Table of Contents

Invited Lectures

A Survey of FPT Algorithm Design Techniques with an Emphasis on Recent Advances and Connections to Practical Computing 1
Michael R. Fellows

Algorithmic Aspects of Web Search Engines 3
Monika Henzinger

Design and Analysis Track

Efficient Tradeoff Schemes in Data Structures for Querying Moving Objects 4
Pankaj K. Agarwal, Lars Arge, Jeff Erickson, Hai Yu

Swap and Mismatch Edit Distance 16
Amihood Amir, Estrella Eisenberg, Ely Porat

Path Decomposition Under a New Cost Measure with Applications to Optical Network Design 28
Elliot Anshelevich, Lisa Zhang

Optimal External Memory Planar Point Enclosure 40
Lars Arge, Vasilis Samoladas, Ke Yi

Maximizing Throughput in Multi-queue Switches 53
Yossi Azar, Arik Litichevskey

An Improved Algorithm for CIOQ Switches 65
Yossi Azar, Yossi Richter

Labeling Smart Dust 77
Vikas Bansal, Friedhelm Meyer auf der Heide, Christian Sohler

Graph Decomposition Lemmas and Their Role in Metric Embedding Methods 89
Yair Bartal

Modeling Locality: A Probabilistic Analysis of LRU and FWF 98
Luca Becchetti

An Algorithm for Computing DNA Walks 110
Ankur Bhargava, S. Rao Kosaraju

Algorithms for Generating Minimal Blockers of Perfect Matchings in Bipartite Graphs and Related Problems 122
Endre Boros, Khaled Elbassioni, Vladimir Gurvich

Direct Routing: Algorithms and Complexity 134
Costas Busch, Malik Magdon-Ismail, Marios Mavronicolas, Paul Spirakis

Lower Bounds for Embedding into Distributions over Excluded Minor Graph Families 146
Douglas E. Carroll, Ashish Goel

A Parameterized Algorithm for Upward Planarity Testing 157
Hubert Chan

Fisher Equilibrium Price with a Class of Concave Utility Functions 169
Ning Chen, Xiaotie Deng, Xiaoming Sun, Andrew Chi-Chih Yao

Hardness and Approximation Results for Packing Steiner Trees 180
Joseph Cheriyan, Mohammad R. Salavatipour

Approximation Hardness of Dominating Set Problems 192
Miroslav Chlebík, Janka Chlebíková

Improved Online Algorithms for Buffer Management in QoS Switches 204
Marek Chrobak, Wojciech Jawor, Jiří Sgall, Tomáš Tichý

Time Dependent Multi Scheduling of Multicast 216
Rami Cohen, Dror Rawitz, Danny Raz

Convergence Properties of the Gravitational Algorithm in Asynchronous Robot Systems 228
Reuven Cohen, David Peleg

The Average Case Analysis of Partition Sorts 240
Richard Cole, David C. Kandathil

A Fast Distributed Algorithm for Approximating the Maximum Matching 252
Andrzej Czygrinow, Michał Hańćkowiak, Edyta Szymańska

Extreme Points Under Random Noise 264
Valentina Damerow, Christian Sohler

Fixed Parameter Algorithms for Counting and Deciding Bounded Restrictive List H-Colorings 275
Josep Díaz, Maria Serna, Dimitrios M. Thilikos

On Variable-Sized Multidimensional Packing 287
Leah Epstein, Rob van Stee

An Inductive Construction for Plane Laman Graphs via Vertex Splitting 299
Zsolt Fekete, Tibor Jordán, Walter Whiteley

Faster Fixed-Parameter Tractable Algorithms for Matching and Packing Problems 311
Michael R. Fellows, C. Knauer, N. Nishimura, P. Ragde, F. Rosamond, U. Stege, Dimitrios M. Thilikos, S. Whitesides

On the Evolution of Selfish Routing 323
Simon Fischer, Berthold Vöcking

Competitive Online Approximation of the Optimal Search Ratio 335
Rudolf Fleischer, Tom Kamphans, Rolf Klein, Elmar Langetepe, Gerhard Trippen

Incremental Algorithms for Facility Location and k-Median 347
Dimitris Fotakis

Dynamic Shannon Coding 359
Travis Gagie

Fractional Covering with Upper Bounds on the Variables: Solving LPs with Negative Entries 371
Naveen Garg, Rohit Khandekar

Negotiation-Range Mechanisms: Coalition-Resistant Markets 383
Rica Gonen

Approximation Algorithms for Quickest Spanning Tree Problems 395
Refael Hassin, Asaf Levin

An Approximation Algorithm for Maximum Triangle Packing 403
Refael Hassin, Shlomi Rubinstein

Approximate Parameterized Matching 414
Carmit Hazay, Moshe Lewenstein, Dina Sokol

Approximation of Rectangle Stabbing and Interval Stabbing Problems 426
Sofia Kovaleva, Frits C.R. Spieksma

Fast 3-Coloring Triangle-Free Planar Graphs 436
Łukasz Kowalik

Approximate Unions of Lines and Minkowski Sums 448
Marc van Kreveld, A. Frank van der Stappen

Radio Network Clustering from Scratch 460
Fabian Kuhn, Thomas Moscibroda, Roger Wattenhofer

Seeking a Vertex of the Planar Matching Polytope in NC 472
Raghav Kulkarni, Meena Mahajan

Equivalence of Search Capability Among Mobile Guards with Various Visibilities 484
Jae-Ha Lee, Sang-Min Park, Kyung-Yong Chwa

Load Balancing in Hypercubic Distributed Hash Tables with Heterogeneous Processors 496
Junning Liu, Micah Adler

On the Stability of Multiple Partner Stable Marriages with Ties 508
Varun S. Malhotra

Flows on Few Paths: Algorithms and Lower Bounds 520
Maren Martens, Martin Skutella

Maximum Matchings in Planar Graphs via Gaussian Elimination 532
Marcin Mucha, Piotr Sankowski

Fast Multipoint Evaluation of Bivariate Polynomials 544
Michael Nüsken, Martin Ziegler

On Adaptive Integer Sorting 556
Anna Pagh, Rasmus Pagh, Mikkel Thorup

Tiling a Polygon with Two Kinds of Rectangles 568
Eric Rémila

On Dynamic Shortest Paths Problems 580
Liam Roditty, Uri Zwick

Uniform Algorithms for Deterministic Construction of Efficient Dictionaries 592
Milan Ružić

Fast Sparse Matrix Multiplication 604
Raphael Yuster, Uri Zwick

Engineering and Applications Track

An Experimental Study of Random Knapsack Problems 616
Rene Beier, Berthold Vöcking

Contraction and Treewidth Lower Bounds 628
Hans L. Bodlaender, Arie M.C.A. Koster, Thomas Wolle

Load Balancing of Indivisible Unit Size Tokens in Dynamic and Heterogeneous Networks 640
Robert Elsässer, Burkhard Monien, Stefan Schamberger

Comparing Real Algebraic Numbers of Small Degree 652
Ioannis Z. Emiris, Elias P. Tsigaridas

Code Flexibility and Program Efficiency by Genericity:
Improving CGAL's Arrangements 664
Efi Fogel, Ron Wein, Dan Halperin

Finding Dominators in Practice 677
Loukas Georgiadis, Renato F. Werneck, Robert E. Tarjan, Spyridon Triantafyllis, David I. August

Data Migration on Parallel Disks 689
Leana Golubchik, Samir Khuller, Yoo-Ah Kim, Svetlana Shargorodskaya, Yung-Chun (Justin) Wan

Classroom Examples of Robustness Problems
in Geometric Computations 702
Lutz Kettner, Kurt Mehlhorn, Sylvain Pion, Stefan Schirra, Chee Yap

Stable Minimum Storage Merging by Symmetric Comparisons 714
Pok-Son Kim, Arne Kutzner

On Rectangular Cartograms 724
Marc van Kreveld, Bettina Speckmann

Multi-word Atomic Read/Write Registers on Multiprocessor Systems 736
Andreas Larsson, Anders Gidenstam, Phuong H. Ha, Marina Papatriantafilou, Philippas Tsigas

Beyond Optimal Play in Two-Person-Zerosum Games 749
Ulf Lorenz

Solving Geometric Covering Problems by Data Reduction 760
Steffen Mecke, Dorothea Wagner

Efficient IP Table Lookup via Adaptive Stratified Trees
with Selective Reconstructions 772
Marco Pellegrini, Giordano Fusco

Super Scalar Sample Sort 784
Peter Sanders, Sebastian Winkel

Construction of Minimum-Weight Spanners 797
Mikkel Sigurd, Martin Zachariasen

A Straight Skeleton Approximating the Medial Axis 809
Mirela Tănase, Remco C. Veltkamp

Non-additive Shortest Paths 822
George Tsaggouris, Christos Zaroliagis

Author Index 835

http://www.springer.com/978-3-540-23025-0

Algorithms -- ESA 2004
12th Annual European Symposium, Bergen, Norway,
September 14-17, 2004, Proceedings
Albers, S.; Radzik, T. (Eds.)
2004, XXXVI, 836 p., Softcover
ISBN: 978-3-540-23025-0