

Preface

Operations Research is known as the discipline founded on mathematical and quantitative methods aimed at determining optimal or near-optimal solutions to complex decision-making problems. The emphasis on the real applications highlights the great versatility and transversality of this discipline. Its solving approaches, methodologies and tools find application in many different fields and areas, notably in industrial and territorial systems. Hence, the interplay between researchers, practitioners and policy-makers plays a relevant role which is supported by conferences and workshops.

ODS2017, International Conference on Optimization and Decision Science, was the 47th annual meeting organized by the Italian Operations Research Society (AIRO) in Sorrento, Italy, September 4th–7th, 2017, in cooperation with the Department of Electrical Engineering and Information Technology (DIETI) of the University “Federico II” of Naples. The ODS2017 Programme and the Organizing Committee were composed of researchers from Italy, Europe and North America.

ODS2017 was addressed to the entire Operations Research and related scientific communities working in the wide field of optimization, problem-solving and decision-making methods. Its scope was presenting ideas and experiences on cutting-edge research topics, sharing knowledge, discussing challenging issues and results, and creating a point of contact to foster future collaborations among researchers and practitioners from various sectors (applied mathematics, computer science, engineering, economics), private and public companies, industries and policy-makers.

ODS2017 participants had the possibility either to submit a paper or an abstract on the conference research themes. All the contributions can be found in the conference e-book available at the website: www.airoconference.it/ods2017. In this volume, the reader finds the collection of the invited lectures and research papers submitted and accepted for presentation at the conference after a peer-review process, made by experts in Operations Research and related fields.

The three invited lectures were:

- *Robust Network Control and Disjunctive Programming*, given by Prof. Daniel Bienstock, Department of Industrial Engineering and Operations Research, Columbia University, New York, USA.
- *From Mixed-Integer Linear to Mixed-Integer Bilevel Programming*, given by Prof. Matteo Fischetti, Department of Computer Science, University of Padova, Italy.
- *Data Science meets Optimization*, sponsored by the Association of the European Operations Research Societies, given by Prof. Patrick De Causmaecker, Department of Computer Science, University of Leuven, Belgium.

The submitted research papers spanned on the methodological and applicative themes proposed in the call for papers: Continuous and Global Optimization; Linear and Nonlinear Programming; Discrete and Combinatorial Optimization; Stochastic and Robust Optimization; Cutting, Packing and Scheduling, Multicriteria and Decision-Making, Energy optimization, Health Care, Data Science, Game Theory; Graph Theory and Network Optimization, Location, Routing; Urban Traffic, Freight Transportation; Logistics, Supply Chain Management; Railway and Maritime Systems Optimization; Telecommunication Networks, Critical Infrastructure Protection, Emergency Logistics, Emerging Applications.

The 60 accepted research papers are here organized in more aggregate sections, ranked in alphabetical order: Data Science, Health Care, Heuristics and Metaheuristics, Innovative Applications, Location, Multi-objective Optimization, Optimization Under Uncertainty, Packing and Cutting, Railway and Maritime Optimization, Routing, Scheduling. In each section, the papers are presented alphabetically by the last name of the first author. The classification has been done considering the main feature characterizing the paper, even if in several cases a paper could be framed in another section.

These articles highlight the impact that Operations Research methodologies and tools have in a society with increasing complexity-challenging problems and the cross-fertilization of ideas between theoretical and applicative fields. They exhibit the latest methods and techniques needed in solving a number of existing research problems while providing new open questions for further research investigations. It is expected that this research volume will be a valuable resource for experienced and young researchers.

As editors of this volume, we thank the invited lecturers and authors. Moreover, we express our sincere gratitude to the 71 researchers from around the world, who spent their valuable time for the review process, so contributing to improve the quality of the presented papers. We also express our thanks to Springer for support and cooperation in publishing the volume, bringing it to a nice form.

Finally, as conference chairs of ODS2017, we are thankful to the work team and students of the Department of Electrical Engineering and Information Technology, who actively helped in making the conference a success. We are also thankful to all

the institutions, agencies and enterprises that have supported and sponsored the event:

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