

## DETAILED SCIENTIFIC PROGRAM

**Plenary session I - Thursday January 28, 09:10-10:10**Eva K. Lee, *Optimizing and Transforming the Healthcare System***Parallel sessions TA - Thursday January 28, 10:30-12:10****Session *Optimization 1* (TA1)**

- ◇ Surrogate Management in Mixed-Variable Derivative-Free Optimization  
by Anne-Sophie Crélot, C. Beauthier, D. Orban, C. Sainvitu, A. Sartenaer 1
- ◇ A "What-If Analysis" Visual Tool to Compare Optimization Approaches  
by Sascha Van Cauwelaert, Pierre Schaus, Michele Lombardi . . . . . 3
- ◇ Towards the Complexity of Differentiation Through Lazy Updates in Local  
Search Engines  
by Renaud De Landtsheer, Yoann Guyot, Gustavo Ospina, Christophe Ponsard 5
- ◇ Mining sequential data using constraint programming  
by Tias Guns, Benjamin Negrevergne . . . . . 7

**Session *Healthcare and Bioinformatics* (TA2) – COMEX**

- ◇ The impact of strategic alliances on the configuration of healthcare supply  
chains  
by Julie Conings, Katrien Ramaekers, An Caris . . . . . 9
- ◇ An Integer Programming formulation for the Polymorphic Alu Insertion  
Recognition Problem  
by Luciano Porretta, Bernard Fortz, Bjarni V. Haldórsson . . . . . 11
- ◇ Surgical case scheduling under generalized resource constraints  
by Wim Vancroonenburg, Pieter Smet, Greet Vanden Berghe . . . . . 12
- ◇ A Branch-Price-and-Cut Algorithm for the Minimum Evolution Problem  
by Daniele Catanzaro, Roberto Aringhieri, Marco Di Summa, Raffaele Pesenti 14

**Session *Scheduling and Timetabling 1* (TA3) – COMEX**

- ◇ Conference scheduling - a personalized approach  
by Bart Vangerven, Ward Passchyn, Annette Ficker, Dries Goossens, Frits  
Spieksma . . . . . 15
- ◇ No-wait scheduling for locks with parallel chambers  
by Ward Passchyn, Dirk Briskorn, Frits C.R. Spieksma . . . . . 17
- ◇ A continuous-time model for scheduling gantry cranes in storage yards  
by Sam Heshmati, Túlio Toffolo, Wim Vancroonenburg, Greet Vanden Berghe 20
- ◇ Stepping horizon models for personnel rostering in integer programming  
by Pieter Smet, Greet Vanden Berghe . . . . . 21

**Session *Vehicle Routing 1* (TA4) – COMEX**

- ◇ The multiple-product multiple-depot vehicle routing problem with inventory restrictions  
by Florian Arnold, Kenneth Sorensen . . . . . 23
- ◇ A literature review on the open vehicle routing problem  
by Mehmet Rifat Kamber, Semih Onut . . . . . 25
- ◇ Experimental Analysis of Metaheuristic Algorithms for the VRPTW  
by Jeroen Corstjens, An Caris, Benoît Depaïre . . . . . 26
- ◇ A study on the off-line tuning problem of a local search algorithm for the swap-body vehicle routing problem  
by Nguyen Dang, Patrick De Causmaecker . . . . . 28

**Plenary session II - Thursday January 28, 13:30-14:30**

2016 ORBEL and Wolsey awards ceremony

**Parallel sessions TB - Thursday January 28, 14:35-16:15****Session *Optimization 2* (TB1)**

- ◇ Exact worst-case performance of first-order methods in convex optimization  
by Adrien Taylor, Julien M. Hendrickx, François Glineur . . . . . 29
- ◇ Optimisation and uncertainty: comparing stochastic and robust programming  
by Thibaut Cuvelier . . . . . 31
- ◇ Random gradient-free methods for ranking algorithm learning  
by Pavel Dvurechensky, Lev Bogolubsky, Alexander Gasnikov, Gleb Gusev,  
Yurii Nesterov, Andrey Raigorodskii, Aleksey Tikhonov, Maksim Zhukovskii 33
- ◇ Efficient Methods for a Class of Truss Topology Design Problems  
by Sebastian Stich, François Glineur, Yurii Nesterov . . . . . 35

**Session *OR Applications* (TB2)**

- ◇ An optimization model for allocation of municipal solid waste in Flanders  
by Jens Van Engeland . . . . . 36
- ◇ Music generation with structural constraints: an operations research approach  
by Dorien Herremans, Elaine Chew . . . . . 37
- ◇ Application of Hidden Markov Models to music performance style classification  
via timing and loudness features  
by Carlos Vaquero Patricio, Elaine Chew . . . . . 40
- ◇ Metaheuristics as a solving approach for the infrared heating in the thermo-  
forming process  
by Djamel Rebaine, K. Bachir Cherif, F. Erchiqui, I. Fofana . . . . . 43

**Session *Scheduling and Timetabling 2* (TB3)**

- ◇ Developing compact course timetables with optimized student flows  
by Hendrik Vermuyten, Stef Lemmens, Inês Marques, Jeroen Beliën . . . . . 48
- ◇ Integration of railway line planning and timetabling  
by Sofie Burggraeve, S. Bull, R.M. Lusby, P. Vansteenwegen . . . . . 50
- ◇ Heuristic for solving detected train conflicts  
by Sofie Van Thielen, Pieter Vansteenwegen, Francesco Corman . . . . . 52
- ◇ An efficient procedure for parallel-machine scheduling with conflicting jobs  
by Roel Leus, Daniel Kowalczyk . . . . . 54

#### **Session *Vehicle Routing 2* (TB4) – COMEX**

- ◇ Integrating order picking process and vehicle routing problem  
by Stef Moons, Katrien Ramaekers, An Caris . . . . . 56
- ◇ The capacitated vehicle routing problem with sequence-based pallet loading  
and axle weight constraints  
by Hanne Pollaris, Kris Braekers, An Caris, Gerrit Janssens, Sabine Limbourg 58
- ◇ A critical look at Pichpibul & Kawtummachai’s ”improved Clarke and Wright  
savings algorithm”  
by Kenneth Sörensen, Florian Arnold . . . . . 60
- ◇ Iterated local search for the PDPTW: Improved benchmarks and a container  
transportation case  
by Thomas Van den Bossche, Jan Christiaens, Tony Wauters, Greet Vanden  
Berghe . . . . . 61

### **Parallel sessions TC - Thursday January 28, 16:35-17:50**

#### **Session *Optimization 3* (TC1) – COMEX**

- ◇ Balanced Optimization with Vector Costs  
by Annette Ficker, Frits Spijksma, Gerhard J. Woeginger . . . . . 63
- ◇ Active Learning of the Best Algorithm  
by Hans Degroote, Patrick De Causmaecker . . . . . 65
- ◇ Tightening linearizations of non-linear binary optimization problems  
by Elisabeth Rodriguez Heck, Yves Crama . . . . . 67

#### **Session *Location* (TC2) – COMEX**

- ◇ Budget-constrained pre-positioning of emergency relief supplies to minimize  
unmet demand  
by Renata Turkes, Daniel Palhazi Cuervo, Kenneth Sorensen . . . . . 69
- ◇ Geographically grouping youth teams into football leagues  
by Túlio A.M. Toffolo, Jan Christiaens, Greet Vanden Berghe, Frits C.R.  
Spijksma . . . . . 71
- ◇ Location, allocation, and routing decisions in an electric car sharing system  
by Hatice Calik, Bernard Fortz . . . . . 73

#### **Session *Networks* (TC3) – COMEX**

- ◇ On the Piecewise Linear Unsplittable Multicommodity Flow Problem  
by Martim Joyce-Moniz, Bernard Fortz, Luís Gouveia . . . . . 74

◇ Hop-constrained electricity network design problems by Jérôme De Boeck, Bernard Fortz . . . . .	75
◇ Service network design and pricing for intermodal freight transport by Christine Tawfik, Sabine Limbourg . . . . .	77
<b>Session <i>Vehicle Routing 3</i> (TC4) – COMEX</b>	
◇ Horizontal Cooperation in Dial-a-Ride Services by Yves Molenbruch, Kris Braekers, An Caris . . . . .	79
◇ Combining acceleration techniques for pricing in a VRP with time windows by Stefano Michelini, Yasemin Arda, Hande Küçükaydin . . . . .	81
◇ A Fast heuristic for the Dial-a-Ride with Transfers by Samuel Deleplanque, Alain Quilliot . . . . .	83

### Plenary session III - Friday January 29, 09:10-10:10

Yurii Nesterov,

*Convergent subgradient methods for nonsmooth convex minimization*

### Parallel sessions FA - Friday January 29, 10:30-12:10

#### Session *Multiple Criteria Decision Analysis* (FA1)

◇ New Test for the Assessment of some MCDA Methods by Chergui Zhor, Moncef Abbas . . . . .	85
◇ An extension of PROMETHEE II to hierarchical clustering by Jean Rosenfeld, Yves De Smet . . . . .	87
◇ Multicriteria-enriched representations of evaluation table using the PROMETHEE methods by Nguyen Anh Vu Doan, Karim Lidouh, Yves De Smet . . . . .	89
◇ HPC ranking big performance tableaux with multiple incommensurable cri- teria by Raymond Bisdorff . . . . .	90

#### Session *OR and Energy* (FA2)

◇ Advanced Analytics to Capture the Full Value of Demand Response and Energy Flexibility in Industrial Sites by Aurélien Crucifix, Olivier Devolder . . . . .	92
◇ Microgrid becomes more and more an opportunity. How advanced analytics can help in the optimal design and operation of eco-zoning. by Olivier Devolder, Héloïse Hoyos . . . . .	93
◇ Forward-Checking Filtering for Nested Cardinality Constraints: Application to an Energy Cost-Aware Production Planning Problem for Tissue Manu- facturing by Cyrille Dejemeppe, Olivier Devolder, Victor Lecomte, Pierre Schaus . . . . .	95

- ◇ Advancing OR/MS education using case studies and educational games  
by Jeroen Beliën . . . . . 97

### Session *Supply Chain* (FA3)

- ◇ Impact of plant configuration on capital costs and asset efficiency: study of a chemical blending plant  
by Floor Verbiest, Cornelissens Trijntje, Springael Johan . . . . . 98
- ◇ Buyer-Supplier Relationship and Resiliency from Supply Disruptions  
by Gilles Merckx, Aadhaar Chaturvedi . . . . . 100
- ◇ Optimal inventory management in case of fluctuating market conditions  
by Stijn De Vuyst, Dieter Fiems, Matthias Deceuninck . . . . . 102
- ◇ A convex reformulation for the cyclic inventory routing problem  
by Wouter Lefever, El-Houssaine Aghezzaf, Khaled Hadj-Hamou . . . . . 104

### Session *Transportation 1* (FA4) – COMEX

- ◇ Analyzing the impact of coalition characteristics on the performance of carrier collaborations  
by Lotte Verdonck, Katrien Ramaekers, Benoît Depaire, An Caris, Gerrit K. Janssens . . . . . 106
- ◇ Multi-drop vehicle routing problem with safety constraints  
by Eline Esprit, Marc Juwet, Greet Vanden Berghe . . . . . 108
- ◇ Horizontal co-operation and courier companies: a clustered approach  
by Christof Defryn, Kenneth Sørensen . . . . . 109
- ◇ On toll-setter's gain when network user faces uncertainty  
by Trivikram Dokka, Alain Zemkoho, Sonali Sen Gupta, Fabrice Talla Nobibon 111

## Parallel sessions FB - Friday January 29, 13:30-15:10

### Session *Linear Algebra and Graphs* (FB1)

- ◇ Using Spectral Information to Precondition Saddle-Point Systems  
by Charlotte Tannier, Daniel Ruiz, Annick Sartenaer . . . . . 113
- ◇ Coordinate Descent Methods for Positive Semidefinite Factorization  
by Arnaud Vandaele, Nicolas Gillis, François Glineur . . . . . 115
- ◇ PHOEG Helps Obtaining Extremal Graphs  
by Pierre Hauweele, Gauvain Devillez, Hadrien Mélot . . . . . 117
- ◇ On the shelling antimatroids of split graphs  
by Keno Merckx, Jean Cardinal, Jean-Paul Doignon . . . . . 119

### Session *Decision, Risk and OR* (FB2)

- ◇ Assessing risk in geographic contexts: formal models  
by Valérie Brison, Olivier Kaufmann, Marc Pirlot . . . . . 121
- ◇ A dynamic model of a non-life insurance company  
by Mustafa Akan . . . . . 122
- ◇ Controlling Excess Travel and Assignment Switches in School Location  
by Eric Delmelle, Isabelle Thomas, Dominique Peeters, Jean-Claude Thill . 124

- ◇ A Test for Single-Peaked Preferences  
by Bart Smeulders . . . . . 125

**Session *Logistics* (FB3) – COMEX**

- ◇ Improving Order Picking Efficiency by Analyzing the Combination of Storage, Batching, Zoning, and Routing Policies in a 2-Block Warehouse  
by Teun Van Gils, K. Braekers, K. Ramaekers, B. Depaire, A. Caris . . . . . 127
- ◇ Truck dispatching in a tank terminal  
by Evert-Jan Jacobs, J. Verstichel, T.A.M. Toffolo, T. Wauters, G. Vanden Berghe . . . . . 129
- ◇ Flexible Hub Assignment of Flows for the Air Express Shipment Service Network Design  
by José Miguel Quesada Pérez, Jean-Charles Lange, Jean-Sébastien Tancrez 131
- ◇ A best fit decreasing algorithm for the three dimensional bin packing problem with transportation constraints  
by Célia Paquay, Sabine Limbourg, Michael Schyns . . . . . 133

**Session *Transportation 2* (FB4) – COMEX**

- ◇ Train load planning optimization: state-of-the-art and opportunities for future research  
by Hilde Heggen, K. Braekers, A. Caris . . . . . 135
- ◇ A Decision Support System for Synchronodal transport  
by Tomas Ambra, Cathy Macharis, An Caris . . . . . 137
- ◇ Equilibriums in multistage transport problems  
by Pavel Dvurechensky, Alexander Gasnikov, Yurii Nesterov . . . . . 140
- ◇ Modelling traffic dependent lock capacity with combinatorial Benders' decomposition  
by Jannes Verstichel, Greet Vanden Berghe . . . . . 142

**Plenary session IV - Friday January 29, 15:30-16:30**

**Laurence Wolsey**

***MIP Reformulations: From Lot-Sizing to Inventory Routing***