10th Workshop on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems

ATMOS'10, September 9, 2010, Liverpool, United Kingdom

Edited by
Thomas Erlebach
Marco Lübbecke

Editors

Thomas Erlebach
Department of Computer Science
University of Leicester
Leicester, UK
t.erlebach@mcs.le.ac.uk

Marco Lübbecke
FB Mathematik, AG Optimierung
Technische Universität Darmstadt
Darmstadt, Germany
luebbecke@mathematik.tu-darmstadt.de

ACM Classification 1998
F.2 Analysis of Algorithms and Problem Complexity, G.1.6 Optimization, G.2.2 Graph Theory, G.2.3 Applications

ISBN 978-3-939897-20-0

Published online and open access by
Schloss Dagstuhl – Leibniz-Center for Informatics gGmbH, Dagstuhl Publishing, Saarbrücken/Wadern, Germany.

Publication date
September, 2010.

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at http://dnb.d-nb.de.

Digital Object Identifier: 10.4230/OASIcs.ATMOS.2010.i

ISBN 978-3-939897-20-0 **ISSN 2190-6807** **http://www.dagstuhl.de/oasics**

OASIcs – OpenAccess Series in Informatics

OASIcs aims at a suitable publication venue to publish peer-reviewed collections of papers emerging from a scientific event. OASIcs volumes are published according to the principle of Open Access, i.e., they are available online and free of charge.

ISSN 2190-6807

www.dagstuhl.de/oasics

Contents

10th Workshop on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS '10).
Editors: T. Erlebach, M. Lübbecke; pp. v–vi

OpenAccess Series in Informatics
OASICS Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

Preface

Transportation networks give rise to very complex and large-scale network optimization problems requiring innovative solution techniques and ideas from mathematical optimization, theoretical computer science, and operations research. Applicable tools and concepts include those from graph and network algorithms, combinatorial optimization, approximation and online algorithms, stochastic and robust optimization. Since 2000, the series of 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 10th Workshop on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS '10) was held in connection with ALGO 2010, hosted by University of Liverpool, United Kingdom, on September 9, 2010. Topics of interest for ATMOS '10 were all optimization problems for passenger and freight transport, including – but not limited to – Infrastructure Planning, Vehicle Scheduling, Crew and Duty Scheduling, Rostering, Routing in Road Networks, Novel Applications of Route Planning Techniques, Demand Forecasting, Design of Tariff Systems, Delay Management, Mobile Applications, Humanitarian Logistics, Simulation Tools, Line Planning, Timetable Generation, and Routing and Platform Assignment. Of particular interest were: the successful integration of several (sub)problems or planning stages, algorithms operating in an online/realtime or stochastic setting, and heuristic approaches (including approximation algorithms) for real-world instances.

In response to the call for papers we received 30 submissions, all of which were reviewed by at least three referees. The submissions were judged on originality, technical quality, and relevance to the topics of the conference. Based on the reviews, the program committee selected the 12 papers which appear in this volume. Together, they quite impressively demonstrate the range of applicability of algorithmic optimization to transportation problems in a wide sense. In addition, Alberto Caprara kindly agreed to complement the program with an invited talk entitled *Almost 20 Years of Combinatorial Optimization for Railway Planning: from Lagrangian Relaxation to Column Generation*.

We would like to thank all the authors who submitted papers to ATMOS '10, Alberto Caprara for accepting our invitation to present an invited talk, and the local organizers for hosting the workshop as part of ALGO 2010.

September 2010

Thomas Erlebach
Marco Lübbecke

10th Workshop on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS '10).
Editors: T. Erlebach, M. Lübbecke; pp. vii–viii

OpenAccess Series in Informatics
OASICS Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

Organization

Program Committee

Gabriele Di Stefano	*University of L'Aquila*
Thomas Erlebach (co-chair)	*University of Leicester*
Andrea Lodi	*University of Bologna*
Marco Lübbecke (co-chair)	*TU Darmstadt*
Matúš Mihalák	*ETH Zürich*
Petra Mutzel	*TU Dortmund*
Louis-Martin Rousseau	*Polytechnique Montreal*
Heiko Schilling	*TomTom NV*
Peter Sanders	*Karlsruher Institut für Technologie*
Maria Grazia Speranza	*University of Brescia*
Frits Spieksma	*KU Leuven*

Additional Reviewers

Nitin Ahuja	Diego Klabjan
Ralf Borndörfer	Christian Liebchen
Valentina Cacchiani	Dennis Luxen
Serafino Cicerone	Jannick Matuschke
Sofie Coene	Jens Maue
Gianlorenzo D'Angelo	Alfredo Navarra
Daniel Delling	Thomas Pajor
Matteo Fischetti	Maria Grazia Scutellà
Holger Flier	Andrea Tramontani
Laura Galli	Daniele Vigo
Robert Geisberger	Renato Werneck
Clemens Gröpl	Bernd Zey
Carsten Gutwenger	Anna Zych

10th Workshop on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS '10).
Editors: T. Erlebach, M. Lübbecke; pp. ix–ix
OpenAccess Series in Informatics
OASICS Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany