



ASSOCIAZIONE ITALIANA DI RICERCA OPERATIVA
OPTIMIZATION AND DECISION SCIENCE

International Conference on
Optimization and Decision Science

Taormina, September 10th – 13th, 2018



FINAL PROGRAM



DIPARTIMENTO
di MATEMATICA
e INFORMATICA



UNIVERSITÀ
degli STUDI
di CATANIA



Regione Siciliana



ACTOR
SAPIENZA Spin off
University of Rome



OPTIT
optimal solutions



SAC
Service



SAT Group



Springer

Plenary Sessions

Monday, September 10th 2018

OPENING SESSION

Archimede Hall, 15.00 – 16.00

PLENARY SESSION

Archimede Hall, 16.00 – 17.00

Nicholas Hall *INFORMS, Analytics, Research and Challenges*

Chair: D.Vigo, AIRO President

Tuesday, September 11th 2018

PLENARY SESSION

Archimede Hall, 10.30 – 11.30

Panos Pardalos *On the Limits of Computation in Non-convex Optimization*

Chair: P. Daniele, ODS2018 PC Chair

Wednesday, September 12th 2018

PLENARY SESSION

Archimede Hall, 10.30 – 11.30

M. Grazia Speranza *Operations Research in Transportation and Supply Chain Management*

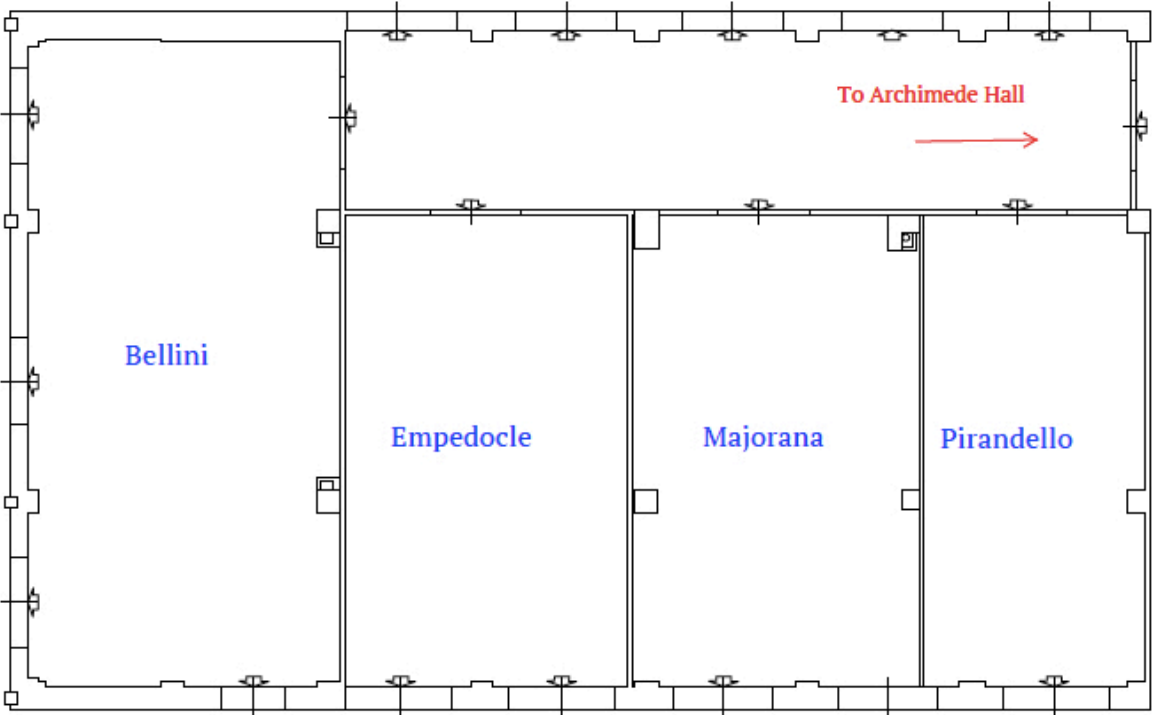
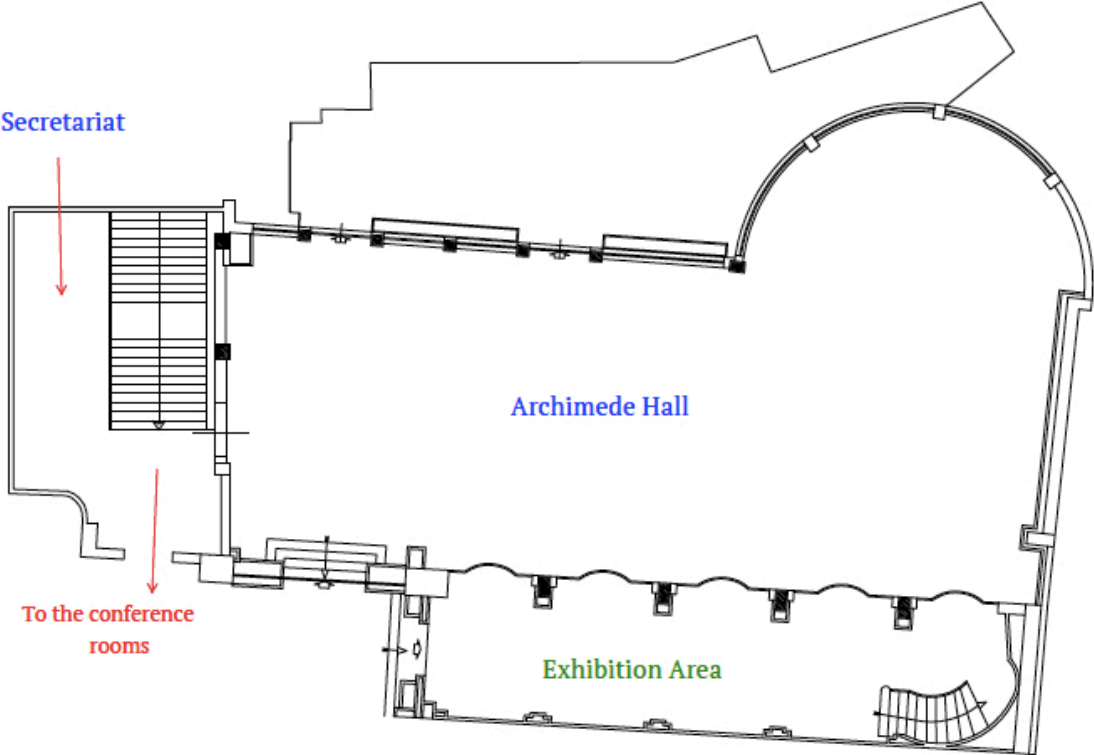
Chair: I. Bomze, EURO President Elect

Thursday, September 13th 2018

CLOSING SESSION

Archimede Hall, 13.30 – 14.00

The Map of the Meeting Rooms



Mini Workshop

Operations Research towards Technology Transfer: from Data to Actionable Knowledge

September 11th, 2018

Operations Research (OR) analysts use advanced mathematical and analytical methods to help organizations investigate complex issues, identify and solve problems, and make better decisions. AIRO, the Italian Operations Research Society since its creation in 1961 actively promotes the collaboration between academics and practitioners in the field. The goal of this mini-workshop is to bring together researchers and practitioners to exchange ideas, knowledge and expertise about ways to develop and improve practice in OR and establishing new collaborations.

Practitioners and transfer facilitators in OR and Analytics, from academia, OR start-up/spin-off and intermediary organizations, will discuss their experiences in exploiting the synergy of Operations Research with data analytics, artificial intelligence and machine learning to enable more effective decisions and more productive systems.

The mini-workshop includes two sessions:

Session I: 11.30-13.00 (Chair: Antonino Sgalambro) *Sportello Matematico: Experiences, Perspectives and Success Stories of Technology Transfer and Operational Research*

This session is focused on the possibilities that Sportello Matematico offers to Companies and Research Centers (Departments, public and private Research Institutes of excellence, Spin-Offs), also providing concrete examples of the facilitation role secured by the project team - through direct testimonies, and discussing future directions.

Session II: 14.30-16.00 and 16.30-18.30 (Chair: Laura Palagi) *Practice of OR - Having Impact on the Outside World: Spin-off and Start-up Experiences in Italy*

In this session, spin-off and start-up operating on OR topics will present some best practice in applying OR tools for developing business and industrial applications. The goal is to exchange ideas, grounded on experience, and stimulate the discussion about the key competences and skills required to develop innovative products and services in the era of big data.

Round Table

Quantitative Tools in Health Care: Case Studies and Opportunities for Improvement

Chair: Paola Cappanera

September 12th, 2018

The aim of this round table on Operations Management in Health Care is to bring together medical staff and operations management people to (i) share knowledge, (ii) share perspectives – often different and possibly conflicting, with the aim of finally (iii) come to a problem solution. The round table will address crucial and pushing topics in the management of public hospitals. All the contributions will be presented by clinicians and experts who are in charge of management tasks inside a hospital and they witness the importance of introducing quantitative methods in the complex decision processes arising in this setting. The ultimate aim of the round table is to foster discussions and collaborations between operations management scientists and clinicians.

The round table will be in Italian and includes two main sessions.

Part I: 8.30-10.00

- **C. Bianciardi**, Azienda Ospedaliera Universitaria Senese. *Riorganizzazione del Pronto Soccorso alla luce della nuova delibera*
- **M. De Natale**, Azienda Ospedaliera per l’Emergenza Cannizzaro di Catania. *Bed Management in un ospedale dedicato alle emergenze*

Part II: 11.30-13.00

- **F. Frosini e E. Ciagli**, LaSTh, Azienda Ospedaliera Universitaria Careggi (FI). *Analisi ed ottimizzazione di percorsi clinici per pazienti oncologici*
- **J. Guercini**, AOU IRCCS San Martino. *Progettazione dei flussi del nuovo polo emato-oncologico*

Parallel Sessions

Variational Analysis, Games and Intertwined Optimization Programs (invited session)

Chair: G. Bigi - Bellini, 17.30 – 19.30

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- VAGOP1 *Financial contagion: a variational approach*
S. Giuffrè, G. Cappello, P. Daniele and A. Maugeri
- VAGOP2 *Coalitional games in evolutionary supply chain networks*
L. Scrimali
- VAGOP3 *A financial optimization model with short selling and transfer of securities*
G. Colajanni and P. Daniele
- VAGOP4 *Fixed-point and extragradient methods for quasi-equilibria*
G. Bigi and M. Passacantando
- VAGOP5 *Random traffic equilibrium problem via stochastic weighted variational inequalities*
A. Barbagallo and G. Scilla

Heuristic and Metaheuristic 1

Chair: R. Mansini - Empedocle, 17.30 – 19.30

-
- HEUR1.1 *Set covering formulation for the antenna covering problem*
A. Napoletano, M. Monaci, M. Pozzi and D. Vigo
- HEUR1.2 *A new hyper-heuristics for multi-objective optimization*
D. Anghinolfi and M. Paolucci
- HEUR1.3 *Using cryptography techniques as a safety mechanism applied to components in autonomous driving*
A. Troia and A. Modello
- HEUR1.4 *The Mahalanobis distance for feature selection using genetic algorithms: an application to BCI*
M.E. Bruni, P. Beraldi, D. Nguyen Duy and A. Violi
- HEUR1.5 *Hybridizing kernel search*
R. Mansini and R. Zanotti

Nonlinear Optimization 1 (invited session)

Chair: M. Roma - Majorana, 17.30 – 19.30

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- NLOPT1.1 *On the convergence of steepest descent methods for multiobjective optimization*
G. Cocchi, G. Liuzzi, S. Lucidi and M. Sciandrone
- NLOPT1.2 *New clustering methods for large scale global optimization*
L. Tigli, F. Bagattini and F. Schoen
- NLOPT1.3 *Optimization models for active power distribution networks*
M.T. Vespucci, D. Moneta, P. Pisciella and G. Viganò
- NLOPT1.4 *A Derivative-free method for complex optimal design problems*
S. Lucidi, A. Credo, G. Liuzzi, F. Rinaldi and M. Villani
- NLOPT1.5 *Numerical experiences with preconditioned Newton-Krylov methods in large scale unconstrained optimization*
M. Roma, M. Al-Baali, A. Caliciotti and G. Fasano

Airport Routing and Scheduling (invited session)

Chair: R. Pesenti - Pirandello, 17.30 – 19.30

- AIROPT1 *Air traffic optimization and route development: the case of Catania airport*
D. Casale, F. D'Amico and D. Baglieri
- AIROPT2 *Effects of aircraft separation on air traffic flow management models*
L. De Giovanni, G. Andreatta, L. Capanna, G. Lulli and L. Righi
- AIROPT3 *Coordination of scheduling decisions in the management of airport airspace and taxiway operations*
A. D'Ariano, F. Corman, D. Pacciarelli and M. Samà
- AIROPT4 *The path & cycle formulation for the hotspot problem in air traffic management*
G. Sartor, C. Mannino and P. Schittekat
- AIROPT5 *Airport slot allocation and uncertainty*
R. Pesenti, T. Bolic, L. Castelli and P. Pellegrini

Routing 1

Chair: G. Righini - Bellini, 8.30 – 10.00

- ROUT1.1 *A network function virtualization problem with simple path routing*
G. Carello, B. Addis and M. Gao
- ROUT1.2 *Specification and aggregate calibration of a quantum route choice model from traffic counts*
M. Di Gangi and A. Vitetta
- ROUT1.3 *Dissimilar arc routing applied to the money collection*
L. Santiago Pinto, M. Constantino and M.C. Mourão
- ROUT1.4 *Dynamic programming for the electric vehicle orienteering problem with multiple technologies*
G. Righini and D. Bezzi
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Optimization under Uncertainty (invited session)

Chair: F. Maggioni - Empedocle, 8.30 – 10.00

- OPTU1 *Trust your data or not - standard remains standard (QP); implications for robust clustering in social networks*
I. Bomze, M. Kahr and M. Leitner
- OPTU2 *A two-stage stochastic model for distribution logistics with transshipment and backordering: stochastic vs deterministic solutions*
R. Cavagnini, L. Bertazzi and F. Maggioni
- OPTU3 *A cubic spline interpolation approach for nested CVaR portfolio optimization*
A. Staino and E. Russo
- OPTU4 *Bounds for probabilistic constrained problems*
F. Maggioni, A. Lisser and S. Peng
-

Operation and Planning Problems for Energy and Environment (invited session)

Chair: G. Oggioni - Majorana, 8.30 – 10.00

- OPPEE1 *Stochastic power system expansion planning with emission constraints*
L. Boffino, A. J. Conejo, R. Sioshansi and G. Oggioni
- OPPEE2 *Scheduling energy and reserves under contingencies in isolated power systems with high presence of electric vehicles*
M.R. Domínguez Martín and M. Carrion
- OPPEE3 *Energy optimization of a speed-scalable and multi-states single machine scheduling problem*
M. Aghelinejad, Y. Ouazene and A. Yalaoui
- OPPEE4 *Expansion planning of a small size electric energy system*
G. Oggioni, L. Baringo and L. Boffino

**Operations Research in Health Care: Challenges and
New Opportunities 1 (invited session)**

Chair: R. Aringhieri - Pirandello, 8.30 – 10.00

- HEAC1.1 *Modelling and solving elective patient admission problems*
V. Solina, R. Guido, G. Mirabelli and D. Conforti
- HEAC1.2 *Offline patient admission, room and surgery scheduling problems*
R. Guido, V. Solina, G. Mirabelli and D. Conforti
- HEAC1.3 *Reducing overcrowding at the emergency department through a different
physician hand nurse shift organisation: a case study*
G. Bonetta, R. Aringhieri and D. Duma
- HEAC1.4 *Integrating mental health into a primary care system: a hybrid simulation
model*
R. Aringhieri, D. Duma and F. Polacchi

MINI WORKSHOP - Session I

Sportello Matematico: Experiences, Perspectives and Success Stories of Technology Transfer and Operational Research - Chair: A. Sgalambro - [Bellini, 11.30 – 13.00](#)

- SM1 *Sportello Matematico, a project for industrial transfer of mathematical technologies: an introduction*
M. Ceseri
- SM2 *The role of technology translator: the journey from the first contact to the research contract*
S. Vermicelli
- SM3 *A success story of Operational Research on the dairy industry*
F. Maggioni and A. Melchiori
- SM4 *Open discussion: lessons learned and forward look*
A. Sgalambro
-

Paths

Chair: P. Festa - [Empedocle, 11.30 – 13.00](#)

- PATH1 *Mathematical formulations for the optimal design of resilient shortest paths*
M. Casazza, A. Ceselli and A. Taverna
- PATH2 *Reoptimizing shortest paths: recent avances*
S. Fugaro, P. Festa and F. Guerriero
- PATH3 *Complexity analysis and optimization of the constrained shortest path tour problem*
P. Festa, L. Di Puglia Pugliese, D. Ferone and F. Guerriero
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Optimization Models for Social and Financial Sustainability (invited session)

Chair: R. Riccardi - [Majorana, 11.30 – 13.00](#)

- OPTSF1 *Contract design in electricity markets in presence of stochasticity and risk aversion: a two stages approach*
A.G. Abate, R. Riccardi and C. Ruiz Mora
- OPTFS2 *The effect of additional resources for disadvantaged students: evidence from a conditional efficiency model*
G. D'Inverno, K. De Witte and M. Smet
- OPTFS3 *A genetic algorithm framework for the orienteering problem with time windows*
F. Santoro, C. Ciancio, A. De Maio, D. Laganà and A. Violi
- OPTFS4 *Efficiency valuation of green stocks and portfolio construction: a two stage approach*
R. Riccardi, E. Allevi, A. Basso and G. Oggioni

**Operations Research in Health Care: Challenges and
New Opportunities 2 (invited session)**

Chair: P. Cappanera - Pirandello, 11.30 – 13.00

- HEAC2.1 *Resource allocation in an Emergency Department: an integrated process mining and online optimisation approach*
D. Duma and R. Aringhieri
- HEAC2.2 *Cooperative policies for drug replenishment at intensive care units*
R. Rossi, P. Cappanera, M. Nonato and F. Visintin
- HEAC2.3 *Quantifying externalities in decision making: a case study in healthcare access measurement*
M. Gentili and M. Mohammadi
- HEAC2.4 *The generalized Skill VRP: time windows, precedence constraints and device uncertainty*
P. Cappanera, C. Requejo and M.G. Scutellà

MINI WORKSHOP - Session II

**Practice of OR - Having Impact on the Outside World: Spin-off and
Start-up Experiences in Italy 1 - Chair: L. Palagi - Bellini, 14.30 – 16.00**

- PROR1.1 *The Euro Working Group on Practice of OR: opportunities and challenges*
M. Pozzi, co-founder of the EURO Working Group on Practice of OR
- PROR1.2 *OR in the railway industry: OptRail's story*
L. Lamorgese, OPTRAIL srl
- PROR1.3 *Applications of OR and ML techniques to the retail business*
P. Riva, ORS Group
- PROR1.4 *OAKS: machine learning and optimization for utilities, supply chain and marketing*
I. Giordani, OAKS srl
-

Heuristic and Metaheuristic 2

Chair: A. Ceselli - Empedocle, 14.30 – 16.00

- HEUR2.1 *Modelling local search in a knowledge base system*
S. Pham, P. De Causmaecker and J. Devriendt
- HEUR2.2 *Local search techniques for nurse rostering*
S. Ceschia, R. Guido and A. Schaerf
- HEUR2.3 *Data driven local search algorithms for improving MIP decompositions*
A. Ceselli and S. Basso
-

Applications of Stochastic Optimization (invited session)

Chair: P. Beraldi - Majorana, 14.30 – 16.00

- STOCH1 *A deterministic approximation for the long-term capacitated supplier selection problem with total quantity discount and activation costs under uncertainty*
D. Manerba, G. Perboli and R. Tadei
- STOCH2 *Comparative statics via stochastic orderings in a two-echelon market with upstream demand uncertainty*
S. Leonardos, C. Koki and C. Melolidakis
- STOCH3 *Impulse and singular stochastic control approaches for management of fish-eating bird population*
Y. Yaegashi, H. Yoshioka, K. Unami and M. Fujihara
- STOCH4 *The optimal tariff definition problem for a prosumers' aggregation*
P. Beraldi, M.E. Bruni, G. Carrozzino, M. Ferrara and A. Violi
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Railway Optimization (invited session)

Chair: V. Cacchiani - Pirandello, 14.30 – 16.00

- ROPT1 *Model-based and data-driven approaches for railway traffic management and energy efficient operations*
F. Corman, X. Luan and V. De Martinis
- ROPT2 *Construction of discrete time graphs from real valued railway line data*
S. Harrod
- ROPT3 *Maintenance of railway rolling stock and timetable integration*
L. Bach and D. Palhazi Cuervo
- ROPT4 *Line planning and train timetabling using passenger demand data*
V. Cacchiani, D. Huisman, G.-J. Polinder and M. Schmidt

Game Theory

Chair: M. Sanguineti - Archimede Hall, 16.30 – 18.30

- GATH1 *When the other matters. The battle of the sexes revisited*
M.Á. Caraballo, A. Zapata, A.M. Mármol and L. Monroy
- GATH2 *Production control in a competitive environment with incomplete information*
K. Kogan and F. El Ouardighi
- GATH3 *Tree-wise single peaked domains*
S. Vannucci
- GATH4 *Noncooperative model predictive control*
M.H. Baumann and M. Stieler
- GATH5 *Transferable utility games for the assessment of public transportation transfers*
M. Sanguineti, Y. Hadas and G. Gnecco
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MINI WORKSHOP - Session II

Practice of OR - Having Impact on the Outside World: Spin-off and Start-up Experiences in Italy 2 - Chair: L. Palagi - Bellini, 16.30 – 18.30

- PROR2.1 *SMARTCAL: knowledge discovery and value proposition for smart tourism*
F. Santoro, Itaca srl
- PROR2.2 *Intuendi s.r.l.: smart solutions for demand planning and inventory optimization*
G. Cocchi, Intuendi s.r.l
- PROR2.3 *ACTOR: i successi e gli insuccessi di uno spinoff accademico*
G. Di Pillo, ACTOR srl
- PROR2.4 *Operations Research and beyond, surfing the digital wave*
M. Pozzi, Optit srl
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Heuristic and Metaheuristic 3

Chair: P. Brandimarte - Empedocle, 16.30 – 18.30

- HEUR3.1 *A hybrid metaheuristic for the optimal design of photovoltaic installations*
M. Salani, G. Corani and G. Corbellini
- HEUR3.2 *Fair collaboration schemes for firms operating dial-a-ride services in a city network*
V. Morandi, E. Angelelli and M.G. Speranza
- HEUR3.3 *A fast metaheuristic for the general single truck and trailer routing problem*
L. Accorsi and D. Vigo
- HEUR3.4 *A hybrid-metaheuristic for named entity recognition*
D. Ferone, E. Fersini and E. Messina
- HEUR3.5 *Inventory management in a fashion retail network: a matheuristic approach*
P. Brandimarte, A. Biolatti, G. Craparotta and E. Marocco

Nonlinear Optimization 2 (invited session)

Chair: **M. Gaudio** - [Majorana, 16.30 – 18.30](#)

- NLOPT2.1 *Applying a multiple instance learning technique to image classification*
A. Fuduli, A. Astorino, M. Gaudio, W. Khalaf and E. Vocaturo
- NLOPT2.2 *A Levenberg-Marquardt method for large nonlinear least-squares problems with dynamic accuracy in functions and gradients*
S. Bellavia, S. Gratton and E. Riccietti
- NLOPT2.3 *Membrane system design optimization*
M. Bozorg, B. Addis, C. Castel, E. Favre, A.-A. Ramirez-Santos and V. Piccialli
- NLOPT2.4 *Deterministic convergence proof for genetic algorithms: a generalized scheme for bound constrained optimization*
F. Romito
- NLOPT2.5 *On some optimization problems related to revolution cones*
M. Gaudio and A. Astorino
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New Trends in Public Transport (invited session)

Chair: **A. D'Ariano** - [Pirandello, 16.30 – 18.30](#)

- TPT1 *Vehicle scheduling: spatial conflicts representation, detection and resolution*
C. Mannino, O. Kloster, A. Riise and P. Schittekat
- TPT2 *Optimization models and algorithms for supporting the shift to electromobility of public transport in a metropolitan area*
D. Pacciarelli, V. Conti, A. Gemma and M.P. Valentini
- TPT3 *Models and algorithms for the real-time train scheduling and routing problem*
M. Samà, A. D'Ariano, D. Pacciarelli and M. Pranzo
- TPT4 *Comparing different solvers for the real-time railway traffic management problem*
P. Hosteins, P. Pellegrini and J. Rodriguez
- TPT5 *Optimization model and algorithm for integrating train timetabling and track maintenance scheduling*
B. He, A. D'Ariano, L. Gongyuan, P. Qiyuan and Z. Yongxiang

Equilibrium Models and Variational Inequalities (invited session)

Chair: M. Pappalardo - Archimede Hall, 8.30 – 10.00

- EQVI1 *Cutting surface methods for equilibria*
M. Passacantando, G. Bigi and G. Mastroeni
- EQVI2 *A network equilibrium model for electric power markets with uncertain demand*
F. Raciti, M. Pappalardo and M. Passacantando
- EQVI3 *Equilibria on networks with uncertain data*
J. Gwinner and F.S. Winkler
- EQVI4 *Quasi-variational equilibrium models for network flow problems*
M. Pappalardo and G. Mastroeni
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Routing 2

Chair: C. Sterle - Bellini, 8.30 – 10.00

- ROUT2.1 *An exact method for the multi-trip VRP with time windows*
R. Paradiso, W.E.H. Dullaert, D. Laganà and R. Roberti
- ROUT2.2 *Cover inequalities for a vehicle routing problem with time windows and shifts*
D. Said, S. Ropke and T. van Woensel
- ROUT2.3 *An Integer linear programming formulation for routing problem of university bus service*
S. Hulagu and H.B. Celikoglu
- ROUT2.4 *Inventory routing with pickups and deliveries: formulation, inequalities and branch-and-cut algorithm*
C. Sterle, C. Archetti, M. Boccia, A. Sforza and M.G. Speranza
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Teaching OR, Mathematics and Computer Science (invited session)

Chair: A. Sforza - Empedocle, 8.30 – 10.00

- TEACH1 *High-school students in a problem-solving environment*
E. Taranto, D. Ferrarello and M.F. Mammana
- TEACH2 *"Ottimiziamo!": feedback and perspectives*
G. Righini and A. Ceselli
- TEACH3 *Optimization in videogames: using optimization algorithms for increasing performance, user interaction and experience*
F. Amato
- TEACH4 *Problem solving and optimization as a teaching strategy for mathematics. The institutional experience in the Campania Region*
A. Sforza and A. Masone

Travelling Salesman Problem

Chair: **M. Dell'Amico** - [Majorana, 8.30 – 10.00](#)

- TSP1 *An iterated local search algorithm for the pollution traveling salesman problem*
C. Contreras-Bolton, V. Cacchiani, J. Escobar, L.M. Escobar-Falcon, R. Linfati and P. Toth
- TSP2 *Dynamic traveling salesman problem with stochastic release dates*
C. Archetti, D. Feillet, A. Mor and M.G. Speranza
- TSP3 *Speeding-up the exploration of the 3-OPT neighborhood for the TSP*
G. Lancia and M. Dalpasso
- TSP4 *A new formulation for the flying sidekick traveling salesman problem*
M. Dell'Amico and S. Novellani
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ROUND TABLE

Quantitative Tools in Health Care:

Case Studies and Opportunities for Improvement

Chair: **P. Cappanera** - [Pirandello, 8.30 – 10.00](#)

The round table will be in Italian.

Mathematical Programming 1

Chair: L. Liberti - Archimede Hall, 11.30 – 13.00

- MATHPRO1.1 *The non-linear generalized assignment problem*
S. Martello, C. D'Ambrosio and M. Monaci
- MATHPRO1.2 *Least cost influence propagation in (social) networks*
M. Monaci, M. Fischetti, M. Kahr, M. Leitner and M. Ruthmair
- MATHPRO1.3 *Gomory mixed-integer cuts are optimal*
M. Di Summa, A. Basu and M. Conforti
- MATHPRO1.4 *Perspective cuts for the ACOPF with generators*
L. Liberti, C. Gentile and E. Salgado
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Scheduling

Chair: G. Nicosia - Bellini, 11.30 – 13.00

- SCHE1 *Data throughput optimization for vehicle to infrastructure communications*
A. Masone, A.S. Cacciapuoti, M. Caleffi, A. Sforza and C. Sterle
- SCHE2 *Improved approximation algorithms for the P2 || Cmax problem*
R. Scatamacchia, F. Della Croce and V. T'kindt
- SCHE3 *A primal stabilization approach for column generation applied to vehicle scheduling problems*
B. Pratelli, S. Carosi, A. Frangioni, L. Galli, L. Girardi and E. Tresoldi
- SCHE4 *Constrained job rearrangements on a single machine*
G. Nicosia, A. Alfieri, A. Pacifici and U. Pferschy
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Production Planning

Chair: V. Kumar - Empedocle, 11.30 – 13.00

- PRPL1 *Optimization of experimental studies on the example of activities of working in the economy of NKR*
I. Harutyunyan, L. Avsharyan and K. Harutyunyan
- PRPL2 *DDMRP vs MRP under specific stressed conditions*
A. Marin, P. Albertin D. Favaretto and R. Pesenti
- PRPL3 *Maximizing lifetime for a zone monitoring problem through reduction to target coverage*
A. Raiconi, F. Carrabs, R. Cerulli and C. D'Ambrosio
- PRPL4 *A stochastic approach to reduce waiting time of steel melting shop vessels thereby increasing throughput*
V. Kumar, S. Mukherjee and R. Shanker Singh

Financial Optimization (invited session)

Chair: G. Consigli - [Majorana, 11.30 – 13.00](#)

FOPT1 *Risk management for sovereign debt*

A. Consiglio

FOPT2 *Dealing with complex transaction costs in portfolio management*

A. Violi, P. Beraldi, C. Ciancio and M. Ferrara

FOPT3 *Multistage multivariate nested distance: an empirical analysis*

S. Vitali, M. Kopa and V. Moriggia

FOPT4 *Distributionally robust chance-constrained dynamic pension fund management*

G. Consigli, D. Kuhn, D. Lauria and F. Maggioni

ROUND TABLE

Quantitative Tools in Health Care:

Case Studies and Opportunities for Improvement

Chair: P. Cappanera - [Pirandello, 11.30 – 13.00](#)

The round table will be in Italian.

**Optimization in Transportation, Telecommunications and
Supply Chain Networks (invited session)**

Chair: F. Guerriero - [Bellini](#), 14.30 – 16.30

- OTSCN1 *Network models for event impact analysis*
J. Granat
- OTSCN2 *Energy-and time-efficient dynamic drone path planning for post-disaster network servicing*
F. Mezghani and N. Mitton
- OTSCN3 *An application of profit management to vehicle routing problems*
G. Miglionico, G. Giallombardo and F. Guerriero
- OTSCN4 *Modeling and solving the packet routing problem in industrial IoT networks*
L. Di Puglia Pugliese, D. Zorbas and F. Guerriero
- OTSCN5 *The green vehicle routing problem with occasional drivers*
G. Macrina and F. Guerriero

AIRO Young Session (invited session)

Chair: A. Santini - [Empedocle](#), 14.30 – 16.30

- YOUNG1 *Bi-objective shortest path for touristic tours*
L. Amorosi and P. Dell'Olmo
- YOUNG2 *Machine Learning for predicting MILP resolution outcomes before timelimit*
M. Fischetti, G. Zarpellon and A. Lodi
- YOUNG3 *A branch and price algorithm to solve the quickest multicommodity k-splittable flow problem*
A. Melchiori and A. Sgalambro
- YOUNG4 *A tabu search algorithm for the min-max graph drawing problem*
T. Pastore, P. Festa, A. Martinez-Gavara and R. Martì
- YOUNG5 *Solving a class of longest subsequence problems via maximum cliques*
A. Santini and C. Blum

Nonlinear Optimization 3 (invited session)

Chair: S. Lucidi - [Majorana](#), 14.30 – 16.30

- NLOPT3.1 *Steplength selection in gradient projection method for box-constrained quadratic programs*
S. Crisci, V. Ruggiero and L. Zanni
- NLOPT3.2 *Using a factored dual in augmented Lagrangian methods for semidefinite programming*
M. De Santis, F. Rendl and A. Wiegele
- NLOPT3.3 *How grossone can be helpful to iteratively compute negative curvature directions*
G. Fasano, R. De Leone, M. Roma and Y.D. Sergeyev
- NLOPT3.4 *A derivative-free bundle method for convex nonsmooth optimization*
G. Giallombardo, M. Gaudio and G. Miglionico
- NLOPT3.5 *First order algorithms for constrained optimization problems in machine learning*
F. Rinaldi, A. Cristofari, M. De Santis and S. Lucidi

Decision Making

Chair: **P. Hosein** - **Pirandello, 14.30 – 16.30**

- DEMAK1 *Bargaining game model to determine a common set of weights in DEA*
I. Contreras, M. Hinojosa and S. Lozano
- DEMAK2 *A sequential decision process with stochastic action sets*
A. Narkiewicz
- DEMAK3 *Simplifying the minimax disparity model for determining OWA weights in large-scale problems*
H.T. Nguyen
- DEMAK4 *A hybrid method for cloud quality of service criteria weighting*
C.Z. Radulescu and M. Radulescu
- DEMAK5 *Cost minimization of library electronic subscriptions*
P. Hosein, L. Bigram and J. Earle

Mathematical Programming 2

Chair: M. Fischetti - Bellini, 8.30 – 10.00

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- MATHPRO2.1 *The stable set problem: clique and nodal inequalities revisited*
F. Rossi, S. Smriglio and A.N. Letchford
- MATHPRO2.2 *Perspective reformulations-based strengthening for the sequential convex MINLP technique*
C. D’Ambrosio, A. Frangioni and C. Gentile
- MATHPRO2.3 *Efficient codon optimization by integer programming*
C. Arbib, M. Pinar, F. Rossi and A. Tessitore
- MATHPRO2.4 *Integer optimization for deep learning*
M. Fischetti

Prin SPORT 1 (invited session)

Chair: A. Sciomachen - Empedocle, 8.30 – 10.00

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- SPORT1.1 *A model for collaborative tactical planning in intermodal transportation*
C. Caballini and M. Paolucci
- SPORT1.2 *On the worst optimal cost of the transportation interval problem*
R. Cerulli, C. D’Ambrosio and M. Gentili
- SPORT1.3 *A multi-commodity location-routing problem in a maritime urban area*
M. Di Francesco, T.G. Crainic, E. Gorgone and P. Zuddas
- SPORT1.4 *A decomposition-based heuristic for the truck scheduling problem in a cross-docking terminal*
M. Sammarra, M.F. Monaco and M. Gaudio
- SPORT1.5 *Analysis of the rail capacity network connecting marine terminals: a simulation-optimization method*
A. Sciomachen and D. Ambrosino

Optimization and Applications 1

Chair: S.V. Joubert - Majorana, 8.30 – 10.00

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- OPTAP1.1 **AIRO Prize**
Operational Research in modern wind park design
M. Fischetti, M. Fraccaro, M. Monaci and D. Pisinger
- OPTAP1.2 *A clustering analysis of prescription and compliance patterns in antibiotic therapy*
I. Giordani, A. Candelieri, F. Archetti and D. Castaldi
- OPTAP1.3 *A linear integer programming approach for the optimal assignment of shifts to a team of employees in big stores*
S. Zanda, C. Seatzu and P. Zuddas
- OPTAP1.4 *On identifying nonlinear ODE parameters by optimisation*
S.V. Joubert, M.Y. Shatalov and T.H. Fay

Spatial Planning and Location

Chair: J.W. Owsinski - Bellini, 10.30 – 12.00

- SPLOC1 **AIRO Prize**
Optimization models to design a new cruise itinerary: Costa Crociere case study
V. Asta and D. Ambrosino
- SPLOC2 *A mathematical approach to evaluate the cruise itineraries' offer*
V. Asta and D. Ambrosino
- SPLOC3 *An optimization model to rationalize public service facilities*
C. Piccolo, M. Cavola and A. Diglio
- SPLOC4 *Designing the municipality typology for planning purposes: the use of reverse clustering and evolutionary algorithms*
J.W. Owsinski, J. Stanczak and S. Zadrozny
-

PRIN SPORT 2 (invited session)

Chair: E. Gorgone - Empedocle, 10.30 – 12.00

- SPORT2.1 *An automated approach to store and retrieve port regulations*
G. Di Tollo, R. Pesenti and P. Pellegrini
- SPORT2.2 *A multi-commodity and vehicle routing based model for long haul shipment*
G. Stecca and V. Contente
- SPORT2.3 *AEOLIX: Pan-European logistic platform for enhancing the competitiveness of goods transport in the Trieste port*
G. Stecco, W. Ukovich, M. Nolich, S. Mininel, M. Cipriano, S. Carciotti, C. Gelmini, R. Buqi, A. Locatelli, M.P. Fanti and A.M. Mangini
- SPORT2.4 *A Lagrangian-based decomposition method on a new formulation of the capacitated concentrator location problem*
E. Gorgone, M. Di Francesco, M. Gaudio and I. Murthy
-

Transportation Planning

Chair: M. Gallo - Majorana, 10.30 – 12.00

- TRPL1 *Testing demand responsive shared transport services via agent-based simulations*
G. Inturri, N. Giuffrida, M. Ignaccolo, M. Le Pira, A. Pluchino and A. Rapisarda
- TRPL2 *A software for production-transportation optimization models building*
E. Parra
- TRPL3 *Rerostring bus drivers*
M. Mesquita, A. Paias, M. Moz and M. Pato
- TRPL4 *An origin-destination based parking pricing policy for improving equity in urban transportation*
M. Gallo and L. D'Acerno

Supply Management Models

Chair: **D. Bauso** - **Pirandello, 10.30 – 12.00**

- SUPM1 *First-time interaction under revenue-sharing contract and asymmetric beliefs of supply-chain members*
T. Chernonog
- SUPM2 *Power adjustment via negawatt trading based on regret matching*
T. Namerikawa and K. Nagami
- SUPM3 *Situation awareness and environmental factors: the EVO oil production*
L. Rarità, M. De Falco, N. Mastrandrea and W. Mansoor
- SUPM4 *An efficient and simple approach to solve a distribution problem*
C. Cerrone, R. Cerulli, C. D'Ambrosio and M. Gentili

Probabilistic Problem

Chair: R. Tadei - Bellini, 12.00 – 13.30

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- PROBP1 *Bayesian optimization for full waveform inversion*
A. Candelieri, F. Archetti, B. Galuzzi and R. Perego
- PROBP2 *Monte Carlo sampling for the probabilistic orienteering problem*
X. Chou, L.M. Gambardella and R. Montemanni
- PROBP3 *A recent approach to derive the multinomial logit model for choice probability*
R. Tadei, D. Manerba and G. Perboli

Optimization and Applications 2

Chair: R. Cerulli - Majorana, 12.00 – 13.30

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- OPTAP2.1 *A structure of P_5 - free locally split graphs*
I. Hayat, A. Haddadene Hacene and K. Hamamache
- OPTAP2.2 *Some generalizations of the minimum branch vertices problem*
F. Laureana, F. Carrabs and R. Cerulli
- OPTAP2.3 *Evaluation of cascade effects for transit networks*
B. Galuzzi, A. Candelieri, I. Giordani and F. Archetti
- OPTAP2.4 *Sparse recovery and convex quadratic splines*
M.C. Pinar

Delivery Problem

Chair: L. Amodeo - Pirandello, 12.00 – 13.30

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- DELP1 *A freight adviser for a delivery logistics service e-marketplace*
A. De Maio, P. Beraldi, D. Laganà and A. Violi
- DELP2 *Towards real-time urban-scale ride-sharing via federated optimization*
C. Gambella, J. Monteil and A. Simonetto
- DELP3 *Fleet size and mix pickup and delivery problem with time windows: a new column generation algorithm*
M.A. Noubissi Tchoupo, L. Amodeo, P. Flori, A. Yalaoui and F. Yalaoui