15th Workshop on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems

ATMOS'15, September 17, 2015, Patras, Greece

Edited by

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ATMOS'15 Best Paper Award

Preface

Running and optimizing transportation systems give rise to very complex and large-scale optimization problems requiring innovative solution techniques and ideas from mathematical optimization, theoretical computer science, and operations research. Since 2000, the series of Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS) workshops brings together researchers and practitioners who are interested in all aspects of algorithmic methods and models for transportation optimization and provides a forum for the exchange and dissemination of new ideas and techniques. The scope of ATMOS comprises all modes of transportation.

The 15th ATMOS workshop (ATMOS'15) was held in connection with ALGO'15, hosted by the University of Patras and its Department of Computer Engineering and Informatics in Patras, Greece, on September 17, 2015. Topics of interest were all optimization problems for passenger and freight transport, including, but not limited to, demand forecasting, models for user behavior, design of pricing systems, infrastructure planning, multi-modal transport optimization, mobile applications for transport, congestion modelling and reduction, line planning, timetable generation, routing and platform assignment, vehicle scheduling, route planning, crew and duty scheduling, rostering, delay management, routing in road networks, and traffic guidance. Of particular interest were papers applying and advancing techniques like graph and network algorithms, combinatorial optimization, mathematical programming, approximation algorithms, methods for the integration of planning stages, stochastic and robust optimization, online and real-time algorithms, algorithmic game theory, heuristics for real-world instances, and simulation tools.

All submissions were reviewed by at least three referees and judged on originality, technical quality, and relevance to the topics of the workshop. Based on the reviews, the program committee selected eleven submissions to be presented at the workshop. In addition, Ralf Borndörfer kindly agreed to complement the program with an invited talk that was presented as a global key-note talk of ALGO'15. This volume collects the corresponding papers for ten of the submissions, as well as the short paper for the eleventh one. Together, they quite impressively demonstrate the range of applicability of algorithmic optimization to transportation problems in a wide sense.

Based on the program committee's reviews, René van Bevern, Christian Komusiewicz, and Manuel Sorge won the Best Paper Award of ATMOS'15 with their paper "Approximation algorithms for mixed, windy, and capacitated arc routing problems".

We would like to thank the members of the Steering Committee of ATMOS for giving us the opportunity to serve as Program Chairs of ATMOS'15, all the authors who submitted papers, Ralf Borndörfer for accepting our invitation to present an invited talk, the members of the Program Committee and the additional reviewers for their valuable work in selecting the papers appearing in this volume, and the local organizers for hosting the workshop as part of ALGO'15. We also acknowledge the use of the EasyChair system for the great help in managing the submission and review processes, and Schloss Dagstuhl for publishing the proceedings of ATMOS'15 in its OASIcs series.

September, 2015

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