

## Monday

### ■ MD-33

- 1 - **Dynamic Pricing, Objective and Subjective Quality, and the Price-Quality Relationship**  
*Régis Chenavaz, Domenico De Giovanni, Pietro De Giovanni*
- 2 - **Competition between hospitals with age-structured patients and negative congestion effects: a differential game approach**  
*Dominika Machowska, Michael Kuhn, Andrzej Nowakowski, Agnieszka Wiszniewska-Matyskiel, Stefan Wrzaczek*
- 3 - **The optimal mix of incapacitations and social programs for fighting cartel violence in Mexico**  
*Gernot Tragler, Gustav Feichtinger, Dieter Grass, Jonathan Caulkins, Rafael Prieto-Curiel, Stefan Wrzaczek, Gian Maria Campedelli*

### ■ MD-38

- 1 - **The exponential cone: machine learning and the projection algorithm**  
*Henrik A. Friberg*
- 2 - **Lifting nonnegativity over general semialgebraic sets to nonnegativity over simple sets.**  
*Juan Vera*

### ■ MD-56

- 1 - **Using Constraint Programming to Plan Annual Maintenance of Railway Tracks**  
*Maria Andreina Francisco Rodriguez, Justin Pearson, Jerker Sundström*
- 2 - **Network Design for Evacuation Preparedness under Cost and Travel Congestion Considerations**  
*Halit Uster, Nadere Mansouri*
- 3 - **Capacitated Multi-Enabler Transportation Network Design for Autonomous Trucks**  
*Ebrahim Mohammadi, Marie Schmidt, Rob Zuidwijk*

## Tuesday

### ■ TA-31

- 1 - **Forecasting regional GDP using cointegration with business cycle indicators**  
*Nariyasu Yamasawa*
- 2 - **Modelling wind behaviour: using statistical distributions to represent wind speed and direction**  
*Helena Alvelos, Francisco Marques, Ana Raquel Xambre, Agostinho Agra, Filipe Alvelos*

### ■ TC-25

- 1 - **A survey on ILP formulations for the kidney exchange problem**  
*Mathijs Barkel, Rachael Colley, Maxence Delorme, David Manlove, William Pettersson*
- 2 - **Uncertainty-affected graph problems solution through Bulk Optimization**  
*Paolo Paronuzzi, Christoph Buchheim, Enrico Malaguti, Michele Monaci*
- 3 - **Lower and upper bounds for resources allocation in lightpath communication networks**  
*Enrico Malaguti, Francesco Cavaliere, Federico Michelotto, Michele Monaci, Daniele Vigo*

### ■ TC-58

- 1 - **Model for the Hospital Waste Collection Problem Considering Shared Load**  
*Danna Manrique-Saavedra, Javier Arias-Osorio, Edgar E. Córdoba-Sarmiento*
- 2 - **Tactical Planning Considering Different Levels of Flexibility for a Waste Collection Routing Problem**  
*Christina Hess, Alina-Gabriela Dragomir, Karl Doerner*
- 3 - **A Roll-On Roll-Off Vehicle Routing Problem for Industrial Waste Collection: A Case Study in Northern Italy**  
*Annarita De Maio, Francesca Vocaturo, Stefano Bortolomiol, Antonio Napoletano*  
  
*Paper added to session*
- 4 - **The Twin Rural Postman Problem**  
*Marcos José Negreiros, Computer Science, Universidade Estadual do Ceara, Av Silas Munguba, 1700 - Campus do Itaperi, Laboratório de Computação Científica, 60740-000, Fortaleza, Ceara, Brazil, negreiro@graphvs.com.br, Augusto Palhano, Nelson Maculan*

This work shows a new arc routing problem where it is given a strongly connected weighed mixed graph and its required set of links (edges and arcs) and vertices, and a departure/end vertex. The Twin-Rural Postman problem (TRPP) is formed by at least two routes that departs and end at the same vertex  $v_0$ , in such a way that both cover with minimum cost (distance) all the required links and vertices, and one of the RPP's route is performed in such a way that the other twin is no more than a maximum distance from the other, once both movements are desirable to be synchronized. This problem appears in the waste collection in suburban areas of Brazilian cities, as in country cities, where a truck collects in a waste generator sector some streets continuously and a laborer perform a walking tour collecting and joining waste in special points where the vehicle will pass. We present the problem as a multi-objective combinatorial optimization problem, propose a procedure to solve it, and evaluate solutions considering what is doing in the field, what can be planned without algorithm support, and finally with algorithm support for the sectors of the cities of Andradina, Jales and São José do Rio Pardo/São Paulo-Brazil.

### ■ TC-64

- 1 - **Dynamic Routing and Scheduling Optimization of Teleoperated Car-Sharing Service**  
*Gideon Gottschalg, Arne Strauss, Marlin Wolf Ulmer, Jarmo Haferkamp*

- 2 - **A Rollout Algorithm for Dynamic Stochastic Purchasing Routing With Perfect Information Model Estimation**  
*Daniel Cuellar-Usaquen, David Álvarez-Martínez, Marlin Wolf Ulmer, Camilo Gomez*
- 3 - **The On-Demand Delivery Problem: Online Assignment of Orders to Warehouses and Couriers**  
*Peter Dieter, Philipp Speckenmeyer, Guido Schryen*

### ■ TD-15

- 1 - **An indirect time study for nursing tasks in Belgian hospitals: methodological aspects and optimal sampling**  
*Stijn De Vuyst, Kurt De Cock, Dieter Claeys*
- 2 - **Identifying the key factors of job satisfaction of the second-career certified nursing assistants in long-term care**  
*Chien-Hui Wang, Ru-Ying Li*
- 3 - **A study of flexibility and the chaining principle in the mid-term nurse scheduling problem**  
*Diego Fiorotto, Maria Paula Padilla, Karim Martínez*

## Wednesday

### ■ WA-56

- 1 - **An AGV scheduling problem based on partial charging policy**  
*Wei Wang, Hui Sun*

- 2 - **Effects of time-of-use electricity prices on electric vehicle schedules**  
*Fabian Brockmann*
- 3 - **Dynamic and incremental expansion of large scale fixed and mobile charging infrastructure in stochastic environment: A Benders decomposition based approach**  
*Atefeh Hemmati Golesefidi, Francisco Pereira, Samitha Samaranayake*

### ■ WC-18

- 1 - **A method for huge scale maximum covering facility location problems with an application to water well placement in West Darfur**  
*Britt van Veggel*
- 2 - **Optimal floor price for e-auction of a seasonal crop**  
*Sundaravalli Narayanaswami*

### ■ WC-62

- 1 - **Decision support system for managing integrated yard problems**  
*Christopher Expósito Izquierdo, Israel López-Plata, Airam Expósito Márquez*
- 2 - **Stochastic Modeling and Analysis of Two-phase Operations in Container Terminal with Automated Lifting Vehicles**  
*Vishal Bansal, Govind Kumawat, Divyansh Tripathi*