

Preface

The 5th International Conference on Algorithmic Decision Theory (ADT 2017), held in October 2017 in Luxembourg, brought together researchers and practitioners coming from areas as diverse as artificial intelligence, operations research, discrete mathematics, theoretical computer science, decision theory, game theory, multiagent systems, computational social choice, multi-criteria decision aiding, resource allocation, matching, and argumentation theory. Their joint aim is to improve the theory and practice of modern decision support. Previous ADT conferences were held in Venice, Italy (2009); Piscataway, NJ, USA (2011); Brussels, Belgium (2013); and Lexington, KY, USA (2015).

Among the scientific challenges the ADT community faces are difficult questions such as how to elicit and aggregate big preference data, how to deal with combinatorial structures and with partial or uncertain information, and how to manage distributed decision making. In real-world decision making, such challenges are encountered in various domains, for example in electronic commerce, recommender systems, argumentation tools, network optimization (communication, transport, energy), risk assessment and management, and e-government.

The papers in this volume were presented at ADT 2017. Each submission to ADT 2017 was peer-reviewed by at least three Program Committee (PC) members in a double-blind fashion. Out of 45 submissions the PC decided to accept 25 papers for oral presentation, giving an acceptance rate of about 55%. This volume contains 22 of these 25 accepted full papers. The other three accepted papers were submitted only for presentation at the conference and are not contained in the proceedings:

- Khaled Belahcène, Christophe Labreuche, Nicolas Maudet, Vincent Mousseau, and Wassila Ouerdane: *An Efficient SAT Formulation for Learning Multicriteria Non-compensatory Sorting Models*
- Giuseppe De Marco: *On Ambiguous Games under Imprecise Probabilities*
- Dominik Peters: *Single-Peakedness and Total Unimodularity for Multiwinner Elections*

In addition, the PC selected six short papers for poster presentation and the program also included six peer-reviewed short papers written for the associated doctoral consortium. Last but not least, this volume also contains the abstracts of the three invited keynote speeches and the abstract of a tutorial presented at the doctoral consortium.

I am very grateful to Raymond Bisdorff for his unwearrying efforts as local chair; to Eleni Pratsini, Carmine Ventre, and Toby Walsh for accepting my invitation and giving great keynote speeches at the conference; to Serge Gaspers for holding a wonderful tutorial at the doctoral consortium; to Anja Rey for organizing the doctoral consortium; to Alexis Tsoukiàs, Gerhard J. Woeginger, and Nick Mattei for their advice; to the Program Committee and their additional reviewers for their help with selecting and preparing the conference program; and to the many volunteers who helped in some way

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Most notably, I thank my wife, Irene, and my daughters, Ella and Paula, for their loving support during the months I was working as a program chair, having less time to spend with them, and for still making my life such a joy.

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Jörg Rothe

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