ISCO 2016 Conference

4th International Symposium On Combinatorial Optimization

Vietri sul Mare, May 16-18 2016

PROGRAM

Monday, May 16				
08:00	Registration			
10:30-11:30	Coffee break			
11:30-12:00	Opening Session			
12:00 - 13:00	Invited Lecture 1: R. Ravi Room F			
13:00 - 14:30	Lunch			
14:30 - 16:15	MOA1- Room BC	MOA2 - Room D	MOA3 - Room E	MOA4 - Room F
	SemiDefinite Programming	Wireless Sensor Networks	Storage / Packing Problems	Polyhedral Approaches I
16:15 - 16:45	Coffee break			
16:45 - 18:30	MOB1- Room BC	MOB2 - Room D	MOB3 - Room E	MOB4 - Room F
	Scheduling Problems I	Routing Problems I	Network Design Problems I	Polyhedral Approaches II
19:30	Welcome Reception (Hotel Baia)			

Tuesday, May 17				
8:30 - 9:30	Invited Lecture 2: A. Frank Room F			
9:30 - 10:45	TUA1- Room BC	TUA2 - Room D	TUA3 - Room E	TUA4 - Room F
	Stable Set Problems	Routing Problems II	Network Flow Problems	TimeTable Problems
10:45 - 11:15	Coffee break			
11:15 - 13:00	TUB1- Room BC	TUB2 - Room D	TUB3 - Room E	TUB4 - Room F
	Scheduling Problems II	Traveling Salesman Problem	Network Design Problems II	Polyhedral Approaches III
13:00 - 14:30	Lunch			
15:00 - 19:00	Conference Trip			
20:30	Gala dinner			

Wednesday, May 18				
8:30 - 9:30	Invited Lecture 3: A. Letchford Room F			
9:30 - 10:45	WEA1- Room BC	WEA2 - Room D	WEA3 - Room E	WEA4 - Room F
	Graph Partitioning	GameTheory / Stochastic	Clustering / NeuroFuzzy	Energy Systems I
10:45 - 11:15	Coffee break			
11:15 - 13:00	WEB1- Room BC	WEB2 - Room D	WEB3 - Room E	WEB4 - Room F
	Scheduling Problems III	Tree Problems	Approximation Algorithms	Decomposition Approaches
13:00 - 14:30	Lunch			
14:30 - 16:00	WEC1- Room BC	WEC2 - Room D	WEC3 - Room E	WEC4 - Room F
	Knapsack Problems	Lot Sizing Problems	Closest String / Matching	Energy Systems II
16:00 - 17:00	Invited Lecture 4: V. Kaibel Room F			
17:00 - 17:30	Closing Session			

Invited Lectures

Invited Lecture 1: Improved Approximations for Graph-TSP in Regular Graphs
R. Ravi

Monday, May 16 2016, 12:00 - 13:00
Room F

Invited Lecture 2: New graph optimization problems in NP∩co-NP
A. Frank

Tuesday, May 17 2016, 08:30 - 09:30
Room F

Invited Lecture 3: Some Hard Combinatorial Optimization Problems from Mobile Wireless Communications
A. Letchford

Wednesday, May 18 2016, 08:30 - 09:30
Room F

Invited Lecture 4: Describing Integer Points in Polyhedra
V. Kaibel

Wednesday, May 18 2016, 16:00 - 17:00
Room F

Monday, May 16, 2016

Session MOA1: SemiDefinite Programming

time: 14:30-16:15 **room:** BC

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1. A coordinate ascent method for solving semidefinite relaxations of non-convex quadratic integer programs
   Christoph Buchheim, Maribel Montenegro, Angelika Wiegele
2. Polyhedral and semidefinite programming approaches for the quadratic set covering problem
   Alexandre Salles Da Cunha, Philippe Mahey
3. A novel SDP relaxation for the quadratic assignment problem using cut pseudo bases
   Maximilian John, Andreas Karrenbauer
4. Diagonally dominant programming in distance geometry
   Gustavo Dias, Leo Liberti

Session MOA2: Wireless Sensor Networks

time: 14:30-16:15 **room:** D

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1. An exact and a heuristic approach for maximizing lifetime in sensor networks with coverage and connectivity constraints
   Francesco Carrabs, Raffaele Cerulli, Ciriaco D'Ambrosio, Andrea Raiconi
2. Maximization of residual capacities for target tracking in wireless sensor networks
   Charly Lersteau, Marc Sevaux, André Rossi, Raffaele Cerulli, Andrea Raiconi
3. The p-cycle star problem: formulations and cutting-plane methods
   Vinícius Morais, Geraldo Robson Mateus, Bernard Gendron
4. The directional sensor coverage problem with continuous orientation
   Annabella Astorino, Manlio Gaudioso, Giovanna Miglionico

Session MOA3: Storage / Packing Problems

time: 14:30-16:15 **room:** E

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1. A constraint programming model for integrated quay and yard operations at a container terminal
   Damla Kizilay, Deniz Türsel Eliiyi
2. Robust storage loading problems with stacking constraints
   Thanh Le Xuan, Sigrid Knust
3. Loading containers with boxes: the ESICUP Renault challenge
   Olivier Briant, Denis Naddef
4. An iterated local search algorithm for the bin packing problem with generalized precedence constraints
   Raphael Kramer, Mauro Dell'Amico, Manuel Iori

Session MOA4: Polyhedral Approaches I

time: 14:30-16:15 **room:** F

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1. On vertices and facets of combinatorial 2-level polytopes
   Manuel Aprile, Alfonso Cevallos, Yuri Faenza
2. Two-level polytopes with a prescribed facet
   Samuel Fiorini, Vissarion Fisikopoulos, Marco Macchia
3. Toward computer-assisted discovery and automated proofs of cutting plane theorems
   Matthias Koeppe, Yuan Zhou
4. Survivable networks with high connectivity requirements: valid inequalities and branch-and-cut
   Meriem Mahjoub, Ibrahima Diarrassouba, Ridha Mahjoub

Session MOB1: Scheduling Problems I

time: 16:45-18:30 **room:** BC

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1. A novel MILP formulation and bounds for the makespan minimization problem on assembly lines
   Sel Ozcan, Deniz Türsel Eliiyi Levent Kandiller

2. Robust optimization for ressource-constrained project scheduling in the French Procurement Agency (DGA)
   Lucas Hassan, Nicolas Dupin, Rémi Parize

3. Unrelated parallel machine scheduling problem with precedence constraints: polyhedral analysis and branch-and-cut
   Mohammed-Albarra Hassan, Imed Kacem, Sebastien Martin, Izzeldin M.Osman

4. A branch-and-check approach to solve a wind turbine maintenance scheduling problem
   Aurélien Froger, Michel Gendreau, Jorge E. Mendoza, Eric Pinson, Louis-Martin Rousseau

Session MOB2: Routing Problems I

time: 16:45-18:30 **room:** D

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1. A matheuristic algorithm for the multi-depot inventory routing problem
   Demetrio Laganà, Annarita De Maio

2. Modelling and solving the joint order batching and picker routing problem in inventories
   Cristiano Arbex Valle, John E. Beasley, Alexandre Salles Da Cunha

3. Vehicle routing problem with drones: worst-case bounds and related problems
   Stefan Poikonen, Xingyin Wang, Bruce Golden

4. A matheuristic for the multi-vehicle inventory routing problem
   Claudia Archetti, Natashia Boland, M. Grazia Speranza

Session MOB3: Network Design Problems I

time: 16:45-18:30 **room:** E

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1. OR and AI methods to solve diameter and degree constrained network design problems
   Deepak Mehta, Barry O'Sullivan, Cemalettin Ozturk, Luis Quesada
2. Benders decomposition for capacitated network design
   Sara Mattia
3. On a general framework for network representability in discrete optimization
   Yuni Iwamasa
4. Exact approaches for network design problems with relays
   Ivana Ljubic, Markus Leitner, Martin Riedler, Mario Ruthmair

Session MOB4: Polyhedral Approaches II

time: 16:45-18:30 **room:** F

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1. Min-up/min-down unit commitment problem: complexity and valid inequalities
   Pascale Bendotti, Cécile Rottner, Pierre Fouilhoux
2. Ring spur assignment problem: new formulation, valid inequalities and a branch-and-cut approach
   Rahimeh Neamatian Monemi, Bernard Fortz, Shahin Gelareh
3. The Multi-terminal vertex separator problem: polytope characterization and TDI-ness
   Youcef Magnouche, Sébastien Martin
4. A full description of polytopes related to the index of the lowest nonzero row of an assignment matrix
   Walid Ben-Ameur, Antoine Glorieux, Jose Neto

Tuesday, May 17, 2016

Session TUA1: Stable Set Problems

time: 09:30-10:45 **room:** BC

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1. Using exact subgraph constraints for improving the Lovász theta function as bound on the stability number and the coloring number
   Elisabeth Gaar, Franz Rendl

2. Lovász-Schrijver PSD-operator on claw-free graphs
   Silvia Bianchi, Mariana Escalante, Graciela Nasini, Annegret Wagler

3. Strengthening Chvatal-Gomory cuts for the stable set problem
   Adam N. Letchford, Francesca Marzi, Fabrizio Rossi, Stefano Smriglio

Session TUA2: Routing Problems II

time: 09:30-10:45 **room:** D

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1. hybrid genetic algorithm with local search for the multi-vehicle covering tour problem
   Manel Kamoun, Houda Derbel, Bassem Jarboui

2. A convex programming approach to drone routing with obstacles and physical constraints
   Stefan Poikonen

3. The production-distribution problem with order acceptance and package delivery: models and algorithm
   Majid Khalili, Hamed Tayebi, Mehran Esmailpour

Session TUA3: Network Flow Problems

time: 09:30-10:45 **room:** E

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1. Iterative aggregation and disaggregation algorithm for pseudo - polynomial network flow models with side constraints
   François Clautiaux, Said Hanafi, Rita Macedo, Marie-Emilie Voge, Cláudio Alves

2. Bilevel model for network interdiction problems
   Pierre-Louis Poirion, Jean-François Baffier, Vorapong Suppakitpaisarn

3. Tarder multiflow
   Denis Cornaz, Roland Grappe, Mathieu Lacroix

Session TUA4: Timetable Problems

time: 09:30-10:45 **room:** F

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1. ILP formulations for the railway rescheduling problem under large disruptions
   Juan Jose Miranda Bront, Agustin Mosteiro, Federico Pousa

2. Multiple-choice problems under staircase compatibility and their applications in timetabling and routing
   Andreas Bärmann, Thorsten Gellermann, Frauke Liers, Maximilian Merkert, Oskar Schneider

3. Timetabling of bus lines through discrete event simulation
   Hande Öztop, Deniz Türsel Eliiyi, Uğur Eliiyi

Session TUB1: Scheduling Problems II

time: 11:15-13:00 **room:** BC

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1. Lateness minimization for pairwise connection restoration problems
   Igor Averbakh, Jorge Pereira
2. Optimization of multitask radars
   Fouad Ben Abdelaziz, Hasan Mir
3. Strengthened time-indexed formulations for airport runway scheduling
   Pasquale Avella, Maurizio Boccia, Carlo Mannino, Igor Vasilyev
4. Synchronous flow shop problems with dominating machines
   Sigrid Knust, Stefan Waldherr

Session TUB2: Traveling Salesman Problem

time: 11:15-13:00 **room:** D

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1. Network flow precedence based formulations for the asymmetric traveling salesman problem with precedence constraints
   Luis Gouveia, Pierre Pesneau, Mario Ruthmair, Daniel Santos
2. A set cover approach for the double traveling salesman problem with multiple stacks
   Michele Barbato, Roland Grappe, Mathieu Lacroix, Roberto Wolfler Calvo
3. The parity hamiltonian cycle problem in directed graphs
   Hiroshi Nishiyama, Yukiko Yamauchi, Shuji Kijima, Masafumi Yamashita
4. Flow and layered graph models for the black-and-white traveling salesman problem
   Luis Gouveia, Mario Ruthmair, Markus Leitner

Session TUB3: Network Design Problems II

time: 11:15-13:00 **room:** E

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1. Towards an accurate solution of wireless network design problems
   Fabio D'Andreagiovanni, Ambros Gleixner

2. Two-fold circle-covering of the plane under congruent Voronoi polygon conditions
   Jingchao Chen

3. Reducing the clique and chromatic number via edge contractions and vertex deletions
   Daniel Paulusma, Christophe Picouleau, Bernard Ries

4. The asymmetric vpn tree problem: formulation and polyhedral investigation
   Ibrahima Diarrassouba, Pedro Henrique Liguori, A. Ridha Mahjoub

Session TUB4: Polyhedral Approaches III

time: 11:15-13:00 **room:** F

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1. The set covering polyhedron of circular matrices: minor vs. row family inequalities
   Silvia Bianchi, Graciela Nasini, Paola Tolomei, Luis Miguel Torres

2. A branch-and-cut approach for the minimum branch vertices spanning tree problem
   Selene Silvestri, Gilbert Laporte, Raffaele Cerulli

3. The k-regular induced subgraph problem
   Torkel Andreas Haufmann, Agostinho Agra, Geir Dahl, Sofia Pinheiro

4. Optimization problems with color-induced budget constraints
   Corinna Gottschalk, Hendrik Lüthen, Britta Peis, Andreas Wierz

Wednesday, May 18, 2016

Session WEA1: Graph Partitioning

time: 09:30-10:45 **room:** BC

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1. Projection results for the k-partition problem
   Jamie Fairbrother, Adam Letchford
2. Improved compact formulations for a wide class of graph partitioning problems in sparse graphs
   Dang Phuong Nguyen, Michel Minoux, Thanh Hai Nguyen, Viet Hung Nguyen, Renaud Sirdey
3. Balanced partition of a graph for football team realignment in Ecuador
   Diego Recalde, Daniel Severín, Ramiro Torres, Polo Vaca

Session WEA2: Game Theory / Stochastic

time: 09:30-10:45 **room:** D

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1. Uniqueness of equilibria in atomic splittable polymatroid congestion games
   Veerle Timmermans, Tobias Harks
2. A set partitioning reformulation for a multi-attribute surgery planning problem with uncertain surgery durations
   Mahdi Noorizadegan, Abbas Seifi
3. A compact representation for minimizers of k-submodular function
   Hiroshi Hirai, Taihei Oki

Session WEA3: Clustering / Neuro-Fuzzy

time: 09:30-10:45 **room:** E

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1. Optimisation of training algorithm of temporal neuro-fuzzy system for fault prognostic in manufacturing system
   Mahdaoui Rafik
2. New very-large scale neighbourhoods for a family of partitioning problems
   Anh Vu, Adam Letchford
3. Aggregation technique applied to a clustering problem
   Jeremy Guillot, Francois Clautiaux, Pierre Pesneau

Session WEA4: Energy Systems I

time: 09:30-10:45 **room:** F

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1. A tight relaxation of the energy optimization problem
   Libor Bukata, Přemysl Šůcha, Zdeněk Hanzálek
2. Hop-constrained electricity network design problems
   Jérôme De Boeck, Bernard Fortz
3. A dynamic programming approach to design a robust renewable energy park
   Alain Billionnet, Marie-Christine Costa, Pierre-Louis Poirion

Session WEB1: Scheduling Problems III

time: 11:15-13:00 **room:** BC

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1. Scheduling personnel retraining: a column generation approach
   Oliver Czibula, Hanyu Gu, Yakov Zinder

2. Integrated production scheduling and delivery routing: complexity results and column generation
   Azeddine Cheref, Christian Artigues, Jean-Charles Billaut, Sandra Ulrich Ngueveu

3. Optimization models for multi-period railway rolling stock assignment
   Susumu Morito, Yuho Takehi, Jun Imaizumi, Takayuki Shiina

Session WEB2: Tree Problems

time: 11:15-13:00 **room:** D

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1. Multiple disjoint spanning trees for bi-rotator graphs
   Cheng-Jhe Lee, Chiun-Chieh Hsu, Yu-Chun Chu

2. A dual-ascent-based branch-and-bound framework for the prize collecting Steiner tree and related problems
   Martin Luipersbeck, Markus Leitner, Ivana Ljubic, Markus Sinnl

3. An algorithm for finding a representation of a subtree distance
   Kazutoshi Ando, Koki Sato

4. Shared multicast trees in ad hoc wireless networks
   Marika Ivanova

Session WEB3: Approximation Algorithms

time: 11:15-13:00 **room:** E

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1. The maximum matrix contraction problem
   Dimitri Watel, Pierre-Louis Poirion
2. Approximation algorithms for the k-hop connected dominating set problem
   Rafael S. Coelho, Yoshiko Wakabayashi
3. Approximating interval selection on unrelated machines with unit-length intervals and cores
   Matúš Mihalák, Katerina Bohmova, Enrico Kravina
4. Approximability and exact resolution of the multidimensional binary vector assignment problem
   Marin Bougeret, Guillerme Duvillié, Rodolphe Giroudeau

Session WEB4: Decomposition Approaches

time: 11:15-13:00 **room:** F

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1. On the finite optimal convergence of logic-based Benders' decomposition in solving 0-1 min-max regret optimization problems with interval costs
   Lucas Assunção, Andréa Cynthia Santos, Thiago F. Noronha, Rafael Andrade
2. A review of algorithmic enhancements for Benders decomposition
   Halil Sen, Boris Detienne, Ruslan Sadykov, Francois Vanderbeck
3. General disjunction branching based on objective function improvement
   Stephen Maher, Gregor Hendel, Yuji Shinano
4. A decomposition approach for single allocation hub location problems with multiple capacity levels
   Borzou Rostami, Christopher Strothmann, Christoph Buchheim

Session WEC1: Knapsack Problems

time: 14:30-16:00 **room:** BC

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1. Exact solution methods for the k-item quadratic knapsack problem
   Lucas Létocart, Angelika Wiegele
2. On interdiction problems over independence systems
   Markus Sinnl, Matteo Fischetti, Michele Monaci, Ivana Ljubic
3. Discrete conditional value-at-risk
   Carlo Filippi, Wlodzimierz Ogryczak, M. Grazia Speranza

Session WEC2: Lot Sizing Problems

time: 14:30-16:00 **room:** D

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1. MIP formulations for a rich real-world lot-sizing problem with setup carryover
   Filippo Focacci, Fabio Furini, Virginie Gabrel, Daniel Godard, Xueying Shen
2. Two-level supply chain coordination under complete or asymmetric information
   Siao-Leu Phouratsamay, Safia Kedad-Sidhoum, Fanny Pascual
3. On robust lot sizing problems with storage deterioration, with applications to heat and power cogeneration
   Stefano Coniglio, Arie Koster, Nils Spiekermann

Session WEC3: Closest String / Matching

time: 14:30-16:00 **room:** E

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1. The closest string problem with 4-string is enough for its NP-hardness
   Omar Latorre, Rosiane de Freitas
2. Sum-of-Squares rank upper bounds for matching problems
   Samuli Leppänen, Adam Kurpisz, Monaldo Mastrolilli
3. Optimum solution of the closest string problem via rank distance
   Claudio Arbib, Giovanni Felici, Mara Servilio, Paolo Ventura

Session WEC4: Energy Systems II

time: 14:30-16:00 **room:** F

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1. Designing optimal charging station networks for electric car sharing systems
   Georg Brandstätter, Markus Leitner, Ivana Ljubic, Mario Ruthmair
2. Energy network management of an oil refinery
   Elif Mete
3. Robust optimization of wiring in wind-farms: a robust steiner tree problem
   Cédric Bentz, Marie-Christine Costa, Daniel Porumbel, Thomas Ridremont