

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Alfred Kobsa

University of California, Irvine, CA, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

University of Dortmund, Germany

Madhu Sudan

Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max-Planck Institute of Computer Science, Saarbruecken, Germany

Dan Halperin Kurt Mehlhorn (Eds.)

Algorithms – ESA 2008

16th Annual European Symposium
Karlsruhe, Germany, September 15-17, 2008
Proceedings

Volume Editors

Dan Halperin
Tel-Aviv University
School of Computer Science
Tel Aviv 69978, Israel
E-mail: danha@tau.ac.il

Kurt Mehlhorn
Max-Planck-Institut für Informatik
66123 Saarbrücken, Germany
E-mail: mehlhorn@mpi-inf.mpg.de

Library of Congress Control Number: 2008934902

CR Subject Classification (1998): F.2, G.1-2, E.1, F.1.3, I.3.5, C.2.4, E.5

LNCS Sublibrary: SL 1 – Theoretical Computer Science and General Issues

ISSN 0302-9743
ISBN-10 3-540-87743-6 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-87743-1 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springer.com

© Springer-Verlag Berlin Heidelberg 2008
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12532902 06/3180 5 4 3 2 1 0

Preface

This volume contains the 69 papers presented at the 16th Annual European Symposium on Algorithms (ESA 2008), held in Karlsruhe during September 15–17, 2008, including two papers by the distinguished invited speakers Mark Overmars and Leslie Valiant.

Since 2002, ESA has consisted of two tracks, with separate program committees, dealing with design and mathematical analysis of algorithms, the “Design and Analysis” track, and real-world applications, engineering, and experimental analysis of algorithms, the “Engineering and Applications” track. Previous ESAs in the two-track format were held in Rome, Italy (2002); Budapest, Hungary (2003); Bergen, Norway (2004); Palma de Mallorca, Spain (2005); Zurich, Switzerland (2006); and Eilat, Israel (2007). The proceedings of these symposia were published as Springer’s LNCS volumes 2461, 2832, 3221, 3669, 4168, and 4698 respectively.

Papers were solicited in all areas of algorithmic research, including algorithmic aspects of networks, approximation and on-line algorithms, computational biology, computational finance and algorithmic game theory, computational geometry, data structures, databases and information retrieval, external-memory algorithms, streaming algorithms, graph and network algorithms, graph drawing, machine learning, mobile and distributed computing, pattern matching and data compression, quantum computing, randomized algorithms, and algorithm libraries. Submissions were especially encouraged in mathematical programming and operations research, including Combinatorial Optimization, Integer Programming, Polyhedral Combinatorics and Network Optimization.

Each extended abstract was submitted to one of the two tracks. The extended abstracts were typically read by three or four referees each, and evaluated on their quality, originality, and relevance to the symposium. The Program Committees of both tracks met in Karlsruhe on May 24–25, 2008. The design and analysis track selected 51 papers out of 147 submissions. The engineering and applications track selected 16 out of 53 submissions.

ESA 2008 was sponsored by EATCS (the European Association for Theoretical Computer Science). We appreciate the critical financial support of ALGO 2008 by the DFG (Deutsche Forschungsgemeinschaft), the KIT (Karlsruhe Institute of Technology), and the Computer Science Department of the University of Karlsruhe. The EATCS sponsorship included an award for the author of the best paper “Better and Simpler Approximation for the Stable Marriage Problem,” by Zoltán Király and for the two best student papers, one from the design and analysis track: “Deterministic Sampling Algorithms for Network Design,” by Anke van Zuylen, and one from the engineering and applications track: “Time-Dependent SHARC-Routing,” by Daniel Delling, as selected by the Program Committees.

ESA 2008 was held along with the Workshop on Algorithms in Bioinformatics (WABI), the Workshop on Approximation and Online Algorithms (WAOA), and the Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS), in the context of the combined conference ALGO 2008.

Throughout the entire process of submission, selection, and compilation of the papers into these proceedings, we used the EasyChair system, which was very convenient and freed us from a lot of the technical chores of Program Chairs. We are grateful to the EasyChair people for letting us use the system and for their responsiveness to our queries. We also thank Guy Zucker for his assistance in compiling the proceedings.

July 2008

Dan Halperin
Kurt Mehlhorn

Organization

Program Committee

Design and Analysis Track

Yossi Azar	Tel Aviv University
Xiaoatie Deng	City University of Hong Kong
Lisa Fleischer	Dartmouth
Gianni Franceschini	University of Pisa
Naveen Garg	IIT, Dehli
Johan Haastad	KTH, Stockholm
Stephen Kobourov	University of Arizona
Christian Knauer	FU Berlin
Kazuhiso Makino	University of Tokyo
Kurt Mehlhorn	MPII Saarbrücken (Chair)
Rasmus Pagh	IT University of Copenhagen
Katarzyna Paluch	University of Wrocław
Mike Paterson	University of Warwick
Nicole Schweikardt	HU Berlin

Engineering and Applications Track

David Applegate	AT&T Labs – Research
Esther M. Arkin	SUNY, Stony Brook
Hagit Attiya	Technion, Haifa
David Coudert	INRIA, Sophia-Antipolis
Camil Demetrescu	University of Rome “La Sapienza”
Rolf Fagerberg	University of Southern Denmark
Joachim Gudmundsson	ICTA, Sydney
Dan Halperin	Tel Aviv University (Chair)
Michael Hoffmann	ETH, Zurich
Marco Lübecke	TU Berlin
Renato Werneck	Microsoft Research, Silicon Valley

Organizing Committee

Dorothea Wagner (Co-chair)	University of Karlsruhe
Peter Sanders (Co-chair)	University of Karlsruhe
Veit Batz	University of Karlsruhe
Reinhard Bauer	University of Karlsruhe
Michael Baur	University of Karlsruhe
Lilian Beckert	University of Karlsruhe

VIII Organization

Anja Blancani	University of Karlsruhe
Daniel Delling	University of Karlsruhe
Dennis Luxen	University of Karlsruhe
Sascha Meinert	University of Karlsruhe
Vitaly Osipov	University of Karlsruhe
Elke Sauer	University of Karlsruhe
Dominik Schultes	University of Karlsruhe

External Reviewers

Mohammad Ali Abam	Joan Boyar
Manuel Abellanas	Peter Brass
Isolde Adler	Patrick Briest
Hee-Kap Ahn	Yves Brise
Nir Ailon	Tianming Bu
Ernst Althaus	Christoph Buchheim
Alexandr Andoni	Kevin Buchin
Diogo Andrade	Maike Buchin
Spyros Angelopoulos	Luciana Buriol
Michael Anshel	Sergio Cabello
François Anton	LeiZhen Cai
Stefan Arnborg	Huiping Cao
Tetsuo Asano	Alberto Caprara
Mike Atkinson	Erin Chambers
Per Austrin	Timothy M. Chan
Sang Won Bae	Timoth Chan
Amitabha Bagchi	Kun-Mao Chao
Sebastian Bala	Ioannis Chatzigiannakis
Nikhil Bansal	Amitabh Chaudhary
Yair Bartal	Shuchi Chawla
Cristina Bazgan	Chandra Chekuri
Luca Becchetti	Danny Chen
Fredrik Bengtsson	Ke Chen
Andre Berger	Ning Chen
Jerome Besombes	Yijia Chen
Marcin Bienkowski	Siu-Wing Cheng
Philip Bille	Benny Chor
Benjamin Birnbaum	Tobias Christ
Johannes Blömer	George Christodoulou
Liad Blumrosen	Tomasz Cichocki
Manuel Bodirsky	Ken Clarkson
Endre Boros	Graham Cormode
Glencora Borradaile	Jose Correa
Prosenjit Bose	Artur Czumaj
Florent Bouchez	Bhaskar DasGupta

Marcelo Dias de Amorim	Armin Fügenschuh
Colin de la Higuera	Bernd Gärtner
Arjen De Vries	Jerome Galtier
Pedro J. de Rezende	Iftah Gamzu
Brian Dean	Daya Gaur
Julius Degesys	Cyril Gavoille
Britta Denner-Broser	Pawel Gawrychowski
Martin Dietzfelbinger	Heidi Gebauer
Darko Dimitrov	Loukas Georgiadis
Bojan Djordjevic	Panos Giannopoulos
Shahar Dobzinski	Anders Gidenstam
Ye Du	Francesco Giordano
Vida Dujmovic	Frederic Giroire
Alon Efrat	Xavier Goaoc
Friedrich Eisenbrand	Andrew Goldberg
Khaled Elbassioni	Alfredo Goldman
Matthias Englert	Vineet Goyal
Amir Epstein	Szymon Grabowski
Leah Epstein	Fabrizio Grandoni
Thomas Erlebach	David Gregg
Bruno Escoffier	Ilan Gronau
Alejandro Estrella-Balderrama	Roberto Grossi
Eyal Even-Dar	Romain Grunert
Esther Ezra	Anupam Gupta
Alex Fabrikant	Neelima Gupta
Rolf Fagerberg	Gregory Gutin
Mikael Fallgren	Shai Gutner
Michalis Faloutsos	Carsten Gutwenger
Arash Farzan	Takashi Horiyama
Lene Favrholdt	Sebastian Hack
Henning Fernau	Marios Hadjieleftheriou
Paolo Ferragina	Magnus M. Halldorsson
Irene Finocchi	Xin Han
Rudolf Fleischer	Sariel Har-Peled
Fedor Fomin	Tobias Harks
Dimitris Fotakis	Rolf Harren
Joe Fowler	Jan-Henrik Haunert
Pierre Fraigniaud	Herman Haverkort
Antonio Frangioni	David Hay
W. Randolph Franklin	Michael Hemmer
Leonor Frias	Gregorio Hernandez
Bernhard Fuchs	André Hernich
Toshihiro Fujito	Marijn Heule
Hiroshi Fujiwara	Moritz Hilger
Takuro Fukunaga	Frank Hoffmann

Jiaqiao Hu
Thore Husfeldt
Robert Irving
Mashhood Ishaque
Toshimasa Ishii
Takehiro Ito
Riko Jacob
Martin Jaggi
Artur Jez
Lukasz Jeż
Li Jian
Öjvind Johansson
David Johnson
Peter Jonsson
Tomasz Jurdzinski
Yoshiyuki Karuno
Naonori Kakimura
Kanella Kaligosi
Frank Kammer
Tom Kamphans
Takafumi Kanamori
Przemka Kanarek
Mihyun Kang
Ming-Yang Kao
Andreas Karrenbauer
Jyrki Katajainen
Michael Kaufmann
Dimitris Kavvadias
Akinori Kawachi
Ken-ichi Kawarabayashi
Balazs Keszegh
Rohit Khandekar
Samir Khuller
Shuji Kijima
David Kirkpatrick
Masashi Kiyomi
Rolf Klein
Tomi Klein
Robert Kleinberg
Jon Kleinberg
Stefan Koerkel
Alex Kogan
Stavros Kolliopoulos
Vladimir Kolmogorov
Rachel Kolodny
Jochen Konemann
Guy Kortsarz
Miroslaw Korzeniowski
Arie Koster
Lukasz Kowalik
Darek Kowalski
Richard Kralovic
Stephan Kreutzer
Klaus Kriegel
Shankar Krishnan
Danny Krizanc
Sven Krumke
Amit Kumar
Maciej Kurowski
Ekkehard Köhler
Arnaud Labourel
Oded Lachish
Jens Lagergren
Soeren Laue
Ron Lavi
Emmanuelle Lebhar
Jonathan Lenchner
Stefano Leonardi
Moshe Lewenstein
Xiangyang Li
Bengu Li
Leo Liberti
Christian Liebchen
Jeff Linderoth
Andrzej Lingas
Giuseppe Liotta
Haowen Liu
Andrea Lodi
Jakub Lopuszanski
Krzysztof Lorys
Tzvi Lotker
Vadim Lozin
Eyal Lubetzky
Fabrizio Luccio
Rune Lyngsøe
Eiji Miyano
Anil Maheshwari
Veli Mäkinen
Daniel Marx
Domagoj Matijevic

Jochen Maydt
Colin McDiarmid
Frank McSherry
Nicole Megow
Julian Mestre
Peter Bro Miltersen
Joe Mitchell
Michael Mitzenmacher
Shuichi Miyazaki
Sonoko Moriyama
Gabriel Moruz
Robin Moser
Matthias Müller-Hannemann
Ian Munro
Nabil Mustafa
Petra Mutzel
Kiyohito Nagano
Rouven Naujoks
Gonzalo Navarro
Yakov Nekrich
C. Thach Nguyen
Rolf Niedermeier
Bengt Nilsson
Stefan Nilsson
Marc Nunkesser
Yoshio Okamoto
Hirotaka Ono
Rotem Oshman
Patric Ostergard
Sang-il Oum
John Owens
Gyula Pap
Maurizio Patrignani
David Peleg
Ulrich Pferschy
Marc E. Pfetsch
Andrea Pietracaprina
Michal Pioro
Marek Piotrow
Marcus Poggi
C.K. Poon
Ely Porat
Andreas Profous
Guido Proietti
Kirk Pruhs
Geppino Pucci
Simon Puglisi
Evangelia Pyrga
Qi Qi
Tomasz Radzik
Prasad Raghavendra
Rajmohan Rajaraman
Rajeev Raman
Rajiv Raman
R. Ravi
Andreas Razen
Joachim Reichel
Mauricio Resende
Dana Ron
Stefan Ropke
Peter Rossmanith
Günter Rote
Jonathan E. Rowe
Shai Rubin
Daniel Russel
Kunihiko Sadakane
Carlos Sanches
Pedro Sander
Peter Sanders
Srinivasa Rao Satti
Rahul Savani
Gilles Savard
Ludmila Scharf
Dominik Scheder
Marc Scherfenberg
Heiko Schilling
Florian Schoppmann
Oded Schwartz
Daria Schymura
Yoav Seginer
Raimund Seidel
Meinolf Sellmann
Jose M. Sempere
Jiri Sgall
Nira Shafrir
Akiyoshi Shioura
Mark Silberstein
Laurent Simon
Jadranka Skorin-Kapov
Martin Skutella

Michiel Smid	Antoine Vigneron
Shakhar Smorodinsky	Berthold Voecking
Christian Sohler	Imrich Vrt'o
Olivier Spanjaard	Uli Wagner
Bettina Speckmann	Magnus Wahlström
Aravind Srinivasan	Feng Wang
Grzegorz Stachowiak	Lusheng Wang
Fabian Stehn	Ron Wein
Cliff Stein	Carola Wenk
Rainer Steinwandt	Juergen Werber
Marek Sulovsky	Douglas Wikström
Zoya Svitkina	Paul Wollan
Suguru Tamaki	Bangye Wu
Chuan Yi Tang	Xiaodong Wu
Till Tantau	Avi Yadgar
Kavitha Telikepalli	Masaki Yamamoto
Mitchell Thornton	Tommy Yang
Mikkel Thorup	Takuya Yoshihiro
Srikanta Tirthapura	Ryo Yoshinaka
Alexander Tiskin	Hai Yu
Patrick Traxler	Li Zhang
Dekel Tsur	Xun Zhang
Ryuhei Uehara	Junqiang Zhou
Takeaki Uno	Binhai Zhu
Gregory Valiant	Roie Zivan
Marc van Kreveld	Philipp Zumstein
Rob van Stee	Uri Zwick
George Frederick Viamontes	Grazyna Zwozniak
Anastasios Viglas	

Table of Contents

Invited Lectures

Flexible Path Planning Using Corridor Maps	1
<i>Mark Overmars, Ioannis Karamouzas, and Roland Geraerts</i>	
A Bridging Model for Multi-core Computing	13
<i>Leslie G. Valiant</i>	

Contributed Papers

Robust Kinetic Convex Hulls in 3D	29
<i>Umut A. Acar, Guy E. Blelloch, Kanat Tangwongsan, and Duru Türkoglu</i>	
On Dominance Reporting in 3D	41
<i>Peyman Afshani</i>	
Stabbing Convex Polygons with a Segment or a Polygon	52
<i>Pankaj K. Agarwal, Danny Z. Chen, Shashidhara K. Ganjugunte, Ewa Misiołek, Micha Sharir, and Kai Tang</i>	
An Efficient Algorithm for 2D Euclidean 2-Center with Outliers	64
<i>Pankaj K. Agarwal and Jeff M. Phillips</i>	
A Near-Tight Bound for the Online Steiner Tree Problem in Graphs of Bounded Asymmetry	76
<i>Spyros Angelopoulos</i>	
Cache-Oblivious Red-Blue Line Segment Intersection	88
<i>Lars Arge, Thomas Mølhave, and Norbert Zeh</i>	
The Complexity of Bisectors and Voronoi Diagrams on Realistic Terrains	100
<i>Boris Aronov, Mark de Berg, and Shripad Thite</i>	
Space-Time Tradeoffs for Proximity Searching in Doubling Spaces	112
<i>Sunil Arya, David M. Mount, Antoine Vigneron, and Jian Xia</i>	
A Scaling Algorithm for the Maximum Node-Capacitated Multiflow Problem	124
<i>Maxim A. Babenko and Alexander V. Karzanov</i>	
Linear Time Planarity Testing and Embedding of Strongly Connected Cyclic Level Graphs	136
<i>Christian Bachmaier and Wolfgang Brunner</i>	

Straight Skeletons of Three-Dimensional Polyhedra	148
<i>Gill Barequet, David Eppstein, Michael T. Goodrich, and Amir Vaxman</i>	
Randomized Competitive Analysis for Two-Server Problems	161
<i>Wolfgang Bein, Kazuo Iwama, and Jun Kawahara</i>	
Decompositions and Boundary Coverings of Non-convex Fat Polyhedra	173
<i>Mark de Berg and Chris Gray</i>	
Approximating Multi-criteria Max-TSP	185
<i>Markus Bläser, Bodo Manthey, and Oliver Putz</i>	
An Integer Programming Algorithm for Routing Optimization in IP Networks	198
<i>Andreas Bley</i>	
A Constant-Approximate Feasibility Test for Multiprocessor Real-Time Scheduling	210
<i>Vincenzo Bonifaci, Alberto Marchetti-Spaccamela, and Sebastian Stiller</i>	
Tight Bounds and a Fast FPT Algorithm for Directed Max-Leaf Spanning Tree	222
<i>Paul Bonsma and Frederic Dorn</i>	
Engineering Tree Labeling Schemes: A Case Study on Least Common Ancestors	234
<i>Saverio Caminiti, Irene Finocchi, and Rossella Petreschi</i>	
A Practical Quicksort Algorithm for Graphics Processors	246
<i>Daniel Cederman and Philippas Tsigas</i>	
Bloomier Filters: A Second Look	259
<i>Denis Charles and Kumar Chellapilla</i>	
Coupled Path Planning, Region Optimization, and Applications in Intensity-Modulated Radiation Therapy	271
<i>Danny Z. Chen, Shuang Luan, and Chao Wang</i>	
A New Approach to Exact Crossing Minimization	284
<i>Markus Chimani, Petra Mutzel, and Immanuel Bomze</i>	
A Characterization of 2-Player Mechanisms for Scheduling	297
<i>George Christodoulou, Elias Koutsoupias, and Angelina Vidali</i>	
A Local-Search 2-Approximation for 2-Correlation-Clustering	308
<i>Tom Coleman, James Saunderson, and Anthony Wirth</i>	

The Alcuin Number of a Graph	320
<i>Péter Csorba, Cor A.J. Hurkens, and Gerhard J. Woeginger</i>	
Time-Dependent SHARC-Routing	332
<i>Daniel Delling</i>	
Detecting Regular Visit Patterns	344
<i>Bojan Djordjevic, Joachim Gudmundsson, Anh Pham, and Thomas Wolle</i>	
Improved Approximation Algorithms for Relay Placement	356
<i>Alon Efrat, Sándor P. Fekete, Poornananda R. Gaddehosur, Joseph S.B. Mitchell, Valentin Polishchuk, and Jukka Suomela</i>	
Selfish Bin Packing	368
<i>Leah Epstein and Elena Kleiman</i>	
Improved Randomized Results for That Interval Selection Problem	381
<i>Leah Epstein and Asaf Levin</i>	
Succinct Representations of Arbitrary Graphs	393
<i>Arash Farzan and J. Ian Munro</i>	
Edge Coloring and Decompositions of Weighted Graphs	405
<i>Uriel Feige and Mohit Singh</i>	
The Complexity of Sorting with Networks of Stacks and Queues	417
<i>Stefan Felsner and Martin Pergel</i>	
Faster Steiner Tree Computation in Polynomial-Space	430
<i>Fedor V. Fomin, Fabrizio Grandoni, and Dieter Kratsch</i>	
Fitting a Step Function to a Point Set	442
<i>Hervé Fournier and Antoine Vigneron</i>	
Faster Swap Edge Computation in Minimum Diameter Spanning Trees	454
<i>Beat Gfeller</i>	
The Partial Augment–Relabel Algorithm for the Maximum Flow Problem	466
<i>Andrew V. Goldberg</i>	
An Optimal Dynamic Spanner for Doubling Metric Spaces	478
<i>Lee-Ad Gottlieb and Liam Roditty</i>	
RFQ: Redemptive Fair Queueing	490
<i>Ajay Gulati and Peter Varman</i>	
Range Medians	503
<i>Sariel Har-Peled and S. Muthukrishnan</i>	

Locality and Bounding-Box Quality of Two-Dimensional Space-Filling Curves	515
<i>Herman Haverkort and Freek van Walderveen</i>	
Probabilistic Analysis of Online Bin Coloring Algorithms Via Stochastic Comparison	528
<i>Benjamin Hiller and Tjark Vredeveld</i>	
On the Complexity of Optimal Hotlink Assignment	540
<i>Tobias Jacobs</i>	
Oblivious Randomized Direct Search for Real-Parameter Optimization	553
<i>Jens Jägersküpper</i>	
Path Minima in Incremental Unrooted Trees	565
<i>Haim Kaplan and Nira Shafir</i>	
Improved Competitive Performance Bounds for CIOQ Switches	577
<i>Alex Kesselman, Kirill Kogan, and Michael Segal</i>	
Two-Stage Robust Network Design with Exponential Scenarios	589
<i>Rohit Khandekar, Guy Kortsarz, Vahab Mirrokni, and Mohammad R. Salavatipour</i>	
An Optimal Incremental Algorithm for Minimizing Lateness with Rejection	601
<i>Samir Khuller and Julián Mestre</i>	
More Robust Hashing: Cuckoo Hashing with a Stash	611
<i>Adam Kirsch, Michael Mitzenmacher, and Udi Wieder</i>	
Better and Simpler Approximation Algorithms for the Stable Marriage Problem	623
<i>Zoltán Király</i>	
Edit Distances and Factorisations of Even Permutations	635
<i>Anthony Labarre</i>	
Speed Scaling Functions for Flow Time Scheduling Based on Active Job Count	647
<i>Tak-Wah Lam, Lap-Kei Lee, Isaac K.K. To, and Prudence W.H. Wong</i>	
Facility Location in Dynamic Geometric Data Streams	660
<i>Christiane Lammersen and Christian Sohler</i>	
The Effects of Local Randomness in the Adversarial Queueing Model	672
<i>Yann Lorion and Maik Weinard</i>	

Parallel Imaging Problem	684
<i>Thành Nguyen and Éva Tardos</i>	
An Online Algorithm for Finding the Longest Previous Factors	696
<i>Daisuke Okanohara and Kunihiko Sadakane</i>	
Collusion-Resistant Mechanisms with Verification Yielding Optimal Solutions	708
<i>Paolo Penna and Carmine Ventre</i>	
Improved BDD Algorithms for the Simulation of Quantum Circuits	720
<i>Vasilis Samoladas</i>	
Mobile Route Planning	732
<i>Peter Sanders, Dominik Schultes, and Christian Vetter</i>	
How Reliable Are Practical Point-in-Polygon Strategies?	744
<i>Stefan Schirra</i>	
Fast Divide-and-Conquer Algorithms for Preemptive Scheduling Problems with Controllable Processing Times – A Polymatroid Optimization Approach	756
<i>Natalia V. Shakhlevich, Akiyoshi Shioura, and Vitaly A. Strusevich</i>	
Approximability of Average Completion Time Scheduling on Unrelated Machines	768
<i>René A. Sitters</i>	
Relative Convex Hulls in Semi-dynamic Subdivisions	780
<i>Mashhood Ishaque and Csaba D. Tóth</i>	
An Experimental Analysis of Robinson-Foulds Distance Matrix Algorithms	793
<i>Seung-Jin Sul and Tiffani L. Williams</i>	
On the Size of the 3D Visibility Skeleton: Experimental Results	805
<i>Linqiao Zhang, Hazel Everett, Sylvain Lazard, Christophe Weibel, and Sue Whitesides</i>	
An Almost Space-Optimal Streaming Algorithm for Coresets in Fixed Dimensions	817
<i>Hamid Zarrabi-Zadeh</i>	
Deterministic Sampling Algorithms for Network Design	830
<i>Anke van Zuylen</i>	
Author Index	843