied Jemai

3 - A hybrid approach based on MACTOR and 2-tuple fuzzy linguistic representation for the analysis of the energy service company market
Ozgur Yanmaz, Cigdem Kadaifci, Umut Asan

4 - A simulation-based method for shift scheduling in multi-channel contact centers
Siqiao Li, Ger Koole, Oualid Jouini

■ TB-29

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S311

Solutions in Cooperative Game Theory

Stream: Game Theory, Solutions and Structures
Chair: *Juan Vidal-Puga*

1 - Bankruptcy with a variable number of agents and priorities
Miguel Ginés-Vilar

2 - Allocating the costs of cleaning a river: estimating responsibilities versus incentive compatibility
Gómez-Rúa María, Jorge Alcalde-Unzu, Elena Molis

3 - A panting rule in minimum cost spanning tree problems with multiple sources
Adriana Navarro Ramos, Gustavo Bergantinos

4 - One-way and two-way cost allocation in hub network problems
Juan Vidal-Puga, Gustavo Bergantinos

■ TB-30

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S312

Operations Research Games II

Stream: Game Theory and Operations Management
Chair: *Ana Meca*

1 - On sequencing situations with exponential and logarithmic cost functions
Alejandro Saavedra-Nieves, Peter Borm, Jop Schouten

2 - The effect of regulation and uncertainty on the investment incentives in the broadband market
Soumaya Amassaghrou

3 - Dynamic pricing, local and national advertising decisions in a supply chain under different leadership roles
Anshuman Chutani, Suresh Sethi

4 - Multiple corporation tax games: the role of dual and irreplaceable benefactors
Antonio José Mayor Serra, Ana Meca, Jose A. Garcia-martinez

■ TB-31

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S313

Behavioural Impacts in OR Practice

Stream: Behavioural OR
Chair: *Judit Lienert*

1 - A diagnostic approach to improve the design and evaluation of decision support interventions
Lisa Scholten

2 - Effects of or applications and characteristics of or practitioners: an empirical study
Violeta Cvetkoska

3 - How does literacy, decision style and loss aversion influence end-users' choice of electricity dynamic tariffs in a smart grid context?
Marta Lopes, Inês Reis, Carlos Henggeler Antunes

4 - To aggregate or disaggregate? Experience from stakeholder interviews with two preference elicitation philosophies (SWING-weighting, UTA-GMS)
Judit Lienert, Jun Zheng

■ TB-32

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S314

Multimodal Transportation

Stream: Routing, Logistics, Location and Transportation
Chair: *Kris Braekers*

1 - Dynamic multimodal freight routing using a co-simulation optimization approach
Maged Dessouky

2 - Integrating local drayage and network flow planning in intermodal transport
Hilde Heggen, An Caris, Kris Braekers

3 - Revenue-driven operational planning: sea-rail multimodal freight transportation vs road transportation
Aysun Mutlu, Yaşanur Kayıkçı, Bülent Çatay

4 - Intermodal terminal selection and its effect on pre- and end-haulage costs
Kris Braekers, Hilde Heggen, Noah Crauwels

■ TB-33

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S315

Data Mining and Statistics V

Stream: Data Mining and Statistics
Chair: *Emilio Carrizosa*

1 - Spatio-temporal clustering and sampling with continuous density-based distance weights
Antonia Gieschen, Jake Ansell, Belen Martin-Barragan, Raffaella Calabrese

2 - Probabilistic inference and evidence-based decision making with incomplete data
Jian-Bo Yang, Dong-Ling Xu

3 - Pattern analysis methods based on sorting algorithms
Alexey Myachin

4 - Evidential reasoning rule for sequential machine learning - an application to fault detection
Dong-Ling Xu, Jian-Bo Yang

■ TB-34

Tuesday, 10:30-12:00 - SOUTH BUILDING UV S113

Advances in Sustainable Supply Chain Dynamics

Stream: Sustainable Supply Chains
Chair: *Uğurcan Özden*

1 - Cyber-physical system application for sustainable supply chain management
Valentas Gruzauskas, Edita Gimzauskienė

2 - Government's optimal inter-temporal subsidy in the presence of uncertain cost reduction and strategic consumers
Weichun Chen, Benny Mantin, Bo Li

3 - Exploring pricing and incentivisation policies in the management of a closed loop supply chain
Brian Dangerfield

4 - A blockchain platform for raw material stock optimization
Uğurcan Özden, Y. Ilker Topcu

■ TB-48

Tuesday, 10:30-12:00 - 4D UPV B.3

Post-Disaster Relief Problems

Stream: Humanitarian Operations
Chair: *Andréa Cynthia Santos*

1 - An overview of the supply chain logistics with a limited autonomy vehicle problem
Ana Flavia Macambira, Pedro Henrique González, Hugo Barbalho, Luidi Simonetti

2 - Models and algorithms for emergency road accessibility after major earthquakes
Celso Satoshi Sakuraba, Andréa Cynthia Santos, Christian Prins

3 - Heuristics for last-mile distribution in case of large-scale earthquake
Andréa Cynthia Santos, Puca Huachi Penna, Christian Prins

■ TB-49

Tuesday, 10:30-12:00 - 4D UPV B.4

OR in Agriculture III

Stream: OR in Agriculture, Forestry and Fisheries
Chair: *LluisM Pla*

1 - Improving harvesting operations in an oil palm plantation
Daniel Castillo-Gómez, Mariana Escallon, Jorge Leal, Andres Medaglia, Carlos Montenegro

2 - Postharvest quality characteristics according to harvest time of strawberry 'Seolhyang' grown in Korea
SaeJin Hong, YoungRog Yeoung, Seong-Jun Kim, Jeong Hee Choi

3 - Design of silicon pads in the forced-air cooling treatment for harvested strawberries
Seong-Jun Kim, SaeJin Hong, Jeong Hee Choi

4 - Supporting fresh fruit purchase and storage decisions through a system based on a mixed integer programming model
Wladimir E. Soto-Silva, Marcela C. Gonzalez-Araya, LluisM Pla

■ TB-50

Tuesday, 10:30-12:00 - 4D UPV 1.1

Modeling Tools for Energy and Sustainable Policy I

Stream: Long-term Planning in Energy, Environment and Climate
Chair: *Sandrine Selosse*

1 - In decarbonizing the European electric sector - the role of interconnections
Seyram Siggini, Jerôme Gutierrez, Sophie Demassey, Edi Assoumou

2 - Benefits of energy storage and transmission switching in power systems with high renewable energy penetration
Meltem Peker, Ayse Selin Kocaman, Bahar Yetis Kara

3 - An optimization model for carbon capture & storage/utilization vs. carbon trading and its application
Semra Agrali, F. Gorkem Uctug, Burcin Atilgan Turkmen

4 - The influence of carbon storage and biomass potentials in the future development of bioenergy with carbone capture and storage
Sandrine Selosse

■ TB-51

Tuesday, 10:30-12:00 - 4D UPV 1.2

Modelling Challenges in Energy Systems Analysis

Stream: Environmental Sustainability in Supply Chains
Chair: *Mel Devine*

1 - Solving problems with equilibrium constraints with an application to energy markets
Sauleh Siddiqui

2 - An augmented Lagrangian approach for solving the optimal generator placement problem in a transmission grid with a high share of renewable energies
Viktor Slednev, Manuel Ruppert, Valentin Bertsch, Wolf Fichtner

3 - Justification for the use of a dynamic gas flow formulation
Andreas Belderbos, Erik Delarue

4 - Modelling the impact of demand response on different electricity markets: results and issues
Mel Devine, Valentin Bertsch

■ TB-52

Tuesday, 10:30-12:00 - 4D UPV 1.3

Healthy Diets

Stream: OR for Health and Care I
Chair: *J.c. Gerdessen*

1 - A mathematical model to establish an optimal diet in Spain following Mediterranean standards
Monica Hernandez, Trinidad Gomez, Laura Delgado Antequera, Rafael Caballero

2 - Diet optimization for vulnerable groups in Ecuador
Fernanda Salazar, Sandra Gutierrez

3 - Recommending healthy meal plans using a many-objective optimization approach
Cumali Türkmenoğlu, A. Sima Etaner-Uyar, Berna Kiraz

4 - Synergy between OR and nutrition research: decision-making in dietary assessment and advice
J.c. Gerdessen, G.D.H. (Frits) Claassen, Jack van der Vorst, Pieter van 't Veer

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■ TB-53

Tuesday, 10:30-12:00 - 4D UPV 1.4

Big Data, Social Media, and Personal Data

Stream: Operations/Marketing Interface
Chair: *José P. Garcia-Sabater*

1 - Big data vs small data: consumer profiling with data requirements
Jiahua Wu

2 - Economics of free mobile applications: personal data
Vincent Lefrere

3 - STEM and teens: an algorithm bias on a social media
Clara Jean

4 - Distributed programming production planning with a shared capacity coordinated by a Lagrangian relaxation model on a rolling horizon
Gregorio Rius-sorolla, Julien Maheut, José P. Garcia-Sabater

■ TB-54

Tuesday, 10:30-12:00 - 4D UPV 1.6

Sport Strategy Optimization

Stream: OR in Sports
Chair: *Susanne Hoffmeister*

1 - Optimizing a golfer's strategy with MDPs
Matthieu Guillot, Gautier Stauffer

2 - Optimizing strategic substitution in soccer
Jörg Rambau, Rónán Rian Carl Richter

3 - Decision-making in sport's annual planning
Sarka Krizkova, Martin Gavalec

4 - Markov decision processes for sport strategy optimization
Susanne Hoffmeister, Jörg Rambau

■ TB-55

Tuesday, 10:30-12:00 - 4D UPV 2.1

Lost in Translation

Stream: Making an Impact I
Chair: *Joaquim Gromicho*

1 - Lost in translation: expectations and misconceptions
Joaquim Gromicho

■ TB-56

Tuesday, 10:30-12:00 - 4D UPV 2.2

Optimization in Renewable and Energy Systems I

Stream: Optimization in Renewable Energy Systems
Chair: *Ayşe Mutlu Derya*

1 - Cost effective electrical public transport network design
Jeroen Vester, Shadi Sharif Azadeh

2 - Common effluent treatment plants locations allocation modelling in an industrial cluster
Saurabh Chandra, Manish Sarkhel

3 - Short-term wind speed prediction using multivariable dense data for optimum micro-grid operations
Tansu Filik, Ümmühan Başaran Filik

4 - Electromagnetic field optimization for Turkey's transportation energy demand estimation
Alkin Yurtkuran, Ilker Kucukoglu

■ TB-57

Tuesday, 10:30-12:00 - 4D UPV 2.3

Software for Mixed-Integer Optimization I

Stream: Software for Optimization
Chair: *Gregor Hendel*

1 - On signed symmetries in MILP
Imre Polik, Philipp Christophel

2 - How to fold a linear program
Timo Berthold, Qi Huangfu, Michael Perregaard

3 - Gurobi 8.0 - what's new
Michael Winkler

4 - More performance with the new generic callback in CPLEX 12.8
Xavier Nodet

■ TB-58

Tuesday, 10:30-12:00 - 4D UPV 2.4

Topics on Education

Stream: OR Education
Chair: *Joao Miranda*

1 - Evaluating the potential trade-off between students' satisfaction and school performance using multiobjective programming
Sandra González Gallardo, Oscar David Marcenaro Gutierrez, Mariano Luque

2 - Predicting job selection based on departmental courses by using clustering and adaptive regression methodologies
Ayşe Kuyrukçu, Fatma Yerlikaya Özkurt

3 - Training schools and supply chain stakeholders for medicines shortages (cost action CA15105)
Joao Miranda, Sarah Ben Amor

4 - Study on optimization of charge of quarters scheduling in military academy
Minsu Kim

■ TB-59

Tuesday, 10:30-12:00 - 4D UPV 2.5

Integrating Renewable Energy Resources into Power Systems

Stream: Technical and Financial Aspects of Energy Problems
Chair: *Raquel García-Bertrand*

1 - Inertia changes in power systems with high wind power plant integration. An overview of frequency analysis challenges
Ana Fernandez-Guillamon, Angel Molina-Garcia, Antonio Vigueras-Rodriguez

2 - Spot market, futures and risk management in the integration of renewable resources
Carlos Ruiz, Paolo Falbo

3 - Optimizing storage allocation and investment for transmission constrained networks considering losses and high renewable penetration
Sonja Wogrin, Diego Tejada, Dean Yacar

4 - Robust transmission network expansion planning under correlated uncertainty
Raquel García-Bertrand, Cristina Roldán, Roberto Mínguez, José Manuel Arroyo

■ TB-60

Tuesday, 10:30-12:00 - 4D UPV B.5

EURO Excellence in Practice Award II

Stream: EURO Special Sessions
Chair: *Ulrich Dorndorf*

1 - The OR revolution in Vattenfall BA Wind
Martina Fischetti, Jesper Runge Kristoffersen, Michele Monaci, David Pisinger

2 - Blending systems thinking approaches for organisational analysis: reviewing child protection in England
David Lane, Eileen Munro, Elke Husemann

3 - An efficient algorithm for milk transport logistic optimization developed for the dairy industry enterprise Zott SE & Co. KG
Sascha Wörz, Michael Schmid, Heinz Bernhardt

Tuesday, 12:30-14:00

■ TC-01

Tuesday, 12:30-14:00 - UPV Nexus

MINLP and the cost of interpretability in Data Science

Stream: Keynotes
Chair: *Emilio Carrizosa*

1 - MINLP and the cost of interpretability in Data Science
Dolores Romero Morales

■ TC-02

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S101

DEA in Education

Stream: DEA: Applications
Chair: *Nabil Amara*

1 - Assessing the education frontiers in Vietnam
Minh Hanh Le, Heinz Ahn

2 - Benchmarking in higher education using data envelopment analysis and the Bologna process data
Kazim Baris Atici, Aydin Ulucan, Akin Ozkan

3 - Measuring academic research efficiency: a comparison of results from parametric and nonparametric methods
Nabil Amara, Nizar Souiden, Mehdi Rhaiem

4 - Evaluation of disaster management system: a case study of earthquake performance in Turkey
Erdem Aksakal, Ufuk Altınsoy

■ TC-03

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S103

Facility Location and Sustainability

Stream: Location Analysis and Optimization
Chair: *Glaydston Ribeiro*

1 - Compromise programming for closed loop supply chain networks
Said Salhi, Chandra Irawan, Muhammad Abdulrahman

2 - Solving a bi-objective facility location problem in the presence of uncertainty
Najmesadat Nazemi, Sophie Parragh

3 - Ambulance simulation package
Samuel Ridler, Andrew J Mason, Andrea Raith

4 - Literature review of facility location and environmental issues
Vanessa de Almeida Guimarães, Glaydston Ribeiro

■ TC-04

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S104

Dynamic Asset allocation

Stream: New Challenges in Investment Strategies, Risk and Financial Modelling
Chair: *Roy Cerqueti*
Chair: *Mario Maggi*

1 - Networks and market-based measures of systemic risk: the global banking system in the aftermath of the financial crisis
Chiara Pederzoli, Gian Paolo Clemente, Rosanna Grassi

2 - Optimal investment strategies with stochastic interest rate and minimum performance constraint
Daniele Marazzina

3 - Discounting of mean reverting cash flows
Henrik Andersson

4 - A beta decomposition to set up a low beA asset allocation strategy
Mario Maggi, Antonio Amendola, Dennis Montagna

■ TC-05

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S105

Pickup and Delivery Problems

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Cristiam Gil*

1 - An exact formulation for the one-to-one pickup and delivery problem with divisible split ups
Bolor Jargalsaikhan, Ward Romeijnders, Kees Jan Roodbergen

2 - Order first cluster second algorithm for pick up and delivery problem
Tejas Ghorpade, Narayan Rangaraj

3 - A two-compartment single vehicle routing problem with simultaneous pickups and deliveries, stochastic demands and predefined customer order
Constantinos Karamatsoukis, Roza Zakar, Epaminondas Kyriakidis, Theodosis Dimitrakos

4 - A column-generation based model to pickup and delivery problem with transfers
Cristiam Gil

■ TC-06

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S106

Retail Distribution Planning II

Stream: Demand and Supply Management in Retail and Consumer Goods
Chair: *Thomas Archibald*

1 - Solving the integrated order picking and vehicle routing problem with order batching and delivery time windows
Daniel Schubert, Heinrich Kuhn, Andreas Holzapfel

2 - Collaborative load plan design in the retail market: the pickup hub and delivery problem
Axel Grimault, Yun He, Fabien Lehuédé, Juliette Medina, Olivier Péton

3 - Integrating consumer preferences and shelf life data in urban e-grocery logistics planning
Christian Fikar, Andreas Mild, Martin Waitz

4 - Designing effective proactive transshipments in retail networks
Thomas Archibald, Kevin Glazebrook, Sandra Rauscher

■ TC-07

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S107

Timetabling under Capacity Constraints

Stream: Public Transportation II
Chair: *Nikola Besinovic*

1 - Integrated micro-macro railway timetable
Miguel Angel Ruiz Sanchez, Ángel Marín, Luis Cadarso, Esteve Codina

2 - Periodic timetabling with limited infrastructure capacity
Sebastian Albert, Soumya Dutta, Julius Pätzold, Narayan Rangaraj

3 - A mathematical model for timetabling problem in railway transportation
Fatih Bahar, Lale Ozbakir, Pınar Tapkan, Sinem Kulluk, M. Burak Telcioglu

4 - A new flexible headway model for designing operationally feasible railway timetables
Nikola Besinovic

■ TC-08

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S108

Applications in Industry and Services I

Stream: Combinatorial Optimization I
Chair: *José Fernando Oliveira*

1 - A dynamic IRP approach for the smart waste collection problem
Tania Ramos, Carolina Soares de Morais, Ana Barbosa-Povoa

2 - A heuristic approach to dispatch and conflict-free routing problem of capacitated vehicles for container transfers and relocations in a warehouse setting
Emmanouil Thanos, Tony Wauters, Greet Vanden Berghe

3 - Cruise itineraries optimal scheduling
Gianni Di Pillo, Stefano Lucidi, Renato Mari, Massimo Roma

4 - Integrating capacity and pricing under uncertainty in the car rental business
José Fernando Oliveira, Beatriz Brito Oliveira, Maria Antónia Carravilla, Alysson Costa

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■ TC-09

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S109

Matheuristics

Stream: Matheuristics
Chair: *Tony Wauters*

1 - A matheuristic improvement procedure for the Euclidean travelling salesman problem
Peter Greistorfer, Moritz Kettele, Rostislav Staněk

2 - A matheuristic approach for forming, scheduling and routing field service teams with prioritized multi-skill tasks
Seray Çakırgil, Eda Yücel, Gultekin Kuyzu

3 - Two decomposition strategies for a constructive matheuristic applied on shift minimization personnel task scheduling problem
Reshma Chirayil Chandrasekharan, Pieter Smet, Tony Wauters

4 - A math-heuristic approach for the bus driver scheduling problem for a company in Bogotá-Colombia
Juan Castillo

■ TC-10

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S110

Decision Aiding Methods VII

Stream: Multiple Criteria Decision Aiding
Chair: *Salvatore Greco*

1 - On generating utility functions in stochastic multicriteria acceptability analysis (SMAA)
Luis C. Dias, Rudolf Vetschera

2 - SURE: a method for decision-making under uncertainty
Richard Hodgett, Sajid Siraj

3 - Multiple criteria hierarchy process and stochastic analysis for a nominal classification method based on similarity and dissimilarity
Ana Sara Costa, Salvatore Corrente, Salvatore Greco, José Rui Figueira, José Borbinha

4 - Robust ordinal regression and stochastic multicriteria acceptability analysis for the level dependent Choquet integral
Salvatore Greco, Sally Giuseppe Arcidiacono, Salvatore Corrente

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■ TC-11

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S111

Fraud Analytics

Stream: Business Analytics
Chair: *Cristian Bravo*

1 - Accounting fraud analytics for effective corporate regulation
Maria Jofre

2 - Including fine-grained features in customs fraud detection
Jellis Vanhoeyveld, David Martens, Bruno Peeters

3 - From one-class to two-class classification by incorporating expert knowledge
Dieter Oosterlinck, Dries Benoit, Philippe Baecke

4 - A text analytics-based decision support system for detecting fraudulent car insurance claims
Cristian Bravo, Andres Medina, Rodrigo Joannon, Richard Weber

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■ TC-12

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S112

Maritime Transportation

Stream: Maritime Transportation
Chair: *Yauheni Kisialiou*

1 - Integrating fleet deployment into liner shippingvessel repositioning
Kevin Tierney, Daniel Wetzel

2 - The effects of the ultra large container ship on port choice and call size
Nemanja Milovanovic

3 - Contracting in ocean shipping market with empty container repositioning under asymmetric information
Mingzhu Yu, Ruina Yang, Chung-Yee Lee

4 - Robust supply vessel planning under weather and demand uncertainty
Yauheni Kisialiou, Irina Gribkovskaia

■ TC-13

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S201

Financial Literacy and Investment Choices

Stream: Financial Modeling, Risk Management and Managerial Accounting
Chair: *Rosella Castellano*

1 - Money's importance from the religious perspective
Claudiu Herteliu, Ionel Jianu, Iulia Jianu, Catalin Vasile Bobb, Gurjeet Dhesi, Marcel Ausloos

2 - Financial literacy: systematic literature review and future research agenda
Sebastian Ion Ceptureanu

3 - The explanatory power of financial literacy on consumer financial behaviors: new evidences from Europe
Gianni Nicolini, Marlene Haupt

4 - What if versus probabilistic financial investment scenarios: a behavioural and physiological investigation
Rosella Castellano, Gaetano Tieri, Giorgia Ponsi, Marco Mancinelli

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■ TC-14

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S202

Optimization Algorithms on Riemannian manifolds

Stream: Nonlinear Programming: Methods
Chair: *Orizon P Ferreira*
Chair: *Chong Li*

1 - A two-phase proximal-like algorithm in domains of positivity
Paulo Oliveira

2 - Some tools in geometric optimization
Genaro Lopez

3 - Newton's method for semismooth vector field on Riemannian manifolds
Orizon P Ferreira, Fabiana R. de Oliveira

4 - Proximal point method for locally Lipschitz functions in multiobjective optimization on Hadamard manifolds
Glaydston Bento, João Xavier da Cruz Neto, Lucas Vidal

■ TC-15

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S203

Real-Life Vehicle Routing II

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Ramin Raeesi*

1 - The 3L-VRPTW with advanced real-world loading constraints
Corinna Krebs, Henriette Koch, Andreas Bortfeldt

2 - Integrated routing and scheduling of salt trucks with replenishment in urban areas
Sorour Zehtabiyan, Gultekin Kuyzu, Eda Yücel

3 - An optimization model for the raw material pick-up process of a CGC through VRP
Lara Kasirga, Y. Ilker Topcu

4 - The robust multi-objective pollution routing problem on urban roadway networks
Ramin Raeesi, Konstantinos G. Zografos

■ TC-16

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S115

Green Logistics Applications

Stream: Green Logistics
Chair: *Panagiotis Angeloudis*

1 - Maritime vessels bunkering problem under the window time constraint
Mouna Aissaouislaoui, Mohamed Benslimane, Tarik Zouadi, Khalid El Yassini

2 - Charging station placement in free-floating electric car sharing systems
Georg Brandstätter, Markus Leitner, Mario Ruthmair

3 - A competitive multiperiod supply chain network model with freight carriers and green technology investment option
Jose Cruz, Sara Saberi, Joseph Sarkis, Anna Nagurney

4 - Design of intermodal sustainable supply chains using inland waterways
Panagiotis Angeloudis, Pablo Achurra-Gonzalez

■ TC-17

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S205

Robust Optimization - Theory and Applications

Stream: Stochastic and Robust Optimization
Chair: *Chungmok Lee*

1 - Uniform distribution approach in chance constraint stochastic transportation problem
Shubham Singh, M.p. Biswal

2 - Robust stochastic network flow interdiction
Joe Naoum-Sawaya

3 - Robust scheduling with common due-date and interval processing times uncertainty
Maciej Drwal

4 - A bi-label programming approach for robust transitline planning problem
Chungmok Lee, Rahul Nair

■ TC-18

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S206

Understanding the Practice of Problem Structuring Methods

Stream: Soft OR, Problem Structuring Methods
Chair: *Mike Yearworth*

1 - Applying a context and action framework to evaluate the interactions between the context, content, and process of problem structuring methods
Adrian Small, David Wainwright

2 - Examining the case for the routine use of problem structuring methods as a stimulus for anticipatory organisational change
David Lowe, Karen Clark, Gerald Midgley, Mike Yearworth

3 - Quantifying the value of problem structuring interventions?
Mike Yearworth, Patrick Tully, Leroy White, Katharina Burger

■ TC-19

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S207

Vector and Set-Valued Optimization VII

Stream: Vector- and Set-Valued Optimization
Chair: *Enrico Miglierina*

1 - Saddle point conditions for weak and proper efficiency in vector optimization
Giandomenico Mastroeni

2 - On the existence of solutions to quasiequilibrium problems
Massimiliano Giuli

3 - Stability of convex feasibility problem: the finite dimensional case
Enrico Miglierina, Carlo Alberto De Bernardi, Elena Molho

4 - Stability for the convex feasibility problem: the infinite-dimensional case
Carlo Alberto De Bernardi, Enrico Miglierina, Elena Molho

■ TC-20

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S301

Multiattribute and Bayesian Methods in Decision Making and Negotiation

Stream: Decision Analysis and Decision Support Systems
Chair: *Ilkka Leppanen*

1 - On rationality conditions for multi-attribute choice behavior
Pekka Korhonen, Jyrki Wallenius, Tolga Genc, Peng Xu

2 - A bilateral negotiation model using a Bayesian process of beliefs updating
María Jesús Rufo Bazaga, Jacinto Martín, Carlos Javier Pérez Sánchez

3 - Bayesian factorization machines for risk management and robust decision making
Pablo Angulo, Víctor Gallego, David Gómez-Ullate, Pablo Súarez-García

4 - Decision support system for search engine advertising campaign management by determining negative keywords
Başak Tavşanoğlu, Kemal Kilic

■ TC-21

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S303

Games and Networks

Stream: Convex, Semi-Infinite and Semidefinite Optimization
Chair: *Laura Rosa Maria Scrimali*

1 - Myerson value and position value in network games
Ayşe Mutlu Derya

2 - Bridging effect, simple games, and an importance measure for edges
Jia-Ping Huang

3 - Types of nodes and centrality measures in networks
Vladimir Matveenko, Alexei Korolev

4 - Coalitional games in evolutionary supply chain networks
Laura Rosa Maria Scrimali

■ TC-22

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S304

Multiobjective Integer and Mixed Integer Programming Problems: Methods and Applications I

Stream: Multiobjective Optimization
Chair: *Ozlem Karsu*
Chair: *Firdevs Ulus*

1 - A novel multi-objective approach for sustainable aggregate production planning: a case study
Seyyed Amir Babak Rasmi, Metin Turkay, Cem Kazan

2 - An algorithm for solving bi-objective integer programming problems
Firdevs Ulus, Ozlem Karsu, Saliha Ferda Dogan

3 - Vector optimization models on combinatorial configuration sets and approaches to their solution
Liudmyla Koliechkina, Oksana Pichugina

4 - Generating evenly distributed equitably efficient solutions in multi-objective optimization problems
Ozlem Karsu, Bashir A. Bashir

■ TC-23

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S305

Agent-Based Modeling and Simulation

Stream: Agent-Based Simulation in Business and Economics
Chair: *Loretta Mastroeni*

1 - Agent-based models for opinion dynamics: a survey
Maurizio Naldi, Loretta Mastroeni, Pierluigi Vellucci

2 - An agent-based methodology to quantify relations between security and efficiency in air transport systems
Stef Janssen, Alexei Sharpanskykh, Ricky Curran

3 - Analytic modelling of the dynamics of multi-agent systems
Stefania Monica, Federico Bergenti

4 - Agent-based models for personal finance decisions
Pierluigi Vellucci, Loretta Mastroeni, Maurizio Naldi

■ TC-24

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S306

Dynamical Models in Sustainable Development I

Stream: Dynamical Models in Sustainable Development
Chair: *Stein Ivar Steinshamn*
Chair: *Pierre Kunsch*

1 - Social efficiency of road transportation system in EU member states: a dynamic eco-inefficiency approach
Agnieszka Lejkowska, Seyedkeyvan Hosseini

2 - The dynamic network DEA model with future performance for eco-efficiency analysis in OECD countries
Wendi Ouyang

3 - Solar farm land analysis using AHP technique
Inmacualada Guaita-Pradas, Inmaculada Marqués, Baldomero Segura

4 - Three species and three agents on a common ground: an optimization model with strategic and biological interaction
Stein Ivar Steinshamn, Nils-Arne Ekerhovd

■ TC-25

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S307

Optimization in Safety and Security

Stream: Combinatorial Optimization II
Chair: *Karl Doerner*

1 - Path inconsistency: models and exact approaches
Philipp E.H. Salzmann, Michael Schilde, Karl Doerner

2 - A comparison of different graph networks for the periodic vehicle routing problem with time spread constraints
Adria Soriano, Thibaut Vidal, Margaretha Gansterer, Karl Doerner

3 - Metaheuristics for the multi-objective and periodic node edge, arc routing problem considering costs and route inconsistency
Georg Erwin Adrian Fröhlich, Michael Schilde, Karl Doerner

4 - Fast and stochastic optimal resource planning for electric grids in emergencies
Sumanta Mukherjee, Krishnasuri Narayanam, Amith Singhee, Francisco Barahona, Joao Goncalves

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■ TC-26

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S308

Optimization in Public Transport and Shared Mobility

Stream: Public Transportation I
Chair: *M. Grazia Speranza*

1 - Integration methods for aircraft scheduling and trajectory optimization at a busy terminal manoeuvring area
Marcella Samà, Andrea DAriano, Konstantin Palagachev, Matthias Gerdts

2 - Optimal multi-line bus dispatching at terminals with electric charging scheduling constraints
Marco Rinaldi, Federico Parisi, Andrea D'Ariano, Francesco Viti, Georgios Laskaris

3 - Determining the most vulnearable components in transportation networks
Necati Aras, Hande Kucukaydin, Aylin Oncu

4 - The shared customer collaboration vehicle routing problem
M. Grazia Speranza, Elena Fernandez, Mireia Roca-Riu

■ TC-27

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S309

Inventory Models

Stream: Production, Service and Supply Chain Management
Chair: *Gholam Reza Nasiri*

1 - A simulation-based optimal inventory management model considering dynamic demand in IoT environment
Doo-hwan Kim, Sangha Sung, Kangbae Lee, Hyeon Jo

2 - An inventory model with non-linear holding cost and return on investment maximization
Joaquin Sicilia-Rodriguez, Valentín Pando-Fernández, Luis A. San-José-Nieto

3 - Production smoothing and safety stock placement in supply networks
Kunal Kumar, Tarik Aouam

4 - An internal financing approach in the FMCG supply chain planning companies: a direct inventory improvement procedure with a case study
Gholam Reza Nasiri

■ TC-28

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S310

Dynamic Programming for Revenue Mangement, Pricing, and Control

Stream: Service Operations Management
Chair: *Dan Adelman*

1 - Dynamic lead-time quotation for substitutable products
Tuba Yilmaz Gozbasi, Esma Gel, Pinar Keskinocak

2 - A price-responsive occupant-aware thermostat
Canan Uckun, Dan Adelman

3 - Dynamic matching of workers to jobs with learning curves
Dan Adelman, Adam Mersereau

■ TC-29

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S311

Game Theory, Solutions and Structures II

Stream: Game Theory, Solutions and Structures
Chair: *Ignacio García-Jurado*

1 - The Coleman-Shapley-index: being decisive within the coalition of the interested
Frank Huettner, André Casajus

2 - Characterizing weighted prenucleoli without consistency
Peter Sudhölter, Pedro Calleja, Francesc Llerena

3 - Axiomatic foundations of a unifying concept of core for games in effectiveness form
Stéphane Gonzalez, Aymeric Lardon

4 - Values, nullifiers and dummifiers
Ignacio García-Jurado, Julian Costa, José María Alonso-Meijide

■ TC-30

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S312

Cooperative Games of Operations Management

Stream: Game Theory and Operations Management
Chair: *Ulas Ozen*

1 - Cooperation in urban consolidation centers
Behzad Hezarkhani

2 - Maximal covering location games: an application for the coast guards
Loe Schlicher

3 - Vaccine allocation: a cooperative game theoretic approach
Marieke Musegaas, Loe Schlicher, Evelot Duijzer

4 - On the core of m-attribute games
Ulas Ozen, Marco Slikker

■ TC-31

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S313

Behavioural Processes in OR practice

Stream: Behavioural OR
Chair: *L. Alberto Franco*

1 - In praise of the introverted: an extended use of soft systems methodology mode 2
Jose-Rodrigo Cordoba-Pachon, Sulafah Basahel

2 - Framing strategies and their impact on client/consultant meetings
Ashley Carreras, L. Alberto Franco

3 - Learning multi-criteria decision aiding workshop facilitation: experience from student case studies
Francis Marleau Donais, Irene Abi-Zeid

4 - Formulations in facilitation practice: an exploratory video-based investigation of their use in situ
L. Alberto Franco, Mie Nielsen

■ TC-32

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S314

Order Batching and Picking

Stream: Routing, Logistics, Location and Transportation
Chair: *Utku Koc*

1 - Using flexible routing to improve the performance of a synchronized sequential zone-picking system
Shan-Nung Chu, Ying-Chin Ho

2 - The cafeteria problem: order sequencing and picker routing in on-the-line picking systems
Stefan Fedtke, David Füßler, Nils Boysen

3 - Local search based strategies to solve the order batching problem
Çağla Cergibozan, A. Serdar Tasan

4 - Integrated order acceptance, production planning and distribution problems
Utku Koc, Selçuk Gören

■ TC-33

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S315

Data Mining, Statistics Theory and Its Applications

Stream: Data Mining and Statistics
Chair: *Carly Foster*

1 - Remaining useful life estimation based on deep learning approach
Youngji Yoo, Jun-Geol Baek

2 - Analyzing business conditions by quantitative text analysis -time series analysis using appearance rate and principal component
Nariyasu Yamasawa

3 - Data science techniques applied to analysis of incidents registered by the 1-1-2 Canary Islands emergency services
Carlos Perez Gonzalez, Marcos Colebrook, José Luis Roda-García, Carlos Rosa Remedios, Teno González Dos Santos

4 - A realist evaluation of a learning analytics pilot project at Northumbria University, UK
Carly Foster

■ TC-34

Tuesday, 12:30-14:00 - SOUTH BUILDING UV S113

Stochastic Optimization with Application

Stream: Dynamical Systems and Mathematical Modelling in OR
Chair: *Yukihiro Maruyama*

1 - An adversarial risk analysis approach for differential games: a botnet defense model
Jorge Gonzalez-Ortega, David Rios, Antonio Gomez-Corral

2 - Multiple optimal decision rules and their applications in finance
Georgy Sofronov

3 - Optimal approximate dynamic programming strategies for online caching problem in wireless networks
Xinan Yang

4 - On non-deterministic sequential decision processes and its applications
Yukihiro Maruyama

■ TC-48

Tuesday, 12:30-14:00 - 4D UPV B.3

Humanitarian Problems under Uncertain Parameters

Stream: Humanitarian Operations
Chair: *Christophe Duhamel*
Chair: *Andréa Cynthia Santos*

1 - Optimization of pre- and post-disaster decisions in infrastructure risk management
Camilo Gomez

2 - Inventory management of perishable items in long-term humanitarian operations using Markov decision processes
Guilherme Ferreira, Edilson Arruda

3 - Forecasting material requirements in ERP-based humanitarian logistics
Jose Gavidia

4 - Modeling the field hospitals location problem after natural disasters
Christophe Duhamel, Andréa Cynthia Santos

■ TC-49

Tuesday, 12:30-14:00 - 4D UPV B.4

OR in Agriculture and Fisheries

Stream: OR in Agriculture, Forestry and Fisheries
Chair: *Pall Jensson*

1 - Multi-diet formulation model under activity-based costing for animal feed production
Adela Pages Bernaus, Virna Ortiz-araya, LluisM Pla, Jordi Mateo, Francesc Solsona, Dídac Florensa

2 - Determining the eco-efficiency of Chilean raspberry orchards through two LCA+DEA methods: an empirical comparison from an environmental and an operational point of view
Lidia Angulo Meza, Ricardo Rebolledo-Leiva, Marcela C. Gonzalez-Araya, Alfredo Iriarte

3 - An extended approach allowing endogeneity in stochastic frontier models: an application to agricultural Brazilian municipal data
Geraldo Souza, Eliane Gomes

4 - Linear optimization model for fish processing production planning
Pall Jensson

■ TC-50

Tuesday, 12:30-14:00 - 4D UPV 1.1

Modeling Tools for Energy and Sustainable Policy II

Stream: Long-term Planning in Energy, Environment and Climate
Chair: *Sandrine Selosse*

1 - EU and Norwegian policy analysis using CGE modelling
Gerardo Perez Valdes

2 - The Canadian contribution to limiting global warming below 2 degree C: an analysis with NATEM
Olivier Bahn, Kathleen Vaillancourt, Oskar Sigvaldason

3 - Combining spatial analysis and choice experiments for the evaluation of sustainable neighbourhood strategies
Caterina Caprioli, Marta Bottero, Marina Bravi, Chiara D'Alpaos, Federico Dell'Anna, Giulio Mondini

4 - Multi-objective multi-item fixed-charge solid transportation problem with green supply chain network in an intuitionistic fuzzy environment
Sankar Kumar Roy

■ TC-51

Tuesday, 12:30-14:00 - 4D UPV 1.2

Radiotherapy Optimization

Stream: OR for Health and Care II
Chair: *Matthias Ehrgott*

1 - Beam angle optimization in IMRT: are we really optimizing what matters?
Joana Matos Dias, Humberto Rocha, Tiago Ventura, Brígida da Costa Ferreira, Maria do Carmo Lopes

2 - Targeted multi-criteria optimization in imrt planning using knowledge based model creation
Katrin Teichert, Philipp Süss

3 - Scheduling radiotherapy treatments considering stochastic appointment durations, patient unavailability and machine breakdowns
Petra Vogl, Roland Braune, Walter Gutjahr, Karl Doerner

4 - Evaluating the quality of radiotherapy treatment plans for prostate cancer
Emma Stubington, Matthias Ehrgott, Omid Nohadani

■ TC-52

Tuesday, 12:30-14:00 - 4D UPV 1.3

Workforce Planning

Stream: OR for Health and Care I
Chair: *Inês Marques*

1 - Workforce planning for palliative care specialists in Nova Scotia: an operational research approach
Majid Taghavi, Grace Johnston, Robin Urquhart, David Henderson, Cheryl Tschupruk, Beth Tupala

2 - Improving shift schedule of non-urgent patient transportation ambulances while maximizing emergency coverage
Theresia van Essen, Pieter van den Berg

3 - The big data newsvendor: practical insights from machine learning
Gah-Yi Ban, Cynthia Rudin

■ TC-53

Tuesday, 12:30-14:00 - 4D UPV 1.4

International Aspects of OR I

Stream: International Aspects of OR
Chair: *Ulrike Reisach*

1 - Liberated social entrepreneur using business metrics: QZenobia refugee/migrant big data analytics startup
Berat Kjamili, Gerhard-Wilhelm Weber

2 - Artificial intelligence and ethics - an international comparison of perceptions and policies
Ulrike Reisach

■ TC-54

Tuesday, 12:30-14:00 - 4D UPV 1.6

Soccer Analytics

Stream: OR in Sports
Chair: *Nobuyoshi Hirotsu*

1 - The return to leadership: empirical evidence from football
Daniel Weimar, Joachim Prinz

2 - Regression based ratings for individual football players
Lars Magnus Hvattum

3 - Serial correlation in DEA applied to soccer teams and interpretation of weights
Lucia Isabel Garcia-Cebrian

4 - A Markov process approach for modeling a soccer game in the analysis of characteristics of teams
Nobuyoshi Hirotsu, Keita Inoue, Kenji Yamamoto

■ TC-55

Tuesday, 12:30-14:00 - 4D UPV 2.1

Optimization R Us: Using R for Data-Driven Optimization

Stream: Making an Impact I
Chair: *Joaquim Gromicho*

1 - Optimization R Us: using R for data-driven optimization
Joaquim Gromicho

■ TC-56

Tuesday, 12:30-14:00 - 4D UPV 2.2

Optimization in Renewable and Energy Systems II

Stream: Optimization in Renewable Energy Systems
Chair: *Andreas Bley*

1 - Capacity payments, price cap, and the missing money problem
Irena Milstein, Asher Tishler

2 - Bilevel linear programming investment problems with lower-level primal and dual variables
Henrik Bylling, Steven Gabriel, Trine Krogh Boomsma

3 - Electromagnetic field optimization algorithm for the photovoltaic solar cell parameter estimation problem
Ilker Kucukoglu, Alkin Yurtkuran

■ TC-57

Tuesday, 12:30-14:00 - 4D UPV 2.3

Software for Mixed-Integer Optimization II

Stream: Software for Optimization
Chair: *Timo Berthold*

1 - Benchmarks of commercial and noncommercial optimization software
Hans Mittelmann

2 - Adaptive algorithmic behavior for solving mixed integer programs using bandit algorithms
Gregor Hendel, Matthias Miltenberger, Jakob Witzig

3 - Learning to tune parameters of NUOPT MILP solver
Koichi Fujii

4 - To use or not to use an algebraic modeling language (such as OPL)?
Alex Fleischer

■ TC-58

Tuesday, 12:30-14:00 - 4D UPV 2.4

OR Promotion among Academia, Businesses, Governments

Stream: OR Education
Chair: *Gerhard-Wilhelm Weber*

1 - The contest approach for funding research in academic units
Baruch Keren, Yossi Hadad, Yizhaq Minchuk

2 - OR/MS education and international cooperation for employability
Joao Miranda, Ana Paula Teixeira

3 - A system-dynamics approach to assess the factors which influence the quality of primary education in developing countries
Gerhard-Wilhelm Weber, Pedamallu Chandra Sekhar, Linet Ozdamar, Herman Mawengkang, Hanife Akar

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■ TC-59

Tuesday, 12:30-14:00 - 4D UPV 2.5

OR Models for the Operation and Planning of Integrated Energy Systems

Stream: Technical and Financial Aspects of Energy Problems
Chair: *Juan Miguel Morales*

1 - A three-stage stochastic optimization model for the design of smart energy districts under uncertainty
Matteo Zatti, Emanuele Martelli, Juan Miguel Morales

2 - Operational detail in long-term energy-system planning models: assessment of the impact and moving forward
Kris Poncelet, Erik Delarue

3 - Investments in merchant energy storage: trading-off between energy and reserve markets
Hrvoje Pandzic

4 - Chronological time-period clustering for optimal capacity expansion planning with storage
Salvador Pineda Morente, Juan Miguel Morales

■ TC-60

Tuesday, 12:30-14:00 - 4D UPV B.5

Meet the editors EJDP

Stream: EURO Special Sessions
Chair: *Vincent Mousseau*

1 - **EURO Journal on Decision Processes - Meet the Editors**
Vincent Mousseau

Tuesday, 14:30-16:00

■ TD-01

Tuesday, 14:30-16:00 - UPV Nexus

Integrated Optimization in Public Transportation: Does it help?

Stream: Keynotes
Chair: *Daniele Vigo*

1 - **Integrated Optimization in Public Transportation: Does it help?**
Anita Schöbel

■ TD-02

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S101

DEA, Agriculture, Food

Stream: DEA: Applications
Chair: *Natalia Kuosmanen*

1 - **The techical efficiency of Turkish crop production: a comparison of data envelopment analysis and stochastic frontier analysis**
Bulent Cekic, Cem Menten, Kazim Baris Atici

2 - **Designing healthier diets using data envelopment analysis**
Argyris Kanellopoulos, Ante Ivancic, J.c. Gerdessen

3 - **The analysis of relative efficiency of small food and drink producers across selected EU countries using DEA**
Zrinka Lukač, Margareta Gardijan

4 - **How creative destruction of farms affects total factor productivity of Finnish agricultural sector?**
Natalia Kuosmanen, Timo Kuosmanen

■ TD-03

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S103

Location in the Public Sector and Humanitarian Logistics

Stream: Location Analysis and Optimization
Chair: *Carmela Piccolo*

1 - **Optimal location of base hospitals for doctor-helicopters**
Takamori Ukai, Ken-ichi Tanaka

2 - **Reorganizing existing facilities network using multi-period model**
Zati Aqmar Zaharudin, Andrea Genovese, Andrew Brint

3 - **Benefit maximizing network design in the public sector**
Robert Aboolian, Oded Berman

4 - A multi-type facility location problem to support territorial re-organization decisions in non-competitive contexts
Giuseppe Bruno, Antonio Diglio, Carmela Piccolo

■ TD-04

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S104

Portfolio Modelling

Stream: New Challenges in Investment Strategies, Risk and Financial Modelling
Chair: *Francesco Cesarone*

1 - On the numerical stability of asset allocation models
Pierpaolo Uberti, Maria Laura Torrente

2 - The l1-regularization for dynamic-portfolio selection
Stefania Corsaro, Valentina De Simone, Zelda Marino, Francesca Perla

3 - On the stability of portfolio selection models
Francesco Cesarone, Fabio Tardella, Carlo Mottura, Mustafa Cagri Gurbuz, Jacopo Maria Ricci

4 - Robustness via noncooperative games
Giancarlo Bigi, Simone Sagratella

■ TD-05

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S105

Routing Problems with Drones

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Ahmad Hemmati*

1 - Formulations and algorithms for multi-trip drone routing problem with time windows
Yossiri Adulyasak, Chun Cheng, Louis-Martin Rousseau

2 - Traveling salesman problem with multi-drone
Emine Es Yurek, H. Cenk Özmutlu

3 - Vehicle routing problem with drones: a computational study
Daniel Schermer, Mahdi Moeini, Oliver Wendt

4 - A multi-modal truck and drone delivery system
Ahmad Hemmati, Mohammad Moshref-Javadi, Matthias Winkenbach

■ TD-06

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S106

Stochastic Modeling and Simulation in Engineering, Management and Science I

Stream: Stochastic Modeling and Simulation in Engineering, Management and Science
Chair: *Christopher Kirkbride*

1 - Analysis of lot priority rules in semiconductor production systems by queuing networks
Bernhard Oberegger, Boualem Rabta, Gerald Reiner

2 - Determination of important disease spread characteristics using Markov chain models
Zeynep Gökçe İşlier, Wolfgang Hörmann, Refik Gullu

3 - An integrated inventory replenishment, lateral transshipments, and routing problem
Hussein Naseraldin, Shiry Varem, Aharon Ben-Tal

4 - Effective heuristic policies for time-critical intelligence gathering operations
Christopher Kirkbride

■ TD-07

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S107

Recent Advances in Line Planning, Timetabling and Crew Scheduling

Stream: Public Transportation II
Chair: *Valentina Cacchiani*

1 - Combined line planning and train timetabling for strongly heterogeneous railway lines
Fei Yan, Rob Goverde

2 - Robust train timetabling and stop planning with uncertain passenger demand
Jianguo Qi, Valentina Cacchiani, Lixing Yang

3 - Column generation approach: a case study for light railway public transportation system
Sinem Kulluk, Lale Ozbakir, M. Burak Telcioglu, Pınar Tapkan, Fatih Bahar

4 - Line planning and train timetabling using passenger demand data
Valentina Cacchiani, Gert-Jaap Polinder, Marie Schmidt, Dennis Huisman

■ TD-08

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S108

Applications in Industry and Services II

Stream: Combinatorial Optimization I
Chair: *Helena Ramalhinho Lourenco*

1 - A branch-price-and-cut algorithm for optimal decoding in LDPC-based communications
Banu Kabakulak, Z. Caner Taşkın, Ali Emre Pusane

2 - A dual-ramp algorithm for the uncapacitated multiple allocation hub location problem
Telmo Matos, Fábio Maia, Dorabela Gamboa

3 - Using mobile electric platforms for droid or drone-based last mile deliveries
Hagen Salewski, Dominik Goeke

4 - Optimizing factory logistics in an automotive industry
Helena Ramalhinho Lourenco, Marcelus Lima

■ TD-09

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S109

Evaluation as a Service for Optimization and Data Science

Stream: European Working Group: Data Science Meets Optimization
Chair: *Szymon Wasik*
Chair: *Maciej Antczak*

1 - Optil.io: platform supporting evaluation as a service architecture
Szymon Wasik, Maciej Antczak, Jan Badura, Artur Laskowski

2 - Using contests to crack algorithmic and data science problems
Rinat Sergeev, Jin Paik

3 - Review of online platforms supporting evaluation of algorithms
Artur Laskowski, Maciej Antczak, Jan Badura, Szymon Wasik

4 - Brilliant challenges: lessons learned while collecting evaluation data for optimization problems
Maciej Antczak, Jan Badura, Artur Laskowski, Jacek Blazewicz, Szymon Wasik

■ TD-10

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S110

Decision Aiding Methods VIII

Stream: Multiple Criteria Decision Aiding
Chair: *Salvatore Corrente*

1 - Comparing consistency indices of multiplicative pairwise comparison matrices
Bice Cavallo

2 - Some properties of the additive representation of preferences in pairwise comparisons
Michele Fedrizzi, Matteo Brunelli, Alexandra Caprila

3 - Effectiveness-equity tradeoffs in the aggregation of preferences
Srinivas Prasad, Luis Novoa, Atilla Ay

4 - Interactive evolutionary multiobjective optimization through dominance-based rough set approach: the knapsack problem
Salvatore Corrente, Salvatore Greco, Benedetto Matarazzo, Roman Slowinski

■ TD-11

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S111

Sales Forecasting

Stream: Business Analytics
Chair: *Kristof Coussement*

1 - Comparing the ability of Twitter and Facebook data to predict box office sales
Matthias Bogaert, Michel Ballings, Dirk Van den Poel, Asil Oztekin

2 - Gaussian processes for daily demand prediction in the hospitality industry
Wai Kit Tsang, Dries Benoit

3 - Container dwell time prediction via analytics techniques
Rosa G. González-Ramírez, Sebastian Maldonado

4 - Design and development of a business diagnostico tool
Jairo César Gómez Acero, Stefany Murillo, Eduardo Rodriguez Araque

■ TD-12

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S112

Liner Shipping Optimization

Stream: Maritime Transportation
Chair: *Kevin Tierney*

1 - Cargo fare class mix problem in synchromodal container transportation
Judith Mulder, Bart Van Riessen, Rudy Negenborn, Rommert Dekker

2 - Container liner shipping cargo-mix: a study on capacity utilisation
Dario Pacino, Jonas Christensen

3 - A decomposed Fourier-Motzkin framework to derive capacity models of container vessels
Mai Ajspur, Rune Jensen

4 - The stochastic liner shipping fleet repositioning problem with uncertain container demands
Stefan Kuhlemann, Kevin Tierney, Achim Koberstein

■ TD-13

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S201

Credit Risk Modeling

Stream: Financial Modeling, Risk Management and Managerial Accounting
Chair: *Cristian Bravo*

1 - A relabelling approach to handling the class imbalance problem in consumer credit risk modelling
Yazhe Li, Tony Bellotti, Niall Adams

2 - OR and sovereign contingent debt instruments
Andrea Consiglio, Stavros Zenios

3 - Deep learning for text-based credit scoring for micro, small and medium enterprises
Matthew Stevenson, Cristian Bravo

■ TD-14

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S202

Optimization and Equilibrium Problems

Stream: Nonlinear Programming: Methods
Chair: *Genaro Lopez*

1 - Linear convergence of gradient algorithm on Riemannian manifolds
Xiangmei Wang, Chong Li

2 - Equilibrium problems on Riemannian manifolds with applications
Chong Li, Genaro Lopez, Xiangmei Wang

3 - A variational equilibrium formulation for humanitarian organizations under competition
Patrizia Daniele, Anna Nagurney, Emilio Alvarez-Flores, Valeria Caruso

4 - A continuous optimisation approach for aiming strategies in solar power tower plants
Thomas Ashley, Emilio Carrizosa, Enrique Fernández-Cara

■ TD-15

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S203

New Applications in Vehicle Routing I

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Elena Fernandez*

1 - Delivery process with flexibility using automated parcel lockers
Ido Orenstein, Tal Raviv

2 - Interday scheduling and routing of multi-skilled teams with consistency consideration and rescheduling option
Yulia Anoshkina, Frank Meisel

3 - A ride-sharing problem with meeting points and return restrictions
Wenyi Chen, Martijn Mes, Marco Schutten

4 - Target visitation arc routing with clustered demand
Elena Fernandez, Gilbert Laporte, Gerhard Reinelt, Jessica Rodríguez-Pereira

■ TD-16

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S115

Discrete and Global Optimization I

Stream: Discrete and Global Optimization
Chair: *Dorit Hochbaum*

1 - An overview and comparison of metaheuristics for the two-dimensional strip packing problem
Georgina Rakotonirainy, Jan van Vuuren

2 - The solid assignment problem
Mohamed Mehbali, Dhia Kadhem, Abdellah Salhi, Xinan Yang

3 - Distributed integral simplex using decomposition for set partitioning problems
Omar Foutlane

4 - Multi-period probabilistic set covering problem
Konstantin Pavlikov

■ TD-17

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S205

Advances in Stochastic and Robust Optimization

Stream: Stochastic and Robust Optimization
Chair: *Francesca Maggioni*

1 - Optimization under uncertainty: a comparison of approaches based on dominance
Marie Schmidt

2 - Robust optimization with mixed-integer uncertainty sets
Juan Borrero, Leonardo Lozano

3 - Robust optimization approach for multivariate stratified sample surveys
Mohammad Asim Nomani, Jan Pablo Burgard, Mirjam Duer, Ralf Münnich

4 - Guaranteed bounds for general non-discrete multistage risk-averse stochastic optimization programs
Francesca Maggioni, Georg Pflug

■ TD-18

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S206

Different Perspectives on Problem Structuring Methods

Stream: Soft OR, Problem Structuring Methods
Chair: *Isabella Lami*

1 - Aesthetic perspectives in OR interventions
Edoardo Fregonese, Isabella Lami, Elena Todella

2 - Design and integration of methodologies for the management of organizations
Maria Alejandra Castellini, Alberto Paucar-Caceres, Jose Luis Zanazzi

3 - A refreshed pedagogical agenda for problem structuring methods
Stephen Harwood, Maurizio Tomasella

4 - Exploring idea development in tool-supported group development
Isabella Lami, L. Alberto Franco, Elena Tavella

■ TD-19

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S207

Sustainable Supply Chain Operations

Stream: Supply Chain Management I
Chair: *Peter Berling*

1 - Where to exert carbon abatement efforts in a supply chain?
Yann Bouchery, Astrid Koomen, Tarkan Tan

2 - Joint carbon abatement efforts in supply chains
Tarkan Tan, Mohsen Reisi Ardali, Behnam Fahimnia, Charles Corbett

3 - A dual sourcing inventory model for modal split transport
Sandra Transchel, Chuanwen Dong, Stefan Minner

4 - An assessment of the potential carbon emission savings from lot sizing decisions
Marcel Turkensteen, Wilco van den Heuvel

■ TD-20

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S301

Behavioural Aspects in Spatial Decisions

Stream: Decision Analysis and Decision Support Systems
Chair: *Valentina Ferretti*

1 - Several models for the comparison of decision maps
Valérie Brison, Marc Pirlot

2 - Multicriteria and multi-stakeholder negotiation related to strategic environmental assessment of ore ports development in maritime Guinea
Jean-Philippe Waaub, Mariama Diallo, Dan Lansana Kourouma

3 - How to support spatial decision making?
Magdalena Wagner

4 - Cognitive biases in spatial decision-making processes
Valentina Ferretti

■ TD-21

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S303

Optimization and Variational Analysis

Stream: Nonlinear Programming: Theory
Chair: *Rafael Correa*
Chair: *Marco A. López-Cerdá*

1 - Nonconvex integration using epsilon-subdifferentials
Rafael Correa

2 - Lyapunov pairs for perturbed sweeping processes
Emilio Vilches

3 - Hiriart-Urruty'-Phelps-like formula for the subdifferential of integral sums
Abderrahim Hantoute

4 - Moreau-Rockafellar type for the subdifferential of the supremum function
Marco A. López-Cerdá, Rafael Correa, Abderrahim Hantoute

■ TD-22

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S304

Multiobjective Integer and Mixed Integer Programming Problems: Methods and Applications II

Stream: Multiobjective Optimization
Chair: *Ozlem Karsu*
Chair: *Firdevs Ulus*

1 - Multiple stock size two dimensional cutting stock problem - an application to a marble company
Umutcan Ayasandir, Meral Azizoglu, Murat Koksalan

2 - Interactive approaches for bi-objective UAV route planning in continuous space
Hannan Tureci, Murat Koksalan, Diclehan Tezcaner Ozturk

3 - Interactive multi response surface optimization under uncertainty for robust parameter design
Melis Özates Gürbüz, Gülser Köksal, Murat Koksalan

4 - An efficient implementation for searching optimal paths in multi-objective networks
Natsumi Takahashi, Shao-Chin Sung

■ TD-23

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S305

Lot Sizing I - Stochastic Models

Stream: Lot Sizing, Lot Scheduling and Production Planning
Chair: *Roberto Rossi*
Chair: *Mengyuan Xiang*

1 - Multi-echelon multi-product capacitated lot-sizing problem with lead time and uncertain demand
Simon Thevenin, Yossiri Adulyasak, Jean-François Cordeau

2 - Safety stock allocation under capacity constraints and customer-specific service-times in multi-echelon inventory routing
Sebastian Malicki, Stefan Minner

3 - Solving the integrated lot-sizing and cutting stock problem under demand uncertainty
Eduardo Curcio, Vinícius Loti de Lima, Flávio Keidi Miyazawa, Elsa Silva, Pedro Amorim

4 - An efficient heuristic for joint replenishment problems
Mengyuan Xiang, Roberto Rossi, Belen Martin-Barragan

■ TD-24

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S306

Dynamical Models in Sustainable Development II

Stream: Dynamical Models in Sustainable Development
Chair: *Penka Petrova*

1 - Optimal pest control through geometric catastrophes
Theodosis Dimitrakos, Epaminondas Kyriakidis

2 - System dynamics modeling for sustainable development in agricultural value chains
Busra Atamer Balkan, Sedef Meral

3 - Developing a water sustainable development index (WSDI)
Jonathan Morris

4 - Explaining the link between the sustainable economic system and the efficient education system: the opposite example of Bulgaria
Penka Petrova, Ross Kazakov

■ TD-25

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S307

EURO Young O.R. Researchers

Stream: Combinatorial Optimization II
Chair: *Alberto Santini*
Chair: *Martina Fischetti*

1 - Branch-and-cut-and-price strategy for the port-scheduling problem
David Sacramento Lechado

2 - A tabu-search algorithm for the routing open shop problem with time windows and precedence constraints
Erik Hellsten

3 - The energy collection problem in offshore wind parks
Martina Fischetti

4 - A hybrid machine learning and ALNS approach to the orienteering problem
Alberto Santini

■ TD-26

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S308

Railway Optimization

Stream: Public Transportation I
Chair: *Samuel Deleplanque*

1 - Real-time train rescheduling
Andrea Bettinelli, Matteo Pozzi, Luigi Marzio, Daniele Vigo, Massimo Rosti, Rosalba Suffritti, Davide Nucci, Antonio Di Carmine

2 - A stochastic optimization approach to rail yield management at Trenitalia by IBM
Alessandra Berto, Stefano Gliozzi

3 - Modelling train movements for time-tabling
Per Olov Lindberg, Disa Asplund, Martin Aronsson, Jan-Eric Nilsson

4 - Optimizing the shunting yards
Samuel Deleplanque, Paola Pellegrini, Joaquin Rodriguez

■ TD-27

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S309

Line Balancing

Stream: Production, Service and Supply Chain Management
Chair: *Dug Hee Moon*

1 - Balancing and sequencing assembly lines for stochastic demand product mixes
Celso Gustavo Stall Sikora

2 - Simultaneous line balancing and buffer allocation for single model assembly line with stochastic task times
Elif Gizem Göçer, Salih Tekin

3 - Collision-free multi-robot collaboration in assembly line balancing
Erdal Emel, İsmail Enes Parlak

4 - Effects of buffer allocations in a mixed-models flow lines considering designated workers
Dug Hee Moon, Lee Younghoon, Yang Woo Shin, Chang Seong Ko

■ TD-28

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S310

Incentives and customers in services

Stream: Service Operations Management
Chair: *Kenan Arifoglu*

1 - Service systems with rationally inattentive customers
Caner Canyakmaz, Tamer Boyaci

2 - Spatio-temporal service performance of two car-sharing operators under customer substitution
Szymon Albinski, Stefan Minner

3 - Outsourcing and reservation: tools to manage blended sales and services operations in call centers
Benjamin Legros, Oualid Jouini, Ger Koole

4 - Hospital readmission reduction program: the roles of yardstick competition and limited capacity
Kenan Arifoglu, Hang Ren, Tolga Tezcan

■ TD-29

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S311

Game Theory, Solutions and Structures III

Stream: Game Theory, Solutions and Structures
Chair: *Marco Dall'Aglio*

1 - Assignment games with an informed player
Saadia El Obadi, Silvia Miquel, Marina Nunez

2 - Characterization of allocation rules for set covering situations
Manuel A. Pulido Cayuela, Gustavo Bergantinos, Gómez-Rúa María, Natividad Llorca, Joaquin Sánchez-Soriano

3 - Construction of contractually stable partitions for additive hedonic games
Masaya Tanaka, Shao-Chin Sung

4 - Algorithms in the court: the CREA project
Marco Dall'Aglio

■ TD-30

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S312

Game Theoretic Models in Sustainable Operations

Stream: Game Theory and Operations Management
Chair: *Sam Aflaki*

1 - Hedging and strategic forward trading with renewable energy in electricity supply chains
Derck Koolen, Wolfgang Ketter, Liangfei Qiu, Alok Gupta

2 - Retail location competition under carbon penalty
Ozgen Karaer, Emre Nadar, Hande Dilek

3 - Performance-based contracts for energy efficiency projects
Sam Aflaki

4 - Competition in carbon-offset markets
Gokce Esenduran

■ TD-31

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S313

Behavioural Impacts in OR-Supported Processes II

Stream: Behavioural OR
Chair: *Raimo P. Hämäläinen*

1 - Can we learn from wrong simulation models? An experimental study exploring simple models
Naoum Tsioptsias, Antuela Tako, Stewart Robinson

2 - Impact of dashboards visualizing causal and stock-flow structure on operations management performance
Michael Leyer, Jürgen Strohhecker

3 - A drop in the bucket? Evaluating decision aiding tools in wastewater infrastructure planning cases
Fridolin Haag, Judit Lienert

4 - Behavioural effects in two procedures for creating a strategy portfolio for climate change mitigation
Raimo P. Hämäläinen, Tuomas Lahtinen

■ TD-32

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S314

Evacuation and Route Planning

Stream: Routing, Logistics, Location and Transportation
Chair: *Pedro M. Casas*

1 - A mesoscopic framework to model evacuation dynamics: a case study on a university campus
Jorge Huertas, Jony Zambrano, Andres Medaglia

2 - Bi-level sustainable random regret minimization problem
Shabnam Najafi

3 - The free route flight planning problem
Adam Schienle, Ralf Borndörfer, Marco Blanco

4 - Airspace evacuation strategies
Pedro M. Casas

■ TD-33

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S315

Recent Perspectives and Advances in Statistics

Stream: Data Mining and Statistics
Chair: *Müjgan Tez*

1 - A simulation study comparing the performances of GAM, GAM with B-spline(GAMB) and GLM in classification
Pakize Taylan

2 - Financial time series forecasting using a fuzzy support vector machine
Engin Tas, Ayca H. Turkan

3 - Study of the European Parliament votes through the multiple partitioning of signed multiplex networks
Nejat Arinik, Rosa Figueiredo, Vincent Labatut

4 - A numerical approach for statistical inference of nonlinear regression model parameters
Özlem Türkşen, Müjgan Tez

■ TD-34

Tuesday, 14:30-16:00 - SOUTH BUILDING UV S113

Game Theory and its Applications

Stream: Dynamical Systems and Mathematical Modelling in OR
Chair: *Ryusuke Hohzaki*

1 - Rationalizability in multicriteria games
Yasuo Sasaki

2 - A search game with an interdictor
Atsushi Kurosu, Ryusuke Hohzaki, Takamori Ukai, Yutaka Sakuma, Syuuji Yamada

3 - Effect of retailer's profit maximization on the amount of unsold products in the presence of strategic customers
Yasushi Masuda, Taishi Kawahara, Hideaki Takagi

4 - A dynamic security game considering cameras and invaders' passage time
Ryusuke Hohzaki

■ TD-48

Tuesday, 14:30-16:00 - 4D UPV B.3

Humanitarian Strategical and Risk Management Problems

Stream: Humanitarian Operations
Chair: *Celso Satoshi Sakuraba*
Chair: *Andréa Cynthia Santos*

1 - Location model of shelters and warehouses, and stock prepositioning, considering the population behavior of evacuation at home level
Pamela P. Alvarez, Andrés Bronfman, Francisca Carrera

2 - An integrated acquisition and download schedule for satellite constellations given environmental and security scenario requirements
Maria José Pinto, Ana Isabel Barros, Pieter van Gelder, Ron Noomen, Monica M De Marchi

3 - Forecasting for disaster relief
Nezih Altay

4 - Interactive what-if oriented PDDL planning for collaborative crisis management
Yann Semet, Bruno Marcon, Mario Fiorentino, Marcello Cinque

■ TD-49

Tuesday, 14:30-16:00 - 4D UPV B.4

OR in Forestry I

Stream: OR in Agriculture, Forestry and Fisheries
Chair: *Lidija Zadnik Stirn*

1 - Integrating biodiversity conservation in forest management planning through multicriteria decision making techniques
Marta Ezquerro, Marta Pardos, Luis Diaz-Balteiro

2 - Integrated management of forest ecosystem services: an optimisation model based on multicriteria analysis and methaeuristic approach
Sandro Sacchelli, Iacopo Bernetti

3 - Robust optimization vs. simulation-based approach in timber harvest scheduling
Robert Hlavatý, Jan Kaspar

4 - Analysis of public's perception of forest management (FM) alternatives using multivariate and multiobjective methodology
Lidija Zadnik Stirn, Petra Groselj

■ TD-50

Tuesday, 14:30-16:00 - 4D UPV 1.1

Machine Learning for Energy Applications

Stream: Long-term Planning in Energy, Environment and Climate
Chair: *Gilles Guerassimoff*

1 - Machine-learning for energy, environment and climate
Valérie Roy

2 - Machine learning for energy demand model from a load curve
Hamza Mraihi, Edi Assoumou, Gilles Guerassimoff, Valérie Roy

3 - Household behavior by load curve analysis with machine learning techniques
Ahmed Chaabane, Gilles Guerassimoff, Valérie Roy

■ TD-51

Tuesday, 14:30-16:00 - 4D UPV 1.2

Optimization Problems for Critical Medical Resource Allocation

Stream: OR for Health and Care II
Chair: *Bismark Singh*

1 - Column generation for the kidney exchange problem
Lucie Pansart, Hadrien Cambazard, Nicolas Catusse, Gautier Stauffer

2 - An evaluation of the logistics of a university hospital supply
Karina Lyra Fontes, Marcos Estellita Lins

3 - A new logistic approach for a health care supply chain
Sylvain Bertel

4 - Decision-support tools for influenza pandemic preparedness
Bismark Singh, Hsin-Chan Huang, David Morton, Gregory Johnson, Bruce Clements, Lauren Meyers

■ TD-52

Tuesday, 14:30-16:00 - 4D UPV 1.3

Pricing and Revenue Management I

Stream: Analytics and Pricing
Chair: *Fredrik Odegaard*

1 - Exploration and exploitation for decision making
Andria Ellina, Christine Currie, Christophe Mues

2 - Vertical probabilistic selling under competition: the role of consumer anticipated regret
Dongyuan Zhan

3 - Stacking the house - revenue management in live entertainment
Fredrik Odegaard, Kyle Maclean

■ TD-53

Tuesday, 14:30-16:00 - 4D UPV 1.4

International Aspects of OR II

Stream: International Aspects of OR
Chair: *Ulrike Reisach*

1 - Gender diversity in the upper echelons and firm sustainability performance: an examination of Istanbul stock exchange companies
F. Pinar Acar, Gözde Gözüm

2 - Supply chain modelling for Indian railways catering services
Narasimhan Ravichandran

3 - A comparison of the operational efficiencies between national and public museums in South Korea
Sukran Kim, Jaewoo Chung

4 - Regional impact analysis of Chinese OFDI on carbon emission
Wenju Tian

■ TD-54

Tuesday, 14:30-16:00 - 4D UPV 1.6

Sports Analytics I

Stream: OR in Sports
Chair: *Tomi Seppala*

1 - Application of a hybrid optimization model to improve the performance of the NBA lineups
Rodrigo Infante-Escudero, Roman Rodriguez-Aguilar

2 - Ranking the solutions of the models in literature on forming the best team for sports clubs by using TOPSIS method
Gercek Budak, Imdat Kara

3 - Scheduling youth divisions in Argentinian football
Agustina Lopez, Guillermo Durán, Mario Guajardo, Gonzalo Zamorano

4 - The playing styles of the soccer teams in the 2014 FIFA World Cup Brazil based on game data and factor analysis
Tomi Seppala, Tai Nguyen, Tai Nguyen

■ TD-55

Tuesday, 14:30-16:00 - 4D UPV 2.1

OR in Practice - The Human Factor

Stream: Making an Impact I
Chair: *Gerben Groenendijk*

1 - The human factor: being right is one thing, it's another to be acknowledged for it
Nicole Havinga, Bryan Kuiper

2 - No walk in the park! Skills for developing routing optimization software in practice
Gerben Groenendijk, Vera van den Dool

■ TD-56

Tuesday, 14:30-16:00 - 4D UPV 2.2

Advances in Renewable and Energy Systems

Stream: Optimization in Renewable Energy Systems
Chair: *Gordon Dash*
Chair: *Nina Kajiji*

1 - Cross border pollution and taxes
Salvador Sandoval

2 - Carbon capture, utilization and storage in the context of Turkish energy market
Danial EsmaeiliAliabadi

3 - Reduction of transmission-grid constraints for computationally efficient N-1 secure dispatch
Richard Weinhold, Robert Mieth

4 - Undetectable cyber-physical attacks on power grids under the AC model
Mauro Escobar, Daniel Bienstock

■ TD-57

Tuesday, 14:30-16:00 - 4D UPV 2.3

Software for Optimization Modeling I

Stream: Software for Optimization
Chair: *Robert Fourer*

1 - Recent advances for building and deploying analytical solutions using aimms
Ovidiu Listes

2 - Model deployment in GAMS
Frederik Proske

3 - Optimizing in the cloud - deploying optimization models on the cloud with web services REST APIs
Bjarni Kristjansson

4 - Developing optimization applications through algebraic modeling in AMPL: featuring Python and R APIs for a quick and easy integration with other applications.
FIlipe Brandão, Robert Fourer

■ TD-58

Tuesday, 14:30-16:00 - 4D UPV 2.4

Machine Learning and Data Analysis I

Stream: Emerging Applications of Data Analysis
Chair: *Alexander Aduenko*

1 - LSTM network time series predicts high-risk tenants
Wolfgang Garn, Yin Hu, Paul Nicholson, Bevan Jones, Hongying Tang

2 - A novel training algorithm to build decision trees for anomaly detection
Sarah Itani, Fabian Lecron, Philippe Fortemps

3 - Content-based image retrieval and analysis with use of scalable morphological models
Ivan Reyer, Ksenia Aminova

4 - Model generation for machine intelligence
Vadim Strijov, Oleg Bakhteev

■ TD-59

Tuesday, 14:30-16:00 - 4D UPV 2.5

Operation and Planning Problems in Electric Energy Systems with Renewable Resources

Stream: Technical and Financial Aspects of Energy Problems
Chair: *Luis Baringo*

1 - Risk-based operational model of a distribution company in the presence of electric vehicles and renewable energy resources
Miadreza Shafie-khah, S. M. Bagher Sadati, Jamal Moshtagh, João P. S. Catalão

2 - Planning and operating the future European power system
Ruth Dominguez, Miguel Carrión, Giorgia Oggioni

3 - Sample average approximation for risk-averse problems: a virtual power plant scheduling application
Ricardo Pinto de Lima, Antonio Conejo, Loïc Giraldi, Olivier Maître, Ibrahim Hoteit, Omar Knio

4 - Robust self scheduling of a virtual power plant in energy and reserve electricity markets
Ana Baringo, Luis Baringo, José Manuel Arroyo

Tuesday, 18:00-19:00

■ TE-01

Tuesday, 18:00-19:00 - Opera House

IFORS Distinguished Lecture: Air Transportation Optimization

Stream: Plenaries
Chair: *Michael Trick*

1 - Air Transportation Optimization
Cynthia Barnhart

Wednesday, 8:30-10:00

■ WA-01

Wednesday, 8:30-10:00 - UPV Nexus

IFORS Tutorial Lecture

Stream: IFORS Tutorial Lecture
Chair: *Michael Trick*

1 - Solving Hard Shortest Path Problems with the Pulse Framework
Andres Medaglia

■ WA-02

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S101

DEA and Energy

Stream: DEA: Applications
Chair: *Helena Brozova*

1 - A combined multi-criteria decision making method for efficiency assessment of marine renewable energies
Negar Akbari

2 - Measuring the allocation efficiency of power generation portfolio under nuclear-free homeland energy policy
Li-Ming Chou, Chang Dong-Shang, Chun-Cheng Chen, Yi-Chun Chen

3 - Determining preferred responses in crisis situations
Helena Brozova, Michal Škoda

■ WA-03

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S103

Production and Operations Management

Stream: Production and Operations Management
Chair: *Milena Bieniek*

1 - A dynamic multi-commodity lot-sizing problem with supplier selection, storage selection and discounts for the process industry
Thomas Kirschstein, Frank Meisel

2 - Joint optimal pricing and lot-sizing decisions for an advance sales system under stochastic conditions
Maryam Ghoreishi, Christian Larsen

3 - When is (inventory-driven) dynamic bundling profitable?
Wee Meng Yeo

4 - Consumer returns policies in consignment contracts with inventory control and price-dependent additive demand
Milena Bieniek

■ WA-04

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S104

Advances in Risk Management

Stream: New Challenges in Investment Strategies, Risk and Financial Modelling
Chair: *Roy Cerqueti*

1 - Dependency and systemic risk in banking and insurance
Rosanna Grassi, Gian Paolo Clemente, Asmerilda Hitaj

2 - Green bonds funds: efficiency and concentration risk
Anna Maria D'Arcangelis, Giulia Rotundo

3 - Non stationarity of high order return distribution moments and their irrational fractional Brownian motion modelling
Gurjeet Dhesi, Muhammad Bilal Shakeel, Thamila Madji, Marcel Ausloos

4 - Systemic risk assessment through adjacency clustering coefficient
Roy Cerqueti, Rosanna Grassi, Gian Paolo Clemente

■ WA-05

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S105

Inventory and Location Routing Problems

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Emilio Jose Alarcon Ortega*

1 - An effective matheuristic for the multi-vehicle inventory routing problem
Oguz Solyali, Claudia Archetti, Haldun Sural

2 - A two-echelon inventory-routing problem for the last mile delivery of perishable products
Sonja Rohmer, G.D.H. (Frits) Claassen, Gilbert Laporte

3 - A heuristic approach based on biased randomization for location routing problem
Abdullah Almouhanna, Banafsheh Khosravi, Djamila Ouelhadj, Angel A. Juan

4 - A matheuristic for the consistent inventory routing
Emilio Jose Alarcon Ortega, Michael Schilde, Karl Doerner

■ WA-06

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S106

Stochastic Modeling and Simulation in Engineering, Management and Science II

Stream: Stochastic Modeling and Simulation in Engineering, Management and Science
Chair: *José Niño-Mora*

1 - Optimal policy for economic production lot-sizing model with preventive maintenance
Minjae Park

2 - Modelling of a buffer stock by a random walk with two barriers
Basak Gever, Zulfiye Hanalioglu, Tahir Khaniyev

3 - A global optimization method for a quadratic reverse convex programming problem by listing FJ points
Syuuji Yamada

4 - Numerical instability in average reward Markov decision processes
José Niño-Mora

■ WA-07

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S107

Timetabling and Passengers

Stream: Public Transportation II
Chair: *Marie Schmidt*
Chair: *Evelien van der Hurk*

1 - Solution methods for integrated timetabling and passenger routing
Philine Schiewe, Anita Schöbel

2 - Demand and supply interaction for the train timetabling problem
Naut Bulten, Rommert Dekker, Shadi Sharif Azadeh

3 - Synchronizing transfers through integrated timetabling and vehicle scheduling - an iterative matheuristic approach with public transit traffic assignment
Joao Fonseca, Tobias Zündorf, Evelien van der Hurk, Allan Larsen

4 - Timetabling with integrated passenger distribution
Johann Hartleb, Marie Schmidt, Markus Friedrich, Dennis Huisman

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■ WA-08

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S108

OR in the Physical Internet

Stream: OR in the Physical Internet
Chair: *António Ramos*

1 - Operations research in the physical internet: literature review and opportunities for research
Manuel Lopes, Teresa Pereira, Pedro Lopes

2 - Simulation-based optimization approach for PI-networks
Christian Haider, Stefanie Kritzinger, Alexander Kinast, Erik Pitzer, Michael Affenzeller

3 - Physical internet: a study of the containers layer in the NOLI reference model
Moustafa Nakechbandi, Jean-Yves Colin, Hervé Mathieu

4 - Operational research problems in the physical internet
António Ramos, Elsa Silva, José Fernando Oliveira

■ WA-09

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S109

Graphs, Data and Optimization

Stream: European Working Group: Data Science Meets Optimization
Chair: *Pieter Leyman*

1 - A scale-independent structural definition of community detection in graphs
Alexander Braekevelt, Pieter Leyman, Patrick De Causmaecker

2 - Network structure and dynamics of European stock markets
José G. Dias

3 - Supporting evaluation of algorithms during pace challenges
Jan Badura, Maciej Antczak, Artur Laskowski, Szymon Wasik

4 - A self-adaptive evolutionary algorithm for the intermittent traveling salesman problem with different temperature profiles
Pieter Leyman, Patrick De Causmaecker

■ WA-10

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S110

Urban and Territorial Planning in MCDA

Stream: Multiple Criteria Decision Aiding
Chair: *Isabella Lami*
Chair: *Marta Bottero*

1 - An integrated multi-criteria spatial decision support system for urban energy scenarios
Sara Torabi Moghadam, Patrizia Lombardi

2 - Dominance-based rough set analysis for understanding the drivers of urban development agreements
Marta DellOvo, Alessandra Oppio, Francesca Torrieri, Milosz Kadzinski, Grzegorz Miebs

3 - A multicriteria framework based on the Choquet integral and the analytic hierarchy process for evaluating scenarios of adaptive reuse
Francesca Abastante, Salvatore Corrente, Salvatore Greco, Isabella Lami, Elena Sezenna

4 - GAHP II Sorting method: an application to the vineyard landscape of Langhe, Roero and Monferrato (Italy)
Vanessa Assumma, Marta Bottero, Alessio Ishizaka

■ WA-11

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S111

Novel Applications of Analytics

Stream: Business Analytics
Chair: *Wouter Verbeke*

1 - The beneficial effect of ensemble learning in predicting student drop-out in online learning environment
Trung Hoai Minh Phan, Kristof Coussement, Dries Benoit, Arno De Caigny, Annelies Raes

2 - Higher order mining for incremental root cause analysis
Eduardo e Oliveira, Vera Miguéis, José Borges

3 - Motivating creativity with a carrot and a stick - creativity-weighted productivity, relative performance information, and perceived competition
Peter Rötzel, Burkhard Pedell

4 - Towards accurate and scalable metrics for predicting user engagement on tablets by combining multimodal biosensor data with behavioral interaction patterns
Klaas Nelissen, Seppe vanden Broucke, Bart Baesens, Monique Snoeck

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■ WA-12

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S112

Operational Problems in Maritime Terminals

Stream: Maritime Transportation
Chair: *Juan Correcher*

1 - A machine scheduling approach to the berth allocation problem under channel restrictions
Christian Bierwirth

2 - A new branch and benders cut scheme and heuristic column generation for the discrete berth allocation problem minimizing the makespan
Giorgi Tadumadze, Simon Emde, Heiko Diefenbach

3 - Optimization of daily berth allocation planning
Ozge Kubilay, Serap Akcan

4 - A mixed integer linear formulation for the berth allocation problem in terminals with irregular layouts
Juan Correcher, Ramon Alvarez-Valdes, Thomas Van den Bossche, Greet Vanden Berghe

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■ WA-13

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S201

Operational and Cyber Risk Modeling

Stream: Financial Modeling, Risk Management and Managerial Accounting
Chair: *Pilar Gargallo*

1 - A new methodology for modelling operational risk using skew t-copulas and Bayesian inference
Betty Johanna Garzon Rozo, Jonathan Crook, Fernando Moreira

2 - Semi-closed simulated stock market: the impact of the traders' backgrounds
Valerio Ficcadenti, Gurjeet Dhesi, Mohammad Emambocus, Muhammad Bilal Shakeel, Babar Syed

3 - A novel approach for determining cybersecurity insurance pricing
Thomas Lee

4 - Measuring the leadership relationships between Spanish mutual funds: a dynamic Bayesian approach
Pilar Gargallo, Laura Andreu, Manuel Salvador, José Luis Sarto

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■ WA-14

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S202

ETHOR I Ethics and Societal Complexity I

Stream: OR and Ethics
Chair: *Dorien DeTombe*

1 - Big data driven government policy a complex societal problem
Antoinette Muntjewerff

2 - The essence of ethics and societal complexity
Cathal Brugha

3 - Earthquake preparedness: optimal deployment of emergency treatment sites
Simona Cohen Kadosh, Zilla Sinuany-Stern, Yuval Bitan

■ WA-15

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S203

New Applications in Vehicle Routing II

Stream: Vehicle Routing and Logistics Optimization II
Chair: *Mustafa Yilmaz*

1 - A vehicle routing problem with periodic replanning
M' Luisa Carpente, Julian Costa, Manuel Fontenla, Ignacio García-Jurado, Silvia Lorenzo-Freire, Guido Novoa-Flores

2 - Periodic vehicle routing problem with flexible visit frequencies
Ahmet Camcı, Ozgur Ozpeynirci, Arya Sevgen

3 - The r-interdiction multi-depot vehicle routing problem
Mir Ehsan Hesam Sadati, Deniz Aksen, Necati Aras

4 - A mathematical model for time-dependent hierarchical Chinese postman problem
Mustafa Yilmaz, Merve Kayacı Çodur

■ WA-16

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S115

Discrete and Global Optimization II

Stream: Discrete and Global Optimization
Chair: *Jan van Vuuren*

1 - Optimization in Sanger sequencing
Silvia Lorenzo-Freire, M' Luisa Carpente, Ana Cerdeira-Pena, Ángeles Saavedra Places

2 - The Euclidean combinatorial configuration: properties and applications in optimization
Oksana Pichugina, Sergey Yakovlev

3 - On the problem of kite location in airborne wind energy farms
Fernando A. C. C. Fontes, Dalila Fontes, Luis Tiago Paiva, Luís Roque

4 - Scheduling Markovian PERT networks to maximize the net present value: new results
Ben Hermans, Roel Leus

■ WA-17

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S205

Robust and Distributionally Robust Optimization

Stream: Stochastic and Robust Optimization
Chair: *Francesca Maggioni*

1 - Distributionally robust optimization with confidence bands for probability density functions
Guanglin Xu

2 - Data-driven distributionally robust optimization with Wasserstein metric, moment conditions and robust contraints
Adrián Esteban-Pérez, Juan Miguel Morales

3 - The single-source capacitated facility location problem under demand uncertainty: robust optimization and branch-and-price algorithm framework
Jaehyeon Ryu, Sungsoo Park

■ WA-18

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S206

The Founders of OR and the Development of Soft OR & Problem Structuring Methods - Special Discussion Session

Stream: Soft OR, Problem Structuring Methods
Chair: *Robert Dyson*

1 - The founders of OR and the development of Soft OR & PSMs
Frances O'Brien, Robert Dyson

■ WA-19

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S207

Spare Parts and Maintenance Management

Stream: Supply Chain Management I
Chair: *Joachim Arts*

1 - Stocking and expediting in two-echelon spare parts inventory systems under system availability constraints
Melvin Drent, Joachim Arts

2 - Operational level planning of a multi-item two-echelon spare parts inventory system
Engin Topan, Matthieu van der Heijden

3 - Practical repair shop priorities
Ece Zeliha Demirci, Joachim Arts, Geert-Jan van Houtum

4 - Spare parts provisioning for manufacturing systems
Gudrun Kiesmuller, Florian Sachs

■ WA-20

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S301

Decision Support Systems: AI Techniques

Stream: Decision Analysis and Decision Support Systems
Chair: *Pascale Zaraté*

1 - Sketching for near-real time process mining
Vasco Santos, Bruno Oliveira, Orlando Belo

2 - OLAP signatures elicitation
Orlando Belo, Ricardo Silva

3 - Service-oriented approach for ETL development using patterns
Bruno Oliveira, Vasco Santos, Orlando Belo

4 - A proposed multicriteria analysis decision support tool for university students healthy life index: a pilot application for a faculty performance comparison
Aslı Özmen

■ WA-21

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S303

(Semi-)Infinite Programming

Stream: Nonlinear Programming: Theory
Chair: *Maria Dolores Fajardo*
Chair: *Margarita Rodríguez Álvarez*

1 - Stability of the duality gap in linear semi-infinite programming
Miguel Goberna

2 - A new data qualification in convex multiobjective semi-infinite programming
Margarita Rodríguez Álvarez

3 - Exact stable relaxations in robust SOS-convex polynomial optimization
José Vicente-Pérez, Vaithilingam Jeyakumar

4 - Converse and total duality for evenly convex optimization problems
Maria Dolores Fajardo

■ WA-22

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S304

Applications of Multiobjective Optimization

Stream: Multiobjective Optimization
Chair: *António Gaspar-Cunha*

1 - Maximum entropy estimation of nutrient importance
Ante Ivancic, Argyris Kanellopoulos, Jacqueline Bloemhof

2 - A multi-objective global score for the beam angle selection problem
Guillermo Cabrera-Guerrero, Enrique Cabrera

3 - A multi- objective model for hospital supplies using modified evolutionary computation
Soumyajyoti Datta, Rohit Kapoor

4 - Multi-objective optimization of blow moulded containers through the evolution of neural networks
António Gaspar-Cunha, Roman Denysiuk

■ WA-23

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S305

Lot Sizing II - Heuristics

Stream: Lot Sizing, Lot Scheduling and Production Planning
Chair: *Bernardo Almada-Lobo*

1 - A two-phase approach for the parallel machine capacitated lot-sizing and scheduling problem with shared resources
Jesica de Armas, Manuel Laguna

2 - Sandwich approximation algorithms for lot-sizing problems
Wilco van den Heuvel, Guillaume Goisque, Christophe Rapine, Albert Wagelmans

3 - Fast heuristic for creating (online) production plans for the capacitated lot-sizing problem
Christian Almeder

4 - Matheuristcs for capacity planning at the glass container industry
Bernardo Almada-Lobo, Flaviana Moreira de Souza, Márcio Silva Arantes, Cláudio Fabiano Motta Toledo

■ WA-24

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S306

Dynamical Models in Sustainable Development III

Stream: Dynamical Models in Sustainable Development
Chair: *Ingunn Gunnarsdottir*
Chair: *Pierre Kunsch*

1 - Dynamic modeling of the impact of energy transition on economy and environment
Chun-Cheng Chen, Chung-Shu Liu, Chih-Tung Hsiao, Chang Dong-Shang

2 - Evaluation and optimization of photovoltaic panel resources via a novel radiation - to - electrical power model
Omer Nezih Gerek, Ümmühan Başaran Filik, Tansu Filik

3 - Evaluation of photovoltaic storage systems under uncertainty applying stochastic dynamic programming
Dogan Keles, Joris Dehler

4 - Sustainable energy future in Iceland
Ingunn Gunnarsdottir, Brynhildur Davidsdottir

■ WA-25

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S307

Vehicle Routing Problems

Stream: Combinatorial Optimization II
Chair: *Luciana Buriol*

1 - Spontaneous postman problems
Peter Recht

2 - An adaptive large neighborhood search algorithm for the blood sample transportation problem
Garazi Zabalo Manrique de Lara, Paolo Detti, Giorgio Di Benedetto

3 - Synchronization of unmanned vehicles and vans for parcel delivery
Olivier Gallay, Marc-Antoine Coindreau, Nicolas Zufferey

4 - Using relax-and-fix algorithm for solving an improved formulation of a maritime inventory routing problem
Luciana Buriol, Marcelo Friske

■ WA-26

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S308

Delays and Robustness in Railway Scheduling

Stream: Public Transportation I
Chair: *Rob Goverde*

1 - Railway delay management with passenger rerouting in face of train capacity constraints
Eva König, Cornelia Schoen

2 - Train delay prediction and its perspective for railway operations
Marie Milliet de Faverges

3 - Multi-objective timetable design for rail transport services
Narayan Rangaraj, Aayush Aggarwal

4 - Integrated timetable rescheduling and passenger routing by dynamic event-activity networks
Yongqiu Zhu, Rob Goverde

■ WA-27

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S309

Extensions of the Newsvendor Problem

Stream: Production, Service and Supply Chain Management
Chair: *Yasemin Merzifonluoglu*

1 - Robust multi-market newsvendor problem with market selection and uncertain demand data
Mohammad Abdel-Aal, Shokri Selim

2 - Newsvendor models with supply uncertainty and a backup supplier
Dimitrios Pandelis, Ioannis Papachristos

3 - Analyzing supply chain contracts for behavioral newsvendor under information asymmetry
Abhishek Chakraborty, Sumit Sarkar

4 - Integrated demand and procurement portfolio management with spot market volatility and option contracts
Yasemin Merzifonluoglu

■ WA-28

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S310

Iterated Greedy

Stream: Memory-based Heuristics
Chair: *Ruben Ruiz*

1 - Bicriteria M-machine no-wait flowshop scheduling problem
Harun Aydilek, Asiye Aydilek, Ali Allahverdi

2 - Heuristic approaches to makespan and flowtime minimization in a two-level hybrid flow shop with no-wait constraint
Andreas Hipp, Caroline Raue, Rainer Leisten

3 - Iterated local search algorithm for the quadratic assignment problem
İslam Altın, Aydin Sipahioglu

4 - Keep it simple, stupid. Iterated greedy methods for scheduling problems
Ruben Ruiz

■ WA-29

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S311

Cutting and Packing I

Stream: Cutting and Packing
Chair: *Julia Bennell*

1 - Research gaps and future research directions in cutting and packing
Julia Bennell, José Fernando Oliveira, Gerhard Wäscher

2 - Challenge ROADEF / EURO 2018 - cutting optimization
Quentin Viaud, Eric Bourreau

3 - Improving a semi-discrete lines representation for the 2D irregular strip packing problem
Wojciech Kuberski, Dirk Roose, Tony Wauters

4 - An archaeological irregular packing problem
Antonio Martinez Sykora, Julia Bennell, Carlos Lamas-Fernandez, Marta Cabo Nodar

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■ WA-30

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S312

Operations and Game Theory

Stream: Game Theory and Operations Management
Chair: *Bo Chen*

1 - Algebraic geometry in operational research games
Tri-Dung Nguyen

2 - Discounting, diversity, and investment
Wei Wei, Sebastian Ebert, Xunyu Zhou

3 - Computational analysis of market designs for smart grid implementation
Julia Grübel, Veronika Grimm, Sebastian Martin, Gregor Zöttl

4 - Nash equilibrium uniqueness for two-player non-cooperative continuous games
Maria Carmela Ceparano, Francesco Caruso, Jacqueline Morgan

■ WA-31

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S313

Behavioural Operations and Games I

Stream: Behavioural OR
Chair: *Aysegul Engin*

1 - Performance of selected contract designs for the newsvendor problem considering behavioral economic aspects of bargaining: experimental evidence
Maximilian Vincent Reimer

2 - Analysis of the hockey stick phenomenon using game theory and economical experiments
Natalia Correa, Sergio Ramirez

3 - The curse of knowledge in decentralized supply chains
Daniel Sanchez-Loor, Wei-Shiun Chang

4 - Optimistic overconfidence in bidding behavior with differently represented cost feedback in electronic reverse auctions
Aysegul Engin

■ WA-32

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S314

Transportation and Uncertainty

Stream: Routing, Logistics, Location and Transportation
Chair: *Camilo Quiroga*

1 - Exact models and optimal policies for shipment consolidation: a stochastic dynamic programming approach
Sila Cetinkaya, Liqing Zhang

2 - Optimizing the parking price of a car park by queueing models
Yossi Hadad, Baruch Keren

3 - The capacity choices of the U.S. domestic airline market and passengers demand forecasting
Nahid Jafari

4 - An optimization model for aircraft routing under uncertain operational times
Camilo Quiroga

■ WA-33

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S315

Data Mining Applications in Life Sciences

Stream: Data Mining and Statistics
Chair: *Pinar Karadayi Atas*
Chair: *Gerhard-Wilhelm Weber*

1 - Epileptic seizures prediction through the analysis of EEG synchronization
Paolo Detti, Garazi Zabalo Manrique de Lara, Renato Bruni, Marco Pranzo

2 - Value of patient history for predictive models: a case study using French PMSI database
Hugo De Oliveira, Martin Prodel, Vincent Augusto

3 - An AHP model for estimating student desertion in higher education institutions
Luis Quezada, Hernan Silva, Astrid Oddershede, Pedro Palominos

■ WA-34

Wednesday, 8:30-10:00 - SOUTH BUILDING UV S113

Networks and flows

Stream: Discrete Optimization, MIP and MINLP
Chair: *Thorsten Schmidt-Dumont*

1 - New partition inequalities for the unsplittable flow problem
Arnaud Knippel, Sonia Vanier

2 - An optimal adding edge with short length between two levels of a complete k-ary tree
Kiyoshi Sawada

3 - Reinforcement learning in conjunction with autonomous vehicles for the control of traffic flow on highways
Thorsten Schmidt-Dumont, Jan van Vuuren

■ WA-48

Wednesday, 8:30-10:00 - 4D UPV B.3

Engineering Optimization

Stream: Engineering Optimization
Chair: *Wolfgang Achtziger*

1 - A contribution to general repair models and their application
Frank Beichelt

2 - A GRASP metaheuristic for generating optimal meshes for fluid flow simulation
Víctor Hugo Martínez Reza, Mayra Elizondo, Rubén Ávila Rodriguez

3 - Optimization of an industrial aluminum parts casting process based on simulated annealing
Antonio Jiménez-Martín, Alfonso Mateos, Guillermo de Lima

4 - On optimality conditions for classical formulations of topology optimization problems for discrete/discretized engineering structures
Wolfgang Achtziger

■ WA-49

Wednesday, 8:30-10:00 - 4D UPV B.4

OR in Forestry II

Stream: OR in Agriculture, Forestry and Fisheries
Chair: *Antonio Alonso-Ayuso*

1 - Optimization models of floorboard toplayer assembly
Matthias Kaltenbrunner, Maria Anna Huka, Manfred Gronalt

2 - Stochastic and multicriteria decision making applied to suppression of wildfires
Javier León, Begoña Vitoriano, John Hearne

3 - Integrating strategic and tactical decision levels in forestry management under uncertainty
Antonio Alonso-Ayuso, Laureano Fernando Escudero, Monique Guignard-Spielberg, Andrés Weintraub

■ WA-50

Wednesday, 8:30-10:00 - 4D UPV 1.1

OR for Developing Countries IV

Stream: OR for Developing Countries
Chair: *Herman Mawengkang*
Chair: *Begoña Vitoriano*

1 - Factors that affect the user satisfaction of information technology facility service
Roslina Roslina, Devy Mathelinea, Herman Mawengkang

2 - Integer programming model for tackling a variant of open vehicle routing problem in evacuation transportation planning system
Dedy Hartama, Herman Mawengkang

3 - Optimization model for logistic planning problem of fish processed product considering location-routing
Intan Syahrini, Devy Mathelinea

4 - An integer programming model for resource management planning problem in Aceh province, Indonesia
Taufiq Taufiq, Herman Mawengkang

■ WA-51

Wednesday, 8:30-10:00 - 4D UPV 1.2

Health Care Scheduling

Stream: OR for Health and Care II
Chair: *Eva Schmidt*

1 - Planning of out-of-hours service for pharmacies
Christina Büsing, Timo Gersing, Arie Koster

2 - Robust strategic planning for emergency doctors
Manuel Streicher, Sven Krumke, Eva Schmidt

3 - Next-day operating room scheduling with time-dependent stochastic surgery durations
Enis Kayis, Tugce Karatas, Refik Gullu

4 - Resource controlling in the health care sector
Eva Schmidt, Sven Krumke, Manuel Streicher

■ WA-52

Wednesday, 8:30-10:00 - 4D UPV 1.3

E-Fulfillment

Stream: Analytics and Pricing
Chair: *Jan Fabian Ehmke*

1 - Simulation-based optimization of time window allocation for attended deliveries
Magdalena Lang, Catherine Cleophas, Jan Fabian Ehmke

2 - On time window budgets for anticipation in attended home delivery
Sebastian Koch, Robert Klein

3 - A bilevel model with a solution algorithm for the network design and pricing problem
Christine Tawfik, Sabine Limbourg

4 - Flexible time window management for attended home deliveries
Charlotte Köhler, Jan Fabian Ehmke, Ann Campbell, Catherine Cleophas

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■ WA-53

Wednesday, 8:30-10:00 - 4D UPV 1.4

Probabilistic Forecasting

Stream: Stochastic Assessment of Renewable Energy
Chair: *Miguel Carrión*

1 - Optimal switch-over time for non-repairable products with short lifecycles
Ruey Huei Yeh

2 - Benefits in economic terms of short term forecasting of renewable energy
John Boland

3 - Forecasting gross inland natural gas consumption in European countries through bagging methods
Erick Meira de Oliveira, Fernando Luiz Cyrino Oliveira

4 - Selling price determination of an electricity supplier for electric vehicles
Miguel Carrión, Ruth Dominguez, Rafael Zarate-Miñano

■ WA-54

Wednesday, 8:30-10:00 - 4D UPV 1.6

Sports Analytics II

Stream: OR in Sports
Chair: *Jiun-Yu Yu*

1 - An accessible lactate threshold assessment tool to support endurance athletes' trainings
Urtats Etxegarai, Eva Portillo, Jon Irazusta, Itziar Cabanes, Jon Larruskain

2 - Advanced voting systems for ranking of candidates
Petra Zýková

3 - Sports facility location planning with customers' preference
Jiun-Yu Yu

■ WA-55

Wednesday, 8:30-10:00 - 4D UPV 2.1

MIP Solvers in Practice

Stream: Making an Impact II
Chair: *Björn Thalén*

1 - MIP-solvers in practice
Björn Thalén, Joaquim Gromicho, Denise Tönissen, Timo Berthold, Alex Fleischer, Ronald Buitenhek, Frank Haeger

■ WA-56

Wednesday, 8:30-10:00 - 4D UPV 2.2

Emergency Logistics and Healthcare Optimization

Stream: Healthcare Logistics
Chair: *Issam Nouaouri*

1 - An ALNS algorithm for scheduling and routing in home healthcare services
Ahmet Cinar, Sibel Salman, Burcin Bozkaya

2 - Modeling yellow and red alert durations for ambulance systems
Amir Rastpour, Armann Ingolfsson, Bora Kolfal

3 - Stochastic modeling and simulation to minimize patient waiting time in an emergency department
Issam Nouaouri, Dorsaf Daldoul, Hanen Bouchriha, Hamid Allaoui

■ WA-57

Wednesday, 8:30-10:00 - 4D UPV 2.3

Software for Optimization Modeling II

Stream: Software for Optimization
Chair: *Susanne Heipcke*

1 - New modeling options for SAS' optimization
Jared Erickson

2 - Adding functions to AMPL
David M. Gay

3 - Pyomo: extensible optimization modeling in Python
Carl Laird, Michael Bynum, William Hart, John Siirola, Anya Castillo

4 - Opening Xpress Mosel
Susanne Heipcke, Yves Colombani

■ WA-58

Wednesday, 8:30-10:00 - 4D UPV 2.4

Machine Learning and Data Analysis II

Stream: Emerging Applications of Data Analysis
Chair: *Vadim Strijov*

1 - Cracking open the black box: a neural network based option valuation model
Yi Cao, Jia Zhai

2 - Narrow big data in streams: exact vs. approximate computing
Michal Cerny

3 - Temporal clustering of time series via threshold autoregressive models
Cem Iyigün, Sipan Aslan, Ceylan Yozgatligil

4 - Multimodel selection for classification problems
Alexander Aduenko, Vadim Strijov

■ WA-59

Wednesday, 8:30-10:00 - 4D UPV 2.5

Bidding in Power Markets

Stream: Technical and Financial Aspects of Energy Problems
Chair: *Christoph Graf*

1 - Transmission expansion investment coordination: transition from game-theoretic to mechanism design approach
Sambuddha Chakrabarti, Mohammad Reza Hesamzadeh, Yaser Tohidi

2 - Trading strategies for continuous intraday markets
Gilles Bertrand, Anthony Papavasiliou, Anthony Papavasiliou

3 - Stochastic-dynamic optimization of a joint strategy for day-ahead bidding and intraday trading
David Wozabal, Nils Löhndorf

4 - Market clearing and best response bidding in the Italian power market
Christoph Graf

■ WA-60

Wednesday, 8:30-10:00 - 4D UPV B.5

ERC session

Stream: EURO Special Sessions
Chair: *Giovanni Felici*

1 - The European Research Council Grants: an opportunity not to be missed for scientists in Operations Research and Applied Mathematics
Giovanni Felici

Wednesday, 10:30-12:00

■ WB-01

Wednesday, 10:30-12:00 - UPV Nexus

Teaching experiments are condemned to be successful

Stream: Keynotes
Chair: *Ramon Alvarez-Valdes*

1 - Teaching experiments are condemned to be successful
Maria Antónia Carravilla

■ WB-02

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S101

DEA, Logistics, Transportation

Stream: DEA: Applications
Chair: *Julián Benavides*

1 - Towards automatic suggestions of aircraft trajectory change for mitigating high traffic complexity based on an air traffic control difficulty index
Sakae Nagaoka, Hiroko Hirabayashi, Mark Brown

2 - Decision-making in a multi-choice environment: a study of shipping carriers in US
Shalabh Singh, Sonia Singh, Ankit Khandelwal

3 - Peak workload and performance of parcel delivery companies
Amir Shabani, Gabor Maroti, Wout Dullaert, Sander de Leuw

4 - A mobile tool for operational decision support in aircraft dispatch
Hemmo Koornneef, Wim Verhagen, Ricky Curran

■ WB-03

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S103

Maintenance Operations

Stream: Production and Operations Management
Chair: *Ayse Sena Eruguz*

1 - Design of multi-component periodic maintenance programs with single-component models
Joachim Arts, Rob Basten

2 - Joint optimization of production scheduling and condition-based maintenance planning
Bram de Jonge

3 - A simulation-based evaluation of dynamic task prioritization in maintenance management
Dietmar Neubacher, Nikolaus Furian, Clemens Gutschi

4 - Maintenance optimization for multi-component systems with a single sensor
Ayse Sena Eruguz, Rob Basten, Lisa Maillart

■ WB-04

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S104

Optimal Control Applications I

Stream: Optimal Control Applications
Chair: *Gernot Tragler*

1 - Optimal prevention and adaptation in a stochastic flood model - an application of vintage-models in socio-hydrology
Michael Freiberger, Alexia Prskawetz

2 - Optimal investments of a firm generating emissions: a bi-objective approach
Andrea Seidl, Richard Hartl, Peter M. Kort

3 - Optimal control, endogenous population growth and the dynamics of economic growth
Jose-ramon Ruiz-tamarit

4 - Radicalization of terrorists: an optimal control approach
Gernot Tragler

■ WB-05

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S105

Orienteering and Traveling Salesman Problems

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Alejandro Montoya*

1 - The competitive pickup and delivery orienteering problem for balancing carsharing systems
Layla Martin, Stefan Minner

2 - A hybrid algorithm for the family salesman problem
Ana Paias, Raquel Bernardino

3 - Optimization of the LPG distribution system for an oil company
Özlem Çağlayangil, Necati Aras

4 - The team orienteering problem with time-dependent profit
Alejandro Montoya

■ WB-06

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S106

Stochastic Modeling and Simulation in Engineering, Management and Science III

Stream: Stochastic Modeling and Simulation in Engineering, Management and Science
Chair: *Christopher Kirkbride*

1 - **An integrated simulation-optimization framework for complex emergency medical services**
David Olave, Stefan Nickel, Philipp Fath, Melanie Reuter-Oppermann

2 - **Coordination in ride hailing platforms: an agent-based approach**
Harit Joshi, Saral Mukherjee

3 - **Simulation of passenger flows at a constrained cruise port: evidence from the island of Santorini**
Michail Karpathiou, Fotios Katsigiannis

4 - **Diffusion and adoption of technological innovations in the Mar del Plata cooperative sector: the invisibility of their work**
Alicia Zanfrillo

■ WB-07

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S107

Scheduling with Resource Constraints I

Stream: Scheduling with Resource Constraints
Chair: *Morteza Davari*

1 - **Optimizing naval flight event schedules at training ranges**
Robert Dell, Robert Slye

2 - **Scheduling and lot-sizing with considering controllable processing time and fixed carbon emission**
Mehdi Bijari, Seyed Milad Mirnajafi Zadeh

3 - **Precedence theorems and dynamic programming solutions for the precedence-constrained single machine weighted tardiness problem**
Salim Rostami, Stefan Creemers, Roel Leus

4 - **A generic solution method for scheduling with inventory constraints**
Morteza Davari, Jeroen Belien, Patrick De Causmaecker, Roel Leus

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■ WB-08

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S108

Optimization Problems on Graphs and Networks

Stream: Combinatorial Optimization I
Chair: *Michele Monaci*

1 - **Decision diagrams for solving a prize-collecting sequencing problem**
Johannes Maschler, Günther Raidl

2 - **Solving the order batching and picker routing problem as a clustered vehicle routing problem**
Babiche Aerts, Trijntje Cornelissens, Kenneth Sörensen

3 - **Monotonicity and conformality in multicommodity network-flow problems**
Daniel Granot, Frieda Granot

4 - **An empirical investigation of network polarization**
Celso Ribeiro, Ruben Interian

■ WB-09

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S109

Data Science in Optimization Algorithms

Stream: European Working Group: Data Science Meets Optimization
Chair: *Andrew J. Parkes*
Chair: *Daniel Karapetyan*

1 - **Quick termination of poor performers in automated algorithm configuration**
Daniel Karapetyan, Andrew J. Parkes, Thomas Stützle

2 - **Features of genetic algorithms realization for the Euclidean combinatorial optimization problems**
Oleksii Kartashov

3 - **Metaheuristics for the search for SAT heuristics**
Andrew Burnett, Andrew J. Parkes

4 - **Machine learning of the quality of machine-generated heuristics**
Andrew J. Parkes, Ender Özcan, Asghar Neema Mohammad Beglou

■ WB-10

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S110

MCDA and Environmental Management I

Stream: Multiple Criteria Decision Aiding
Chair: *Luisa Paolotti*
Chair: *Filippo Fiume Fagioli*

1 - **Assessing the sustainability of different poultry production systems: a multi-criteria approach**
Luisa Paolotti, Lucia Rocchi, Antonio Boggia, Cesare Castellini, Adolfo Rosati

2 - **Discrete multi-criteria methods for election of lands use alternatives in the Toro river hydro-basin (province of Salta, Argentina)**
Juan B Grau, Jose M Anton, Rocio C. López, José A. Gualotuña, Diego Andina, Federico Colombo, Ana M. Tarquis

3 - **Assessing urban vulnerability: a hybrid multi-criteria decision-making process for East Naples (Italy)**
Maria Cerreta, Giuliano Poli

4 - **Farm sustainability assessment: how to conciliate economic and environmental objectives**
Filippo Fiume Fagioli, Luisa Paolotti, Antonio Boggia

■ WB-11

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S111

E-Commerce & Social Media

Stream: Business Analytics
Chair: *Stiene Praet*

1 - **Collecting and analyzing customers experiences from Trip Advisor social media**
Carla Vairetti

2 - **Dfficiency in multi-channel retail chain store: a two-stage DEA approach with environmental factors and e-commerce indicators**
Cristina Ciobanu, Kristof Coussement, Koen W. De Bock

3 - **Ssocial network analytics in micro-lending**
María Óskarsdóttir, Cristian Bravo, Bart Baesens, Jan Vanthienen

4 - **A data mining approach to analyze political communication on Twitter**
Stiene Praet, Walter Daelemans, Tim Kreutz, Peter Van Aelst, Stefaan Walgrave, David Martens

■ WB-12

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S112

Optimization and Simulation in Port Logistics

Stream: Maritime Transportation
Chair: *Dario Pacino*

1 - **Job scheduling rail-mounted gantry cranes in an intermodal rail-road terminal**
Michiel Van Lancker, Greet Vanden Berghe, Tony Wauters

2 - **Landside container handling operations at an automated container terminal**
Amir Gharehgozli

3 - **An approach towards the container terminal management problem (CTMP)**
Leif Meier

4 - **A hybrid heuristic for the flexible ship loading problem**
Jonas Christensen, Dario Pacino

■ WB-13

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S201

Financial Literacy and Risk Measurement

Stream: Financial Modeling, Risk Management and Managerial Accounting
Chair: *Alain Chevalier*

1 - **Value and momentum in energy markets**
Rita D'Ecclesia

2 - **A generalized duration for mortality risk management**
Marius Radermacher

3 - **Adaptive quantification of value-at-risk based on the energy distribution of asset returns**
George Tzagkarakis, Frantz Maurer, Thomas Dionysopoulos

4 - **Going private transaction performance in emerging economies:a comparative study between Latin America and Asia**
Alain Chevalier, Aurelie Sannajust

■ WB-14

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S202

ETHOR II Ethics and Societal Complexity II

Stream: OR and Ethics
Chair: *Dorien DeTombe*

1 - **Is the Compram method usable by handling intergenerational poverty in Zodrenthe?**
Simon Henk Luimstra

2 - **Societal Complexity versus LEARN TO LIVE TOGETHER: contemporaneous 'Science-Culture-Religion Dialogue'. COMPRAM Methodology and 'Decisional Nomology' contributions**
Nicolae Bulz

3 - **Inhabitants take responsibility of their health position**
Hans Derks

4 - **Equal rights and opportunities for women**
Dorien DeTombe

■ WB-15

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S203

Scheduling Theory I

Stream: Scheduling Theory
Chair: *Kathrin Maassen*

1 - **New approximate methods for the two-stage multi-machine assembly scheduling problem**
Carla Talens Fayos, Paz Perez Gonzalez, Victor Fernandez-Viagas, Jose M Framinan

2 - **Towards an effective column generation technique for solving large batch scheduling problems**
Mendez Carlos, Mariana Cóccola, Rodolfo Dondo

3 - **Scheduling with step-improving processing times**
Eun-Seok Kim

4 - **Simplifications and optimal solutions for the two-machine permutation flow shop regarding the diversity of processing times**
Paz Perez Gonzalez, Kathrin Maassen, Jose M Framinan

■ WB-16

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S115

Discrete and Global Optimization III

Stream: Discrete and Global Optimization
Chair: *Thorsten Schmidt-Dumont*

1 - Piecewise linear function fitting via mixed-integer linear programming
Steffen Rebennack, Vitaliy Krasko

2 - Convex extensions in discrete optimization with their applications
Sergey Yakovlev, Oksana Pichugina

3 - Black-box optimization for additive manufactured heat exchangers
Sebastien Cadalen

4 - A real-world application of the travelling salesman problem using non-deterministic data classification algorithms
Omer Celepcikay, Caner Okutkan, Egemen Berki Cimen, Emine Çelepçıkay

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■ WB-17

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S205

Stochastic Programming

Stream: Stochastic and Robust Optimization
Chair: *Petr Lachout*

1 - Quantization of Lévy measures
Mark Anthony Caruana

2 - A branch and bound procedure for the stochastic assembly line balancing problem
Johannes Schnitzler, Raik Stolletz

3 - Stochastic optimization on a graph with random decision points
Petr Lachout

■ WB-18

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S206

E-commerce Related Problems in Transportation and Logistics

Stream: Transportation
Chair: *Xuezhen Guo*

1 - A last mile delivery paradigm using microhubs with crowdshipping
Jane Lin

2 - A vehicle routing planning method for the city logistics considering carbon emissions
Jun-Der Leu

3 - Optimizing line haul routing for a Brazilian e-commerce company
Marcio Oshiro, Felipe Moreira, Henrique Watanabe

4 - A conceptual framework for city logistics transition with crowdsourced delivery
Xuezhen Guo, Jacqueline Bloemhof, G.D.H. (Frits) Claassen

■ WB-19

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S207

Sustainable Operations

Stream: Supply Chain Management I
Chair: *Peter Berling*

1 - Impact of biomass commercialization on procurement strategy and environment in agricultural processing
Onur Boyabatli, Buket Avci, Bin Li

2 - Bioenergy supply chain network planning problem
Halit Uster, Gokhan Memisoglu

3 - New product diffusion in closed-loop supply chains
Emre Nadar, Baris Emre Kaya, Kemal Goler

4 - The art of modeling and stable development of the world
Lyudmila Kuzmina

■ WB-20

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S301

Decision Analysis for Investment Portfolio Selection and Resource Allocation

Stream: Decision Analysis and Decision Support Systems
Chair: *Mohammad Mehdi Hosseinzadeh*

1 - On various solutions of areas allocation problem
Sergey Shvydun, Fuad Aleskerov

2 - Investment frontier in mean-lower partial moment portfolio selection framework
Dipankar Mondal, Selvaraju Natarajan

3 - DEA to support decision-making in portfolio problems
Mohammad Mehdi Hosseinzadeh, Sergio Ortobelli, Farhad Hosseinzadeh Lotfi

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■ WB-21

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S303

Applications of Optimal Control

Stream: Nonlinear Programming: Theory
Chair: *Hector Ramirez*

1 - Controlling recirculation rate in minimal-time bioremediation of natural water resources
Victor Riquelme, Alain Rapaport

2 - Characterizing the optimal profile of the open pit mine planning problem in the continuous framework
Emilio Molina, Jorge Amaya, Cristopher Hermosilla

3 - Optimal control of biogas production for the chemostat
Antoine Haddon

4 - Bioremediation of water resources: an optimal control approach
Hector Ramirez

■ WB-22

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S304

Multiobjective Portfolio Optimization

Stream: Multiobjective Optimization
Chair: *Iryna Yevseyeva*

1 - Thematic portfolio optimization
Florian Methling, Rüdiger von Nitzsch

2 - Granular-based interactive portfolio optimization model for investment decision aids
Kao-Yi Shen, Gwo-Hshiung Tzeng

3 - Asset management optimization: a framework to reduce costs and risk for utilities management
Luis Dias, Luis Guimarães

4 - Cyber security portfolios selection under limited budget constraints
Iryna Yevseyeva, Michael Emmerich, Vitor Basto-Fernandes, Stefan Parpurov, Helge Janicke

■ WB-23

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S305

Lot Sizing III - Remanufacturing

Stream: Lot Sizing, Lot Scheduling and Production Planning
Chair: *Onur Kilic*

1 - A MILP model for closed loop production planning in the automotive industry: a case study
Julien Maheut, Angel Ruiz, José P. Garcia-Sabater

2 - Perishability in integrated procurement and reprocessing planning of reusable medical devices in hospitals
Steffen Rickers, Florian Sahling

3 - Six sigma methodologies in airline operations
Ramesh Bollapragada

4 - The economic lot sizing problem with remanufacturing: new structural properties and polynomial-time heuristics
Onur Kilic, Wilco van den Heuvel

■ WB-24

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S306

Dynamical Models in Sustainable Development IV

Stream: Dynamical Models in Sustainable Development
Chair: *Alvin Henao Perez*
Chair: *Pierre Kunsch*

1 - Optimal allocation rules with waste considerations
Sara Rezaee Vessal, Sam Aflaki

2 - Analysing control strategies for urban air pollution through a system dynamics model
Jenny Rocio Rios Martinez, Y Olaya

3 - A system dynamics model to evaluate the impacts of overloaded vehicles transporting ornamental stones in Brazil
Glaydston Ribeiro, Verônica Ghisolfi, Gisele Chaves, Romulo Orrico, Ivone Hoffmann, Leonardo Perim

4 - Effects of integration of renewable energy sources on financial statements of electric conventional generation plants.
Alvin Henao Perez, Guisselle Garcia

■ WB-25

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S307

Novel Algorithms for Scheduling Problems

Stream: Combinatorial Optimization II
Chair: *Erwin Pesch*
Chair: *Dominik Kress*

1 - A mechanism design for scheduling problems with multi machine agents
Alexander Herbst, Ulf Lorenz

2 - Conflict-free yard crane routing in an automated container terminal
Erwin Pesch, Jenny Nossack, Dirk Briskorn

3 - Planning and scheduling in open-pit mining
Chris Potts, Antonio Martinez-sykora

4 - Pick up plan in case of shuttle racks warehouse - an optimization approach
Dawid Kansy, Pawel Hanczar

■ WB-26

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S308

Vehicle Scheduling and Rolling Stock

Stream: Public Transportation I
Chair: *Anita Schöbel*

1 - Location planning of charging stations and vehicle scheduling for electric buses in public transport
Nils Olsen, Natalia Kliewer

2 - Stochastic maintenance location routing for rolling stock
Denise Tönissen, Joachim Arts, Max Shen

3 - Rolling stock scheduling with maintenance requirements at the Chinese high-speed railway
Qingwei Zhong, Richard Lusby, Jesper Larsen, Qiyuan Peng

4 - Designing cost-minimal public transport systems
Alexander Schiewe, Anita Schöbel

■ WB-27

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S309

Network Design

Stream: Production, Service and Supply Chain Management
Chair: *Roland Braune*

1 - Three-steps approach to design the distribution network
Imma Ribas, Amaia Lusa, Albert Corominas, Manuel Mateo

2 - Designing the distribution network of services
Amaia Lusa, Imma Ribas, Albert Corominas, Manuel Mateo

3 - Lagrangian heuristics for the location-allocation problem with stochastic demand and congestion
Pratibha Saini, Sachin Jayaswal, Navneet Vidyarthi

4 - Aggregation and relaxation approaches for a multi-period network design problem
Roland Braune

■ WB-28

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S310

Scatter Search and Path Relinking

Stream: Memory-based Heuristics
Chair: *Jesus Sanchez-Oro*

1 - A critical-path based evolutionary algorithm for the flexible job-shop scheduling problem
Grigoris Kasapidis, Dimitris Paraskevopoulos, Panagiotis Repoussis, Christos Tarantilis

2 - GRASP with path relinking for a multi-objective waste management problem
Laura Delgado Antequera, Jesus Sanchez-Oro, Rafael Caballero, Rafael Marti

3 - An application of tabu search to a circular layout problem
Eduardo G. Pardo, Juan David Quintana Pérez, Abraham Duarte, Manuel Laguna

4 - Improving the quality of hierarchical graph drawings with hybrid VNS-SS
Jesus Sanchez-Oro, Anna Martínez-Gavara, Manuel Laguna, Rafael Marti, Abraham Duarte

■ WB-29

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S311

Cutting and Packing II

Stream: Cutting and Packing
Chair: *Tony Wauters*

1 - Solving the 3D bin packing problem: improved heuristic solutions for a case in the automotive industry
Andreas Beham, Roland Hanghofer, Stefan Wagner, Michael Affenzeller

2 - Open source simulation tool to evaluate dynamic stability metrics for the container loading problem
David Álvarez-Martínez, Juan Camilo Martínez, Daniel Cuellar-Usaquen

3 - A GRASP algorithm for multi container loading problems with practical constraints
Francisco Parreño, Maria Teresa Alonso Martínez, Ramon Alvarez-Valdes

4 - A parallel tree based approach for the 3D cutting and packing problem
Everton Fernandes da Silva, Tony Wauters

■ WB-30

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S312

Strategic Customers in OM Games

Stream: Game Theory and Operations Management
Chair: *Anton Ovchinnikov*

1 - Strategic service operations of two-sided market platform with backward compatibility
Dohoon Kim

2 - A cooperative game approach to the job scheduling problem
Eric Bahel, Christian Trudeau

3 - Sharing the revenues from broadcasting sport events
Gustavo Bergantinos, Juan D. Moreno-Ternero

4 - Strategic consumer behavior in premium-status loyalty programs
Anton Ovchinnikov

■ WB-31

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S313

Behavioural Operations and Games II

Stream: Behavioural OR
Chair: *Ilkka Leppanen*

1 - The impact of competition on product and process development decisions: evidence from a behavioral experiment
Margarita Gladkova, Timofey Shalpegin

2 - Suppliers' learning: aggregate and individual levels
Mohsen Ahmadian, Roger Blake, Ehsan Elahi

3 - Behavior of the agent when the information is distorted by the principal
Andrei Matveenko

4 - Building a hierarchical evaluation model by using interpretive structural modeling: a case study of ERP implementation risks
Ilker Gölcük, Adil Baykasoğlu

■ WB-32

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S314

Vehicle Routing

Stream: Routing, Logistics, Location and Transportation
Chair: *Pedro Castellucci*

1 - A systematic intelligent solution for parts logistics optimization
Wenlian Lu, Yaoting Huang, Boyu Chen, Zhongxiao Jin

2 - Integrated maintenance tail assignment considering heterogeneous fuel consumption
Manuel Fuentes, Luis Cadarso

3 - A practical routing model in terms of reliability of arrival time to destination
Yoichi Shimakawa, Hiroyuki Goto, Yohei Kakimoto

4 - A logic-benders decomposition algorithm for a network scheduling problem with cross-docking
Pedro Castellucci, Alysson Costa, Franklina Toledo

■ WB-33

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S315

New Applications and Perspectives I

Stream: Data Mining and Statistics
Chair: *Pakize Taylan*

1 - Do we need more advanced and complex model to predict micro-enterprises failures?
Aneta Ptak-Chmielewska

2 - Nudgital: critique of a behavioral political economy
Julia Puaschunder

3 - Discrete analogues of bivariate continuous distributions
Alessandro Barbiero

4 - Modelling and managing dynamic pricing strategy for an intensive competitive battle in the drugs industry, using "agile" system dynamics
Kim Warren

■ WB-34

Wednesday, 10:30-12:00 - SOUTH BUILDING UV S113

Recent Advances in DC Programming

Stream: DC Programming and DCA
Chair: *Hoai An Le Thi*

1 - On DC decompositions of polynomials: from DSOS decomposition to DSOSC decomposition
Yi-Shuai Niu

2 - DCA based algorithms for solving a class of mathematical programs with equilibrium constraints
Thi Minh Tam Nguyen, Hoai An Le Thi

3 - A DC programming approach for robust joint beamforming and artificial noise security scheme
Phuong Anh Nguyen, Hoai An Le Thi

4 - A collaborative approach based on DCA and VNS for solving mixed binary linear programs
Sara Samir, Hoai An Le Thi

■ WB-49

Wednesday, 10:30-12:00 - 4D UPV B.4

Emerging Applications in Portfolio Selection

Stream: Emerging Applications in Portfolio Selection and Management Science
Chair: *John Lamb*

1 - A robust portfolio optimization model based on minimax regret
Sandra Caçador, Pedro Godinho, Joana Matos Dias

2 - A particle swarm optimization variant for the cardinality constraint portfolio selection problem
Ilaria Foroni, Alessandro Avellone

3 - Homogeneous subsets for portfolio selection
John Lamb, Elmira Mynbayeva

■ WB-50

Wednesday, 10:30-12:00 - 4D UPV 1.1

OR for Developing Countries V

Stream: OR for Developing Countries
Chair: *Herman Mawengkang*
Chair: *Olabode Adewoye*

1 - An optimization model to tackle health service demand problem for public hospitals
M. Irfan Fahmi, Herman Mawengkang

2 - An interactive approach for solving multi-objective model of waste management in crude palm oil industry
Meslin Silalahi, Herman Mawengkang

3 - An electricity reform model for developing countries
Olabode Adewoye

4 - A mixed- integer programming model for production - distribution planning of crude palm oil industry
Hendaru Sadyadharma, Avery Boy Detinty, Herman Mawengkang

■ WB-51

Wednesday, 10:30-12:00 - 4D UPV 1.2

Optimization Models in Health Care

Stream: OR for Health and Care II
Chair: *Metin Turkay*
Chair: *Fadime Üney-Yüksektepe*

1 - Comparison of cervical cancer screening recommendations under different perspectives using a POMDP model
Malek Ebadi, Raha Akhavan-Tabatabaei, J.b.g. Frenk

2 - Combining interventions to improve neonatal care services performance: a system dynamics model
Reda Lebcir

3 - Markov process models in primary-care clinics
Zhimin Huang, Susan Li

4 - Combining soft or methods with simulation techniques for sustainability analysis
Masoud Fakhimi, Anastasia Anagnostou, Navonil Mustafee, Lampros Stergioulas

■ WB-52

Wednesday, 10:30-12:00 - 4D UPV 1.3

Network Revenue Management

Stream: Analytics and Pricing
Chair: *Darius Walczak*

1 - Data science approach to value based pricing
David McCaffrey

2 - Price list optimization for free-floating car sharing systems
Matthias Soppert, Claudius Steinhardt

3 - Pricing in the energy field
Luce Brotcorne, Sébastien Lepaul, Léonard von Niederhäusern

4 - Dynamic programming decomposition approaches to the network revenue management and pricing problems
Darius Walczak, Ravi Kumar

■ WB-53

Wednesday, 10:30-12:00 - 4D UPV 1.4

Renewable Energy and Storage

Stream: Stochastic Assessment of Renewable Energy
Chair: *Benjamin Böcker*

1 - Unit commitment under imperfect foresight - the impact of stochastic photovoltaic generation
Jens Weibezahn, Jan Zepter

2 - Improving deployment availability of energy storage with data-driven AGC signal models
Audun Botterud, Ying Wang, Can Wan, Zhi Zhou, Kaifeng Zhang

3 - A multi-stage stochastic generation capacity expansion planning model under energy policies
Heejung Park, Ross Baldick

4 - Stochastic battery valuation considering multiple value streams
Benjamin Böcker, Rudiger Kiesel, Christoph Weber

■ WB-54

Wednesday, 10:30-12:00 - 4D UPV 1.6

Logistics applications

Stream: Applied OR
Chair: *Geir Hasle*

1 - Modelling the acquisition plan of LPG cylinders with reverse logistics
Isabel Cristina Lopes, Eliana Costa e Silva, Aldina Correia, Rui Borges Lopes, Magda Monteiro

2 - Optimization of wave picking operations in a 3PL warehouse
Dilara Aykanat, Onur Can Saka, Erdinc Comert, Esin Altin

3 - Materials handling application for Industry 4.0
Gizem Mullaoğlu, Sencer Yeralan

4 - A comparison of different curbside waste collection systems
Sanne Wøhlk, Hani Zbib, Marcel Turkensteen

■ WB-55

Wednesday, 10:30-12:00 - 4D UPV 2.1

Getting on in OR

Stream: Making an Impact I
Chair: *Ruth Kaufman*

1 - Getting on in OR
Ruth Kaufman

■ WB-56

Wednesday, 10:30-12:00 - 4D UPV 2.2

Hospital Logistics

Stream: Healthcare Logistics
Chair: *Marion Rauner*
Chair: *Fermin Mallor*

1 - Solving the operating room scheduling problem maximizing patients' preferences
Ana RamonBaviera, Francisco Ballestin

2 - Insight into the emergency department physicians' problem about managing their patients flow
Marta Cildoz, Amaia Ibarra, Fermin Mallor

3 - Hospital resource planning for mass casuality events: a DES-based case study of a major Viennese hospital
Marion Rauner, Daniel Staribacher, Helmut Niessner

■ WB-57

Wednesday, 10:30-12:00 - 4D UPV 2.3

Software for Nonlinear & Parallel Optimization

Stream: Software for Optimization
Chair: *Imre Polik*

1 - Tuning the global optimization solver BARON using derivative-free optimization algorithms
Nikolaos Ploskas, Jianfeng Liu, Nikolaos Sahinidis

2 - SUSPECT: MINLP special structure detector for Python
Francesco Ceccon, Ruth Misener

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

4 - ParaXpress - a massively parallel mixed integer linear programing solver with the potential to harness over a million CPU cores
Yuji Shinano, Timo Berthold, Stefan Heinz

■ WB-58

Wednesday, 10:30-12:00 - 4D UPV 2.4

Machine Learning and Data Analysis III

Stream: Emerging Applications of Data Analysis
Chair: *Ivan Reyer*
Chair: *Sureyya Ozogur-Akyuz*

1 - Multivariate copulas in Bayesian classification
Jan Górecki

2 - Gaussian Bayesian networks and Gaussian mixture models applications of day-ahead forecast for the Spanish electricity market supply curves
Diego Gomez

3 - Real-time crash prediction in an urban expressway using disaggregated data
Franco Basso, Leonardo Basso, Francisco Bravo, Raul Pezoa

4 - Managing uncertainty using human centric analytics (HCA): a longitudinal case study
Christina Phillips

■ WB-59

Wednesday, 10:30-12:00 - 4D UPV 2.5

Stochastic Aspects of Energy Management

Stream: Technical and Financial Aspects of Energy Problems
Chair: *Raimund Kovacevic*

1 - Explicit solutions of stochastic energy storage problems
Martin Densing

2 - Multi-scale scenario generation for a power plant valuation problem
Martin Glanzer, Debora Daniela Escobar, Georg Pflug, Wim van Ackooij

3 - Dynamic stochastic programming. applications for the valuation of a coal power plant
Debora Daniela Escobar, Martin Glanzer, Georg Pflug, Wim van Ackooij

4 - Arbitrage conditions on a market with electricity production from fuel
Raimund Kovacevic

■ WB-60

Wednesday, 10:30-12:00 - 4D UPV B.5

Vendor Sessions

Stream: EURO Special Sessions
Chair: *Simon Jones*

1 - Model-based optimization with AMPL: From prototyping to deployment
Robert Fourer

2 - What's new in Gurobi 8.0
Kostja Siefen

3 - How to get published in research journals
Simon Jones

Wednesday, 12:30-14:00

■ WC-01

Wednesday, 12:30-14:00 - UPV Nexus

Online Optimization for Dynamic Matching Markets

Stream: Keynotes
Chair: *Bernard Fortz*

1 - Online Optimization for Dynamic Matching Markets
Patrick Jaillet

■ WC-02

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S101

Innovative Applications I

Stream: DEA: Applications
Chair: *José Dulá*

1 - Performance evaluation of mobile network operators in Japan
Norihiro Hayakawa, Yasufumi Saruwatari

2 - Applying DEA on accounting data to assess Spanish chemical companies: an analysis based on size and region
Amalia Rodrigo-González, Amparo Ruiz-Llopis

3 - Assessing performance in international mathematics competitions
Stella Sofianopoulou

4 - Post-modern DEA: DEA knowledge and skills for novel and innovative applications
José Dulá

■ WC-03

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S103

Stochastic Modeling of Production Systems

Stream: Production and Operations Management
Chair: *Çerkez Ağayeva*

1 - Optimal harvesting policies to reduce the number of setups in biomanufacturing
Yesim Koca, Tugce Martagan, Lisa Maillart, Ivo Adan

2 - Exploiting random lead times for significant inventory cost savings
Qiong Wang, Alexander Stolyar

3 - A production queueing system in which product quality may deteriorates during processing.
Kuo-Hwa Chang

4 - Problems of singularity for stochastic switching systems with restrictions
Çerkez Ağayeva

■ WC-04

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S104

Optimal Control Applications II

Stream: Optimal Control Applications
Chair: *Fabricio Oliveira*

1 - Analysis of serial production lines with phase-type processing times
Özgün Öztürk, Onder Bulut

2 - Managing logical constraints in 4D optimal trajectory planning for multiple aircraft
Dinesh Babu Seenivasan, Alberto Olivares, Ernesto Staffetti

3 - Refining replenishment policies with the internet of things: a control-theoretic approach
Christos Papanagnou

4 - Revisiting inventory control using stochastic programming
Fabricio Oliveira

■ WC-05

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S105

Heuristics for Vehicle Routing Problems I

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Daniele Vigo*

1 - Fleet composition for last-mile delivery service
Frédéric Semet, Ekaterina Alekseeva, Luce Brotcorne

2 - SISRs - slack induction by string removals for vehicle routing problems
Jan Christiaens

3 - A static move descriptor-based heuristic for the vehicle routing problem
Daniele Vigo, Luca Accorsi, Wout Dullaert, Birger Raa

4 - A two-phase solution algorithm for the flexible periodic vehicle routing problem
Claudia Archetti, Elena Fernandez, Diana Lucia Huerta Muñoz

■ WC-06

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S106

Stochastic Modeling in Queuing Systems

Stream: Stochastic Modeling and Simulation in Engineering, Management and Science
Chair: *Hiroshi Toyoizumi*

1 - Cost-benefit analysis of four availability retrial models with warm standby components and general repair times
Kuo-Hsiung Wang

2 - Modelling of Bernoulli arrival process subject to binomial catastrophes
Nitin Kumar, Umesh Gupta

3 - M/M/? stochastic dynamic networks with joins and leaves
Hiroshi Toyoizumi

■ WC-07

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S107

Scheduling with Resource Constraints II

Stream: Scheduling with Resource Constraints
Chair: *Pedro Alfaro-Fernandez*

1 - A novel disruptive innovation-like algorithm for single machine scheduling with sequence-dependent setup times
Chun-Lung Chen

2 - Minimizing the weighted tardiness penalties for parallel machines scheduling based on ATC dispatching rule
Gen-han Wu, Wang-Xian Li

3 - Hybrid flow shop to minimize makespan: efficient constructive heuristics
Victor Fernandez-Viagas, Jose M. Molina-Pariente, Manuel Burgos, Paz Perez Gonzalez, Jose M Framinan

4 - Flow shop scheduling problem with additional resources
Pedro Alfaro-Fernandez, Ruben Ruiz

■ WC-08

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S108

Topics in Combinatorial Optimization

Stream: Combinatorial Optimization I
Chair: *Valentina Cacchiani*

1 - Approximating the incremental knapsack problem
Ulrich Pferschy, Federico Della Croce, Rosario Scatamacchia

2 - Fractional knapsack problem with penalties: models and algorithms
Michele Monaci, Enrico Malaguti, Paolo Paronuzzi, Ulrich Pferschy

3 - A path-based formulation for the 2-reservoir hydro unit commitment problem
Dimitri Thomopulos, Wim van Ackooij, Pascal Benchimol, Claudia D'Ambrosio

4 - On the value of integration in supply chain planning
Martin Kidd, Maryam Darvish, Leandro Coelho

■ WC-09

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S109

Integrating Machine Learning in Optimization Methods

Stream: European Working Group: Data Science Meets Optimization
Chair: *Kevin Tierney*

1 - A data science approach for OD matrix analysis in transportation modelling
Lídia Montero, Jaume Barceló, Xavier Ros-Roca

2 - Optimization of Shows Schedules on Linear Television
Sebastian Souyris, Jaime Miranda

3 - Online algorithm selection for operational-level combinatorial optimisation problems
Hans Degroote, Lars Kotthoff, Jose Luis Gonzalez-Velarde, Bernd Bischl, Patrick De Causmaecker

4 - Deep learning assisted heuristic tree search for the container pre-marshalling problem
André Hottung, Shunji Tanaka, Kevin Tierney

■ WC-10

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S110

MCDA and Environmental Management II

Stream: Multiple Criteria Decision Aiding
Chair: *Luisa Paolotti*
Chair: *Filippo Fiume Fagioli*

1 - A multi-criteria decision framework for the selection of biomass separation equipment
Pablo Brito-Parada, Junko Hutahaean, Jan Cilliers

2 - Towards the generation of social entrepreneurial impact in the traditional wood and biomass sector: a multi-criteria decision aid perspective
Olga Porro, Nuria Agell, Mónica Sánchez

3 - The Willingness to Pay for Sustainable Supplier Selection
Mehrnoosh Enjelasi, Behnam Fahimnia, Andrew Collins

4 - MCDA approach to the internal migration of regions: case of Serbia
Mladen Stamenković, Salvatore Corrente, Maja Jandric

■ WC-11

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S111

Dynamic Games in Operations Research

Stream: Applications of Dynamical Models
Chair: *Margarida Lopes*

1 - Price, time, and reliability competition for service delivery
Ata Jalili Marand, Hongyan Li, Anders Thorstenson

2 - A bi-level optimization formulation of priority service pricing
Yuting Mou, Anthony Papavasiliou, Philippe Chevalier

3 - Optimization of lot size flow with linking cost and individual profit of bargaining players of various tier wise purchasing capacities in supply chain network
Prem Prakash Mishra

4 - Post-merger internal organization in multitier decentralized supply chains
Margarida Lopes, Duarte Brito

■ WC-12

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S112

Port Operations

Stream: Maritime Transportation
Chair: *Eva Vallada*

1 - A new lower bound and an iterative deepening hash-based branch-and-bound algorithm for container pre-marshalling
Consuelo Parreño Torres, Shunji Tanaka, Kevin Tierney, Ramon Alvarez-Valdes, Ruben Ruiz

2 - A fast heuristic for the container pre-marshalling problem
Noemí Elizabeth Castañeda, Gerardo Minella, Ruben Ruiz

3 - Yard crane scheduling in Valencia's largest container terminal
Gerardo Minella

4 - Metaheuristics for the yard crane scheduling problem in a port container terminal
Eva Vallada, Fulgencia Villa, Ramon Alvarez-Valdes, Jose M. Belenguer

■ WC-13

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S201

Credit Card Risk Management

Stream: Financial Modeling, Risk Management and Managerial Accounting
Chair: *Jonathan Crook*

1 - Optimal model selection in credit risk modeling
Marta Galvani, Silvia Figini

2 - Predicting credit card debt recovery rates: an empirical study using generalised additive models
Christophe Mues, Raffaella Calabrese, Mee Chi (Meko) So

3 - Regulatory policy to mitigate potential risks arising from contingent convertibles
Masaaki Kijima

4 - Survival models for credit cards with time varying coefficients
Jonathan Crook, Viani Djeundje

■ WC-14

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S202

ETHOR III Ethics and OR

Stream: OR and Ethics
Chair: *Pierre Kunsch*
Chair: *Cathal Brugha*
Chair: *Dorien DeTombe*

1 - Modelling ethical level in financial entity performance appraisal: assessment in a multi-dimensional framework using data envelopment analysis
Don Galagedera

2 - Ethical investment performance: evidence from the portfolio theory perspective
Noureddine Kouaissah, Sergio Ortobelli

3 - Optimization problems in designing a post-disaster relief system
Bela Vizvari

4 - Using soft systems methodology to incorporate ecological ethics and systems thinking in education
Lady Johanna Peñaloza-Farfán, Alberto Paucar-Caceres

■ WC-15

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S203

Scheduling Theory II

Stream: Scheduling Theory
Chair: *Rafael Moras*

1 - Maximizing the weighted number of just-in-time jobs in a two-machine flow-shop system with scenario dependent job parameters
Miri Gilenson, Dvir Shabtay

2 - Relationship between common objective functions, idle time and waiting time in permutation flowshop scheduling
Kathrin Maassen, Paz Perez Gonzalez, Jose M Framinan

3 - Spectrum allocation problem in OFDM networks
Yash Aneja, R. Chandrasekaran, Xiangyong Li

4 - Antithetic sequences in flowshop scheduling: special cases of monster cell dominance
Rafael Moras, Gopalakrishnan Easwaran, Paul Uhlig

■ WC-16

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S115

Graphs and Networks

Stream: Graphs and Networks
Chair: *Reinhardt Euler*

1 - A dynamic programming approach for computing all-terminal reliability of small networks with uniform probability
Naoya Makiishi, Natsumi Takahashi, Shao-Chin Sung

2 - Models and algorithms for transmission line route planning
Bernhard Primas, Natalia Shakhlevich

3 - Distributed leader election in wireless and IoT networks
Ahcene Bounceur, Madani Bezoui, Reinhardt Euler, Loic Lagadec, Mohammad Hammoudeh

4 - Boundary detection in wireless sensor networks by means of linear programming
Reinhardt Euler, Mohand Bentobache, Ahcene Bounceur

■ WC-17

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S205

Simulations and Queueing Systems

Stream: Stochastic and Robust Optimization
Chair: *Anders Reenberg Andersen*

1 - Development of a bushfire evacuation support tool using workspace
Leorey Marquez, Vincent Lemiale, Rajesh Subramanian, Joel Robertson, Tim Gazzard, Peter Ashton

2 - A comprehensive comparison of confidence lower bound estimation methods for Weibull lower percentiles in small samples
Burak Birgoren, Meryem YalÇinkaya

3 - Heuristic room type allocation for nursing wards
Anders Reenberg Andersen, Wim Vancroonenburg, Greet Vanden Berghe

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■ WC-18

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S206

Traffic Flow and Control

Stream: Transportation
Chair: *Paulina Reina*

1 - Estimating a spatiotemporal network of urban traffic flows
Dmitry Pavlyuk

2 - Data-driven spatio-temporal analysis of public transport usage in a metropolitan area
Merve Bakar, Gultekin Kuyzu

3 - Unfairness constrained system optimal routing of traffic flows on road networks
Valentina Morandi, Enrico Angelelli, M. Grazia Speranza

4 - Spatio-temporal characteristics of freeway traffic state transitions
Paulina Reina, George Saman

■ WC-19

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S207

Exploring Production/Inventory Systems via Probability Models

Stream: Supply Chain Management I
Chair: *Barış Balcıoğlu*

1 - Condition-based production planning: adjusting production rates to balance output and failure risk
Ruud Teunter, Michiel uit het Broek, Bram de Jonge, Nicky Van Foreest

2 - Joint pricing and replenishment decisions for an inventory system with a randomly fluctuating supply price process
Fikri Karaesmen, Caner Canyakmaz, Suleyman Ozekici

3 - Performance analysis of the extended-two-critical-number policy in different make-to-stock systems
Onder Bulut, Sinem Özkan

4 - Dynamic pricing and lead time quotation in a make-to-stock queue
Barış Balcıoğlu

■ WC-20

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S301

Decision Support for Medical Applications and Health Policy

Stream: Decision Analysis and Decision Support Systems
Chair: *Aron Larsson*

1 - A data-based decision analytic approach for designing optimal testing and treatment strategies
Lauri Neuvonen

2 - A decision support system for Parkinson disease management: models for suggesting medication change
Marko Bohanec, Dragana Miljković, Anita Valmarska, Biljana Mileva-Boshkoska, Elisabetta Gasparoli, Giovanni Gentile, Konstantinos Koutsikos, Andrea Marcante, Angelo Antonini, Dimitrios Gatsios, George Rigas, Dimitrios Fotiadis, Kostas Tsiouris, Spiros Konitsiotis

3 - Do healthcare workers need cognitive-computing technologies?
Arthur Carvalho

4 - Decision appraisal framework for pandemic influenza interventions
Tobias Fasth, Anton Talantsev, Aron Larsson, Lisa Brouwers

■ WC-21

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S303

Applications of Smooth Nonconvex Programming

Stream: Nonlinear Programming: Theory
Chair: *Hector Ramirez*

1 - Feasibility and cost minimisation for a lithium extraction problem
Paul Bosch, Juan Pablo Contreras, José Saavedra-Rosas

2 - An interior algorithm for nonlinear conic programs: application to classification problems
Julio López, Miguel Carrasco, Alfredo Canelas

3 - Double regularization methods for robust feature selection and SVM classification via DC programming
Miguel Carrasco, Julio López, Sebastian Maldonado

4 - Subdifferential characterization of Gaussian probability functions
Pedro Perez-Aros, Abderrahim Hantoute, Rene Henrion

■ WC-22

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S304

Evolutionary Multiobjective Optimization Methods

Stream: Multiobjective Optimization
Chair: *Ernestas Filatovas*

1 - Decomposition-based interactive evolutionary optimization guided by multiple search directions compatible with indirect preference information
Michał Tomczyk, Milosz Kadzinski

2 - An evolutionary approach to constrained many-objective combinatorial optimization
Mert Sahinkoc, Ümit Bilge

3 - An integrated approach for evaluation of facility layout alternatives
Esra Duygu Durmaz, Ramazan Sahin

4 - A preference-based multiobjective evolutionary algorithm with controllable approximation accuracy
Ernestas Filatovas, Ignacy Kaliszewski, Olga Kurasova, Janusz Miroforidis

■ WC-23

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S305

Lot Sizing IV - Integrated Models

Stream: Lot Sizing, Lot Scheduling and Production Planning
Chair: *Nabil Absi*

1 - A mathematical programming approach to product line decisions
Xavier Andrade, Luis Guimarães, Gonçalo Figueira

2 - Decomposition of sequence dependent setup times in simultaneous lot sizing, scheduling, workforce, overtime and shift planning
Gorkem Yilmaz, Cevdet Utku Şafak

3 - A simple heuristic for the supply vehicle routing and lot sizing problem enhanced by genetic programming
Fanny Hein, Christian Almeder

4 - Comparing sequential and integrated approaches for the production routing problem
Nabil Absi, Claudia Archetti, Stéphane Dauzere-Peres, Dominique Feillet, M. Grazia Speranza

■ WC-24

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S306

Convexity and Global Optimization

Stream: Global Optimization
Chair: *Janos D. Pinter*

1 - Necessary optimality conditions for some nonconvex facility location problems
Marcus Hillmann

2 - Conditions on optimality and non-optimality in global optimiztaion
Pál Burai

3 - A global minimization algorithm for concave quadratic programming
Mohand Bentobache, Mohamed Telli, Abdelkader Mokhtari

4 - Packing general convex sets into polygons
Janos D. Pinter, Frank Kampas, Ignacio Castillo

■ WC-25

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S307

Combinatorial Optimization in Assembly Systems

Stream: Combinatorial Optimization II
Chair: *Olga Battaïa*
Chair: *Erwin Pesch*

1 - An exact approach for sequencing assembly lines to facilitate just-in-time part feeding
Simon Emde, Lukas Polten

2 - An improved mathematical formulation for the production planning problem in additive manufacturing and 3D printing
F. Tevhide Altekin

3 - Task assignment in assembly lines with physical and cognitive ergonomic constraints
Olga Battaïa, Dmitry Arkhipov

■ WC-26

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S308

Bike Sharing and Demand Prediction

Stream: Public Transportation I
Chair: *Dalila Fontes*

1 - Setting incentives for user based relocation in free floating bike sharing systems
Christoph Heitz, Roman Etschmann, Thomas Bachmann, Raoul Stoeckle

2 - A mathematical model to evaluate balancing strategies of bicycle sharing systems
Pablo Andrés Maya Duque, Diana Marcela Perez, Miguel Angel Arroyave

3 - Incentives as a balancing mechanism in bike-sharing systems
Dalila Fontes, Ehsan Ali Askari, Sergiy Butenko

4 - Prediction methods improve bus services profitability
George Kireulishvili, Wolfgang Garn, James Aitken, Jane Hemsley-Brown

■ WC-27

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S309

Reverse Logistics / Remanufacturing

Stream: Production, Service and Supply Chain Management
Chair: *Sandeep Mondal*

1 - A robust mathematical model to optimize an electronic reverse logistics network
Saman Hassanzadeh Amin, Babak Mohamadpour Tosarkani

2 - Revenue management in remanufacturing under competition, cannibalization, and customer behavior
Nughthoh Arfawi Kurdhi, Shaunak Dabadghao, Jan Fransoo

3 - Mixture reliability analysis of a product consisting of new and remanufactured components
Sandeep Mondal, Kampan Mukherjee, Kaustov Chakraborty

■ WC-28

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S310

Tabu Search

Stream: Memory-based Heuristics
Chair: *Rafael Marti*

1 - New advanced heuristic methods for the VRP problem family
Piotr Sielski, Piotr Cybula, Marek Rogalski, Piotr Beling, Andrzej Jaszkiewicz

2 - Tabu search for hub location with modular links
Juanjo Peiró, Fred Glover, Angel Corberan, Rafael Marti

3 - Heuristics for the bi-objective diversity problem
J. Manuel Colmenar, Abraham Duarte, Rafael Marti

4 - Diversity, dispersion, and equity models
Rafael Marti, Abraham Duarte, Anna Martínez-Gavara

■ WC-29

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S311

Cutting and Packing III

Stream: Cutting and Packing
Chair: *Maria Teresa Alonso Martínez*

1 - An approach for the pallet building problem and subsequent loading in a heterogeneous fleet of vehicles considering practical packing constraints
Daniel Cuellar-Usaquen, Guillermo Camacho, David Álvarez-Martínez

2 - MultiCapableWarehousePackagingOperators in vegetable and fruit warehouses
Wim De Bruyn

3 - Beam search for the 2D-single knapsack problem
Marta Cabo Nodar, Julia Bennell, Antonio Martinez Sykora, Carlos Alegría

4 - Solving the pallet-loading vehicle routing problem with stability constraints
Maria Teresa Alonso Martínez, Antonio Martinez-sykora, Julia Bennell, Ramon Alvarez-Valdes, Francisco Parreño

■ WC-30

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S312

Sharing in Transportation

Stream: Transportation and Logistics
Chair: *Francesca Maggioni*
Chair: *Rossana Cavagnini*

1 - Pricing strategy for ride-sourcing platforms
Luoyi Sun, Ruud Teunter, Guowei Hua

2 - Optimal rebalancing for bike sharing systems with information-assisted riders
Mohammad Javad Feizollahi, Xinchang Wang

3 - Locating take-off and landing sites for a VTOL-based ridesharing network in urban areas
Nitin Ahuja, Melanie Reuter-Oppermann

4 - Multi-objective stochastic optimization models for managing a bike sharing system
Rossana Cavagnini, Luca Bertazzi, Francesca Maggioni, Mike Hewitt

■ WC-31

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S313

Academic OR and Approaches

Stream: Soft OR, Problem Structuring Methods and Behavioural OR
Chair: *Cigdem Kadaifci*
Chair: *Ilker Gölcük*

1 - Analysis of factors affecting the choice of academic conferences to participate
Cigdem Kadaifci, Umut Asan, Y. Ilker Topcu

2 - Problem-structuring method for safety analysis in the laboratory of injection systems for liquid propellants
Moacyr Machado Cardoso Junior, Marco Antonio Albuquerque, Luís Eduardo Loures da Costa, Sarah Francisca de Souza Borges, Mischel Carmen N. Belderrain

3 - Command and control (C2) enhancement in the management of air force logistic projects using multi-methodology
Thiago Dias, Daniel Pamplona, Tadeu Vale, Mischel Carmen N. Belderrain

■ WC-32

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S314

Dynamic Models in Game Theory I

Stream: Dynamic Models in Game Theory
Chair: *Anton Bondarev*

1 - Repeated games for analysis of agreements on protection of the environment
Alexander Vasin, Anastasiia Divtsova

2 - Feedback strategies first-order zero-sum mean field type differential games
Yurii Averboukh

3 - Due date quotations in an observable make-to-order system with strategic customers and the effects of customer risk-aversion
Myron Benioudakis, George Ioannou, Apostolos Burnetas

4 - How optimal control may avoid chaotic dynamics: market inefficiency in asymmetric multi-modal differential games
Anton Bondarev

■ WC-33

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S315

New Applications and Perspectives II

Stream: Data Mining and Statistics
Chair: *Pakize Taylan*

1 - Time series forecasting of driving patterns using LSTM recurrent neural networks for energy management of plug-in vehicles
Orkun Karabasoglu, Damla Kesikburun, Deniz Türsel Eliiyi

2 - Network methods for fraud detection in the anti-fraud database
Michele Tumminello, Andrea Consiglio, Fabio Farabullini, Riccardo Cesari

3 - An assessment of the use of machine learning in modern ERP systems to provide competitive advantage for manufacturing companies
Mahmoud Abdelrahman, Christian Askvik-Hansen, Jamie Dyer, Carl McLaughlin, Aaron Wilcock

4 - The refugee game: blame thy neighbor for terrorism
Andreas Novak, Joao Faria, Aniruddha Bagchi, Timothy Mathews

■ WC-34

Wednesday, 12:30-14:00 - SOUTH BUILDING UV S113

Game Theory and Mathematical Economics

Stream: Game Theory and Mathematical Economics
Chair: *Alper Nakkas*

1 - The impact of valuation heterogeneity on equilibrium prices in supply chain networks
Alper Nakkas

2 - Retiree decision making and parameter interchangeability under Epstein-Zin preferences
Asiye Aydilek, Harun Aydilek

3 - Dominance in game theory: new concepts
Gabriel Solari Carbajal

4 - Price zones and investment incentives in electricity markets: an application of multi-level optimization with graph partitioning
Mirjam Ambrosius, Veronika Grimm, Thomas Kleinert, Frauke Liers, Martin Schmidt, Gregor Zöttl

■ WC-48

Wednesday, 12:30-14:00 - 4D UPV B.3

OR in Water Management

Stream: OR in Water and Hydro Energy Management
Chair: *Corinna Hallmann*

1 - Optimization of booster disinfection stations in water distribution networks
Caglayan Sert, A. Burcu Altan-Sakarya

2 - A model for optimal water resources allocation: a special application to the Lake Chad Basin
Noe Careme Fouotsa Manfouo

3 - Sparse polynomial optimization for water networks
Bissan Ghaddar, Mathieu Claeys, Martin Mevissen, Bradley Eck

4 - Generating models for water distribution systems
Corinna Hallmann, Stefan Kuhlemann

■ WC-49

Wednesday, 12:30-14:00 - 4D UPV B.4

Emerging Applications in Management Science

Stream: Emerging Applications in Portfolio Selection and Management Science
Chair: *Juana-Maria Vivo-Molina*

1 - Evaluating risks in agri-food value chain in developed and developing economies: a multi-stakeholder perspective
Sonal Choudhary, Manish Shukla, Mike Simpson, Rakesh Nayak

2 - Attribution and timing for revenue growth in knowledge-intensive organizations
A. D. Amar, Januj Juneja

3 - Estimation of a load-sharing model for two-component parallel systems
Juana-Maria Vivo-Molina, Manuel Franco

4 - Analyzing the effects of health policies on the public benefit through simulation
Aydin Teymourifar, Onur Kaya, Gurkan Ozturk

■ WC-51

Wednesday, 12:30-14:00 - 4D UPV 1.2

Health Informatics and Modeling

Stream: OR for Health and Care II
Chair: *Joel Joris Van de Klundert*

1 - Improving trauma outcome prediction models using patients' vital signs
Fatima Almaghrabi, Dong-Ling Xu, Jian-Bo Yang

2 - Screening for breast cancer: the role of supplemental tests and breast density information
Burhaneddin Sandikci

3 - Investigative study on using standardized implants for knee and hip joint replacement and its effect on lifestyle post surgery in India
Rashmi Shahu

4 - Modelling why and when Chinese citizens bypass primary care
Joel Joris Van de Klundert, Qingxia Kong

■ WC-52

Wednesday, 12:30-14:00 - 4D UPV 1.3

Pricing and Revenue Management II

Stream: Analytics and Pricing
Chair: *Luce Brotcorne*

1 - Choice of mixed opaque marketing strategy of OTA
Zhaofang Mao, Xiaomei Li

2 - Consumers' willingness to pay and firms' cost differentiation on price competition for multiple bundles
Juan Perez, Héctor López-Ospina, Álvaro Flores

3 - Optimizing conditional value-at-risk in dynamic pricing
Jochen Gönsch, Michael Hassler, Rouven Schur

4 - From revenue management to profit management: capacity control via dynamic stochastic programming
Giovanni Giallombardo, Francesca Guerriero, Giovanna Miglionico

■ WC-53

Wednesday, 12:30-14:00 - 4D UPV 1.4

Energy Management

Stream: Stochastic Assessment of Renewable Energy
Chair: *John Boland*

1 - Computing energy system transformation pathways with high spatial and temporal resolution
Manuel Wetzel

2 - Energy consumption scheduling of electrical devices with various types in a household
Ümmühan Başaran Filik, Oguzkagan Alic

3 - Do smart grids increase solar homes price premiums?
Chiara D'Alpaos, Michele Moretto

4 - Real options applied to South African electricity capacity expansion
Mantombi Bashe

■ WC-54

Wednesday, 12:30-14:00 - 4D UPV 1.6

Applied OR at SINTEF

Stream: Applied OR
Chair: *Geir Hasle*

1 - The role of research organizations in SESAR 2020
Trond Bakken

2 - Multiagent planning in airport and air traffic management
Anders Albert

3 - Rolling stock maintenance scheduling
Daniel Palhazi Cuervo, Lukas Bach

4 - Scheduling professional football leagues
Lukas Bach, Oddvar Kloster, Celso Ribeiro

■ WC-55

Wednesday, 12:30-14:00 - 4D UPV 2.1

Agile SD: Hands On

Stream: Making an Impact I
Chair: *Kim Warren*

1 - Living business models: fast, effective, reliable
Kim Warren, Giancarlo Bigi

■ WC-56

Wednesday, 12:30-14:00 - 4D UPV 2.2

Routing for Dial-a-Ride and Home Health Care Services

Stream: Healthcare Logistics
Chair: *Kris Braekers*
Chair: *Yves Molenbruch*

1 - Decomposition methods for the workforce scheduling and routing problem
Matthieu Gondran, Philippe Lacomme, Tchernev Nikolai, Thierry Garaix, Dario Landa-Silva

2 - Dial-a-ride with real-time disruptions
Célia Paquay, Yves Crama, Thierry Pironet

3 - On-demand public transport planning
Evelien van der Hurk

4 - Integrating dial-a-ride services and public transport
Yves Molenbruch, Kris Braekers, Patrick Hirsch, Marco Oberscheider

■ WC-57

Wednesday, 12:30-14:00 - 4D UPV 2.3

Machine Learning or Operations Research

Stream: Making an Impact I
Chair: *Ronald Buitenhek*

1 - Machine learning or operations research: how can consultants provide the best advice to their customers?
Ronald Buitenhek, Tim van Luxemburg

■ WC-58

Wednesday, 12:30-14:00 - 4D UPV 2.4

Data Analysis and Applications

Stream: Emerging Applications of Data Analysis
Chair: *Vadim Strijov*
Chair: *Mariusz Kaleta*

1 - Optimal clustering of stations for the bike sharing system in Seoul
Kwanghun Chung

2 - Forecasting international migration based on a hybrid fuzzy and Bayesian method
Duygun Fatih Demirel, Melek Basak

3 - Influence maximization with deactivation in social networks
Kübra Tanınmış Ersüs, Necati Aras, I. Kuban Altinel

4 - Network market engineering - connecting the dots
Mariusz Kaleta

■ WC-59

Wednesday, 12:30-14:00 - 4D UPV 2.5

Decision Making under Uncertainty in Gas and Electric Energy Systems

Stream: Technical and Financial Aspects of Energy Problems
Chair: *Miguel Carrión*

1 - A bi-objective multi-period optimization model for energy planning
Chandra Irawan, Peter Hofman

2 - The economics of daily natural gas demand in France and in the UK
Arthur Thomas, Olivier Massol

3 - Development of a cost forecasting model on aviation service delay by low visibility
Hee Kyung Kim, Jae Ung Seok, Chang Won Lee

4 - Optimal management of combined-cycle gas units with gas storage under uncertainty
Hernán Gómez-Villarreal, Miguel Carrión, Ruth Dominguez

■ WC-60

Wednesday, 12:30-14:00 - 4D UPV B.5

Meet the editors TOP

Stream: EURO Special Sessions
Chair: *Gustavo Bergantinos*

Wednesday, 14:30-16:00

■ WD-01

Wednesday, 14:30-16:00 - UPV Nexus

The hazards of trading volatility

Stream: Keynotes
Chair: *Rita D'Ecclesia*

1 - The hazards of trading volatility
Carol Alexander

■ WD-02

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S101

Innovative Applications II

Stream: DEA: Applications
Chair: *Erdem Aksakal*

1 - The DEA method and its application possibilities for measuring efficiency in the public sector
Ewa Cichowicz, Ewa Rollnik-Sadowska

2 - A frontier model for public bidding in government procurement
Marcos Estellita Lins, Nilson Trevisan, Angela Cristina Moreira da Silva, José Dulá

3 - Using a MCDEA model for proposing a new efficiency indicator to manufacturing processes
Carlos Ushizima, Fernando Marins, Aneirson Silva, Erica Dias, Marcelo Figueiredo, Raphaela Bueno

4 - On the problem of benchmarking dependent decision making units and common inputs in DEA: measuring efficiencies of university faculties and careers within those faculties
Sonia Avilés-Sacoto, Wade Cook, David Güemes-Castorena, Joe Zhu

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■ WD-03

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S103

Stochastic Inventory Control

Stream: Production and Operations Management
Chair: *Taher Ahmadi*

1 - Capacity planning, resource utilization, and safety stock placement in a supply network
Foad Ghadimi, Tarik Aouam

2 - Controlling excess stock in (s, S) inventory systems with uncertain returns
Ben A. Chaouch

3 - Determining warehouse reorder point considering retailers' decision biases under (R,Q) policies
Samantha Seayoung Park, Yong Won Seo

4 - Optimal control policies for an ATO system with commitment lead time
Taher Ahmadi, Zumbul Atan, Ton de Kok, Ivo Adan

■ WD-04

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S104

Optimal Control Applications III

Stream: Optimal Control Applications
Chair: *Raúl de Celis*

1 - Optimization techniques for robotic exploration
Christian Meerpohl, Kathrin Flaßkamp, Christof Büskens

2 - Condition-based production and maintenance
Michiel uit het Broek, Ruud Teunter, Bram de Jonge

3 - A pseudospectral framework for optimal train control
Rob Goverde, Gerben Scheepmaker, Pengling Wang

4 - Airport arrival management: an optimal descent trajectory and runway assignment integrated model
Raúl de Celis, Adrián Barea, Luis Cadarso

■ WD-05

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S105

Heuristics for Vehicle Routing Problems II

Stream: Vehicle Routing and Logistics Optimization I
Chair: *Jose Escribano*

1 - Optimizing a 2-echelon distribution system with temporary intermediate facilities
Vincent F. Yu, Hsiu-I Ting, Shih-Wei Lin, Winarno Winarno, Aldy Gunawan

2 - Large neighborhood search approaches for multi-trip vehicle routing with time windows and driver shifts
Véronique François, Yasemin Arda, Yves Crama

3 - Optimization of employee transportation services
Bengisu Tosun, Fulya Fidan, Simgenil Arslan, Gulce Haner Guler, Erdinc Oner

4 - Cooperative conflict avoidance and path improvement heuristics for humanitarian unmanned aerial vehicles
Jose Escribano, Panagiotis Angeloudis, Washington Ochieng

■ WD-06

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S106

Scheduling and Project Management

Stream: Scheduling, Timetabling and Project Management
Chair: *Tomas Subrt*

1 - Integrated smart history in project management
Banu Ozkeser, Cuneyt Karaarslan

2 - A spatio-temporal packing problem in stem cell culture industry
Jongyoon Park, Kyungsik Lee, Jinil Han

3 - IT project management: service operations' supply chain optimization
Alexey Zalozhnev, Denis Peremezhko, Vasily Ginz

4 - Modification of crucial earned value parameters for modern project management
Tomas Subrt, Jan Bartoska, Petr Kucera

■ WD-07

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S107

Scheduling with Resource Constraints III

Stream: Scheduling with Resource Constraints
Chair: *Krzysztof Fleszar*

1 - Mixed integer programming based merge search for open pit block scheduling
Davaatseren Baatar, Dhananjay Thiruvady, Andreas Ernst, Mohan Krishnamoorthy, Angus Kenny, Angus Kenny, Gaurav Singh

2 - A MILP model for the unrelated parallel two-machine scheduling problem with a resource constraint
Krzysztof Fleszar, Khalil Hindi

3 - Resource-constrained project scheduling with alternative activity chains and time considerations for production planning with multiple lots
Viktoria Hauder, Andreas Beham, Sebastian Raggl, Sophie Parragh, Michael Affenzeller

■ WD-08

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S108

Advances in Combinatorial Aspects of Optimal Control

Stream: Combinatorial Optimization I
Chair: *João Lauro Faco'*

1 - Design and development of discrete optimization approach for agro product clustering: case study of TR72 region in Turkey
Giray Resat

2 - Optimal coordinated bidding of a profit maximizing risk-averse EV aggregator under uncertainty
Yelena Vardanyan, Henrik Madsen

3 - Solving linearly-constrained mixed-integer nonlinear (MINLP) global optimization using GRASP metaheuristic
João Lauro Faco', Ricardo Silva, Mauricio Resende

■ WD-09

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S109

Optimization of Machine Learning Models

Stream: European Working Group: Data Science Meets Optimization
Chair: *Dimitri Papadimitriou*

1 - Fractional Euclidean distance matrices for Kriging surrogate model
Natalija Pozniak, Leonidas Sakalauskas

2 - Recurrent parameter estimation algorithm in hidden Markov models with application to multivariate data analysis and signal recognition
Jūratė Vaičiulytė, Leonidas Sakalauskas

3 - A novel optimization based algorithm for multi-class data classification problem
Fatih Rahim, Metin Turkay

4 - Combined structure and weight learning for neural networks
Dimitri Papadimitriou

■ WD-10

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S110

System Dynamics Modeling and Simulation

Stream: System Dynamics Modeling and Simulation
Chair: *Evgenia Ushakova*

1 - Models of regulatory fit
Ann van Ackere, Erik Larsen

2 - A system dynamics model of emergency department crowding in Singapore: ways to restore the balance between demand for and supply of emergency medicine
Lukas Schoenenberger, John Ansah, Salman Ahmad, Lin Hui Lee, Yuzeng Shen

3 - Structural analysis of conceptual maps and simulation
Mathias Beck, Lukas Schoenenberger

4 - Causal structures of financial markets: a dynamic simulation model
Evgenia Ushakova, Chaiporn Vithessonthi, Markus Schwaninger

■ WD-11

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S111

Game Theory Models

Stream: Applications of Dynamical Models
Chair: *Eleonora Fendekova*

1 - Study on the relationships between the agency charges of the public procurement and its corruption
Huirong Jing, Wenxin Jing

2 - A game theory approach to determine the optimal penalty of online copyright infringement
I-Hsuan Hong

3 - Endogenous timing in a quantity duopoly with differentiated products
Eduardo Zuñiga, Leonardo Basso, Pedro Jara

4 - Utilizing of microeconomic and optimization models in protection and formation of competitive environment in Slovakia
Eleonora Fendekova, Michal Fendek

■ WD-12

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S112

Hyper-heuristics

Stream: Hyperheuristics
Chair: *Víctor Parada*

1 - Evolutionary algorithms and supply chain network design: a comparative analysis on the effectiveness of heuristics, meta-heuristic and hyper-heuristics
Sahar Validi

2 - A hyperheuristic framework to optimise the implementation of dual local search
Mona Hamid, Jamal Ouenniche

3 - Automatically generated hybrid algorithms
Víctor Parada, Carlos Contreras-Bolton, Carlos Rey

■ WD-13

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S201

Risk Measurement and Management

Stream: Financial Modeling, Risk Management and Managerial Accounting
Chair: *Michalis Doumpos*

1 - Psychographic segmentation of Italian bank customers
Caterina Liberati, Galina Andreeva

2 - The impact of collection actions on recovery rates using retail loan level panel data
Angela Freitas de Moraes, Galina Andreeva, Jonathan Crook

3 - Risk management for sovereign debt
Stavros A. Zenios, Andrea Consiglio

4 - Developing predictive models for US bank failures: an empirical analysis using machine learning approaches
Michalis Doumpos, Georgios Manthoulis, Constantin Zopounidis, Emilios Galariotis, George Baourakis

■ WD-14

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S202

ETHOR IV Ethics and OR last part - Award Ceremony

Stream: OR and Ethics
Chair: *Pierre Kunsch*
Chair: *Cathal Brugha*
Chair: *Dorien DeTombe*
Chair: *Ulrike Reisach*
Chair: *Gerhard-Wilhelm Weber*

1 - Democracy unveiled by OR
Cindy-Ricarda Roberts

■ WD-15

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S203

Scheduling Theory III

Stream: Scheduling Theory
Chair: *Paz Perez Gonzalez*

1 - Scheduling with additional resources in the setups
Juan Camilo Yepes Borrero, Federico Perea, Fulgencia Villa

2 - Unrelated parallel machines problem with setups, resources and makespan minimization
Luis Fanjul Peyró, Ruben Ruiz, Federico Perea

3 - A computational evaluation of approaches for flowshop scheduling with variability of the processing times
Jose M Framinan, Paz Perez Gonzalez, Victor Fernandez-Viagas

4 - Scheduling unpaced assembly lines with limited buffers: a mathematical model and some solving methods
Carlos Andres, Julien Maheut

■ WD-16

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S115

Graphs and Networks II

Stream: Graphs and Networks
Chair: *Alessandra Cornaro*

1 - Online search problems with traveling and search costs on undirected graphs
Davood Shiri, Sibel Salman

2 - On maximum cycle packings in minimum 3-connected graphs
Christin Otto

3 - Critical node problem based on connectivity index and properties of components
Binwu Zhang, Xiucui Guan

4 - Assessing robustness in complex networks through the Kirchhoff index
Alessandra Cornaro, Monica Bianchi, Gian Paolo Clemente, Anna Torriero

■ WD-17

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S205

Reliability and Robust Optimization

Stream: Stochastic and Robust Optimization
Chair: *Eric Bourreau*

1 - Robust single machine scheduling with uncertain interval processing times for minimising weighted completion time
Ao Zhou, Amir Salehipour, Feng-Jang Hwang

2 - A novel replacement policy for a mechanical system with imperfect maintenance and gradual degradation
Aynura Poladova, Salih Tekin, Tahir Khaniyev

3 - Robust Rolling Stock Rescheduling
Joris Wagenaar

4 - Robust optimisation on GPU. A use case with shortest path problem
Eric Bourreau, Michael Poss

■ WD-18

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S206

Soft Computing in Transportation Problems

Stream: Transportation
Chair: *Sandra Zajac*

1 - Decision making policies for integrated vehicle scheduling and container storage allocation in a straddle carrier system: risk neutral and risk averse analysis
Jiabin Luo, Yue Wu

2 - Optimization of operational offshore wind farm maintenance scheduling under uncertainty
Toby Kingsman, Burak Boyaci

3 - A modified nonlinear Muskingum flood routing model with lateral flow contribution
Ersin Bahar, Gurhan Gurarslan, M. Tamer Ayvaz

4 - Determining unpredictable routes for reasons of security
Sandra Zajac

■ WD-19

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S207

Supply Chain Design and Operations

Stream: Supply Chain Management I
Chair: *Nesim Erkip*
Chair: *Burcu Keskin*

1 - Value of supplier flexibility and initial shelf life information in an EOQ environment
Z. Pelin Bayindir, İsmail Serdar Bakal, Ceren Sar

2 - Data driven robust order batching decisions for warehouse operations management: a branch and price approach
Vedat Bayram, Gohram Baloch, Fatma Gzara, Samir Elhedhli

3 - A cooperative shipment consolidation game
Secil Savasaneril, Banu Yuksel Ozkaya

4 - Designing an omnichannel distribution system with inventory rationing policies
Burcu Keskin, Jia Guo

■ WD-21

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S303

Convexity on Riemannian Manifolds, Feasibility and Equilibrium

Stream: Nonlinear Programming: Theory
Chair: *Sandor Zoltan Nemeth*

1 - Linear complementarity problems on extended second order cones
Lianghai Xiao, Sandor Zoltan Nemeth

2 - Stable and scalable incremental nonconvex optimization approach for phase retrieval from minimal measurements
Ji Li

3 - On the spherical convexity of quadratic functions
Sandor Zoltan Nemeth, Orizon P Ferreira

4 - Digraphs for modeling systems' representation of mathematical knowledge
Patricia Balderas

■ WD-22

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S304

Methods and Theory of Multiobjective Optimization

Stream: Multiobjective Optimization
Chair: *Theodor Stewart*

1 - When to burn it? Bi-objective scheduling on a restricted batching machine
Edgar Possani, Marta Cabo Nodar, Jose Luis Gonzalez-Velarde, Yasmin Rios-solis

2 - Formation of homogenous sections of students based on multiple characteristics
Shubhabrata Das

3 - Numerical experimentation with multiobjective optimization using multiple reference points
Theodor Stewart

■ WD-23

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S305

Lot Sizing V - Extensions

Stream: Lot Sizing, Lot Scheduling and Production Planning
Chair: *Nadjib Brahimi*

1 - Dynamic lot-sizing in a reverse logistics environment
Aaron Luntala Nsakanda, Moustapha Diaby

2 - A lot-sizing problem in deliberated and controlled co-production systems
Z. Caner Taşkın, Bahadir Pamuk, Semra Agrali

3 - Valid inequalities for the proportional lot-sizing and scheduling problem with fictitious micro-periods
Waldemar Kaczmarczyk

4 - Solving a lot sizing problem with lead time sensitive demands
Nadjib Brahimi, Adam Ferreira, Ramzi Hammami

■ WD-24

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S306

Miscellaneous Topics related to Global Optimization

Stream: Global Optimization
Chair: *Marco Castellani*

1 - Adaptive space-filling designs for large-scale metamodel-assisted expensive black-box optimization
Rommel Regis

2 - Support to decision making in a semi-continuous canning process
Carlos Gómez Palacín, José Luis Pitarch Pérez, Mendez Carlos, Cesar de Prada, Miguel Antonio López

3 - Obtaining deep local minima of smooth functions by using local optimization with global multidimensional search
Juan José Mesas, Albert Ferrer, Luis Sainz

4 - Ekeland's principle for equilibrium problems
Marco Castellani

■ WD-25

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S307

Scheduling Applications in Urban and Rail Logistics

Stream: Combinatorial Optimization II
Chair: *Dominik Kress*
Chair: *Erwin Pesch*

1 - Assignment of collection centers and routing of recycling vehicles in a city
Lorena Pradenas, Sergio Aliaga

2 - Single track railway scheduling problem
Grzegorz Pawlak, Jacek Blazewicz, Gaurav Singh

3 - A dynamic programming approach for scheduling cooperative gantry cranes
Dominik Kress, Jan Dornseifer, Florian Jaehn

■ WD-26

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S308

Freight Transportation

Stream: Public Transportation I
Chair: *Pengling Wang*

1 - Integrating terminal processes in the demand-flow problem for European railway networks
Tobias Pollehn, Moritz Ruf

2 - Reliability analysis of a rail truck intermodal network
Kiran Ali

3 - Branch and price approach for a vehicle routing problem in public service
Cansu Yurtseven, Merve Avcı, Deniz Türsel Eliiyi

4 - Running time prediction for optimal freight train merging
Pengling Wang, Rob Goverde

■ WD-27

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S309

Quality Management

Stream: Production, Service and Supply Chain Management
Chair: *Ashkan Keykavoussi*
Chair: *Ahmad Ebrahimi*

1 - Optimal supplier quality development under uncertainty
Guven Demirel, John Quigley, Lesley Walls, Bart MacCarthy, Mahdi Parsa

2 - Queueing system with vacations, disasters and repairs under diferrent control policies
George Mytalas

3 - Warranty parameters for extended two-dimensional warranties incorporating consumer preferences
Amitava Mitra

4 - The implementation of lean manufacturing utilizing fuzzy value stream mapping (case study: SAIPA automobile manufacturing group)
Ahmad Ebrahimi, Ashkan Keykavoussi

■ WD-28

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S310

Machine learning

Stream: Machine Learning
Chair: *Michal Walczak*

1 - Oprimized neural networks applications for aircraft engine modeling
Ruxandra Botez

2 - Convolutional deep neural network model to classify citizen complaints in Bogotai'
Xavier Gonzalez

3 - Improved operational excellence through big data analytics
Andreas Felsberger, Boualem Rabta, Gerald Reiner

4 - Chemical process design aided by grey-box modelling
Michal Walczak, Raoul Heese, Tobias Seidel, Michael Bortz

■ WD-29

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S311

Cutting and Packing IV

Stream: Cutting and Packing
Chair: *J. M. Valerio de Carvalho*

1 - Modeling and solving the open-end bin packing problem with incompatibility constraints
Mohamed Maiza

2 - One-dimensional cutting stock instances for which few patterns are needed
Arnaud Vandaele

3 - When bin packing meets scheduling: a case of just-in-time batch scheduling with bin packing constraints
Sergey Polyakovskiy, Rym M'Hallah

4 - A strong integer linear optimization model to the compartmentalized knapsack problem
J. M. Valerio de Carvalho, John Quiroga-Orozco, Robinson Hoto

■ WD-30

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S312

Vehicle Routing: Recent Theory and Applications

Stream: Transportation and Logistics
Chair: *Riccardo Rossi*

1 - Electric vehicle routing problem with time windows and ambient temperature effect
Bülent Çatay, Sina Rastani, Tugce Yuksel

2 - Branch-and-price for probabilistic vehicle routing
Mathias Klapp, Felipe Lagoo, Alejandro Toriello

3 - An integrated fleet management model introducing alternative fuel trucks into existing diesel fleets
Ilke Bakir, Alan Erera

4 - Crash prediction at road intersections based on extreme value theory
Riccardo Rossi, Massimiliano Gastaldi, Federico Orsini

■ WD-31

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S313

Strategy and Soft OR

Stream: Soft OR, Problem Structuring Methods and Behavioural OR
Chair: *Colin Eden*

1 - Cognitive mapping with preference analysis in selecting cases for multinational and multi-discipline research projects
Jukka Tikkanen

2 - A conceptual framework for incorporating Maturana's onto-epistemology into Checkland's soft systems methodology
Alberto Paucar-Caceres, Bruno Jerardino-Wiesenborn

3 - Causal mapping workshops and strategic development
Parmjit Kaur, Ashley Carreras

4 - Developing robust strategy: modelling stakeholder interactions - a case example
Colin Eden

■ WD-32

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S314

Dynamic Models in Game Theory II

Stream: Dynamic Models in Game Theory
Chair: *Jiajia He*

1 - A game-theoretic approach to solving the dynamic traveling salesman problem
Svetlana Tarashnina, Yaroslavna Pankratova

2 - Population dynamics in electricity markets: going against the flow
Athanasios Papakonstantinou, Jethro Browell, Pierre Pinson

■ WD-33

Wednesday, 14:30-16:00 - SOUTH BUILDING UV S315

New Applications and Perspectives III

Stream: Data Mining and Statistics
Chair: *Emilio Carrizosa*

1 - Applying cluster analysis and collaborative filtering to develop hybrid recommendation for personalized picture book
Ling-Jing Kao, Chih-Chou Chiu, April Ying-Chieh Chiu

2 - Homogenous or heterogeneous? Demand effect of user similarity network in online video website
Jun Yang, Hongjun Huang, Ling Zhao

3 - Personalized detection - integrating epidemic modeling and user behavior to improve malware detection
Amir Yavneh, Roy Lothan, Dan Yamin

4 - Characterization for the determination of production times using fuzzy clustering and relative risks
Maria Pastuizaca, Francisco Moreira

■ WD-48

Wednesday, 14:30-16:00 - 4D UPV B.3

OR in Hydro Energy Management

Stream: OR in Water and Hydro Energy Management
Chair: *Jorge Daniel Páez Mendieta*

1 - Heuristic for dispatching of seasonal hydro storage power plants
Florian Zimmermann

2 - Decompostion techniques in hydro storage valuation and scheduling
Vadim Omelčenko

3 - Comparison of algorithms for valuation of hydroelectric pumped storages
Maik Günther, Christoph Rapp

4 - Optimal design of a hybrid power system in Fernando de Noronha Island
Jorge Daniel Páez Mendieta, Caroline Paulino, Paulo Correia, Ieda Geriberto Hidalgo

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■ WD-49

Wednesday, 14:30-16:00 - 4D UPV B.4

Emerging Applications in Portfolio Selection and Management Science

Stream: Emerging Applications in Portfolio Selection and Management Science
Chair: *Enrique Alba*

1 - A Fama and French four factor model
Juan E. Trinidad-Segovia, Maria de las Nieves López-García, Miguel A. Sanchez-granero, Igor Pouchkarev

2 - Using heuristics to maximize costumer attractiveness in retail stores
Sara Hatami, Mage Marmol, Leandro Martins, Angel A. Juan, Vicente Fernández

3 - New challenges for OR in smart cities
Enrique Alba

4 - Managing knowledge in public R&D: cases of regional specialization strategies adopted by national laboratories in India
Santanu Roy

■ WD-51

Wednesday, 14:30-16:00 - 4D UPV 1.2

Planning and Scheduling for Health Care

Stream: OR for Health and Care II
Chair: *Rosita Guido*

1 - Stochastic kidney exchange problem
Bart Smeulders, Yves Crama, Frits Spieksma

2 - Heuristic solutions for kidney exchange program
Utkarsh Verma, Narayan Rangaraj

3 - Analyzing economies of scale and scope in hospitals by use of case mix planning
Jens Brunner, Sebastian McRae

4 - Patient admission, surgery planning and bed assignments problems: a solution approach
Rosita Guido, Vittorio Solina, Giovanni Mirabelli, Domenico Conforti

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■ WD-52

Wednesday, 14:30-16:00 - 4D UPV 1.3

Pricing and Revenue Management III

Stream: Analytics and Pricing
Chair: *Andre Schnabel*

1 - Pricing and coordination decision in closed-loop supply chain considering joint advertising
Juhong Gao

2 - Optimal order quantity and dynamic pricing for multiple, vertically-differentiated products
Prasenjit Mandal

3 - Dynamic pricing of new products in competitive markets: a mean-field game approach
Régis Chenavaz, Corina Paraschiv, Gabriel Turinici

4 - Simulation-based service portfolio optimization
Andre Schnabel, Carolin Kellenbrink

■ WD-53

Wednesday, 14:30-16:00 - 4D UPV 1.4

Electricity Supply

Stream: Stochastic Assessment of Renewable Energy
Chair: *John Boland*

1 - Analysis and clustering of residential electricity consumers using smart meter data
Olga Varganova, Behzad Samii

2 - A shared balancing responsibility model for the integration of ancillary services from demand side management and distributed generation
Cristina Núñez-del-Toro, Cristina Corchero, Pol Paradell, Gerard del Rosario

3 - Real-time energy dispatching in smart microgrids
Selçuk Gören, Ahmet Önen, Yeliz Yoldaş, Salem Al-Agtash, Brian Azzopardi, Nis Martensen, Jose L. Martinez-Ramos, Tsolakis Apostolos, Dimitrios Tzovaras, Lenos Hadjidemetriou, Mounir Khiat, Tim Camilleri, Nicholas Borg

4 - Long-term wind power forecasting using singular spectrum analysis
Soraida Aguilar, Paula Maçaira, Reinaldo Souza, Fernando Luiz Cyrino Oliveira

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■ WD-54

Wednesday, 14:30-16:00 - 4D UPV 1.6

Personnel Scheduling Applications

Stream: Applied OR
Chair: *Geir Hasle*

1 - Airline cabin crew rostering based on a column generation algorithm
Nan Xu, Mingyu Zhao, Fan Yang, Zhiyao Zhang

2 - Modelling real-world strict seniority bidding problems in airline crew rostering
Andriy Svynaryov, Magnus Björk, Paweł Pietrzak

3 - Analysis of firefighter absences and hiring schedule optimization at a Canadian fire department
Tamon Stephen

4 - Making schedule recommendations for managing personal processes by using a constraint programming model
Sercan Oruc, P. Erhan Eren, Altan Koçyiğit, Sencer Yeralan

■ WD-55

Wednesday, 14:30-16:00 - 4D UPV 2.1

Ethical Dilemmas in Everyday Practice

Stream: Making an Impact I
Chair: *Ruth Kaufman*

1 - Ethical dilemmas in everyday practice
Ruth Kaufman

■ WD-56

Wednesday, 14:30-16:00 - 4D UPV 2.2

Scheduling Problems in Hospitals

Stream: Healthcare Logistics
Chair: *Inês Marques*

1 - Multi-appointment scheduling in a diagnostic facility
Joren Marynissen, Erik Demeulemeester

2 - The introduction of pediatric operating room sessions: quality vs efficiency
Carla Van Riet, Erik Demeulemeester

3 - Reallocate operating room time among surgical services
Luisa Lubomirska, Inês Marques

4 - Blood supply chain planning: the Portuguese case
Ana Margarida Araújo, Inês Marques, Ana Barbosa-Povoa

Wednesday, 17:30-18:30

■ WE-01

Wednesday, 17:30-18:30 - Opera House

Theory can sometimes be useful

Stream: Plenaries
Chair: *Greet Vanden Berghe*

1 - Theory can sometimes be useful
Gerhard Woeginger

Wednesday, 18:45-20:00

■ WF-01

Wednesday, 18:45-20:00 - Opera House

Closing Session

Stream: Opening and Closing
Chair: *Ramon Alvarez-Valdes*
Chair: *Ruben Ruiz*

1 - Closing session
Ramon Alvarez-Valdes, Ruben Ruiz

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