Table of Contents

Invited Presentation

The Discrepancy Method .................................................. 1
Bernard Chazelle

Implementing Algorithms and Data Structures: An Educational and
Research Perspective ....................................................... 4
Roberto Tamassia

Geometry I

$L_\infty$ Voronoi Diagrams and Applications to VLSI Layout and Manufacturing 9
Evanthia Papadopoulou

Facility Location on Terrains ............................................. 19
Boris Aronov, Marc van Kreveld, René van Oostrum,
Kasturirangan Varadarajan

Computing Weighted Rectilinear Median and Center Set in the Presence
of Obstacles ................................................................. 29
Joonsoo Choi, Chan-Su Shin, Sung Kwon Kim

Complexity I

Maximizing Agreement with a Classification by Bounded or Unbounded
Number of Associated Words ............................................. 39
Hiroki Arimura, Shinichi Shimozono

Disjunctions of Horn Theories and Their Cores .......................... 49
Thomas Eiter, Toshihide Ibaraki, Kazuhsa Makino

Checking Programs Discretely: Demonstrating Result-Correctness Efficiently
While Concealing It ......................................................... 59
Giovanni Di Crescenzo, Kouichi Sakurai, Moti Yung

Graph Drawing

Two-Layer Planarization in Graph Drawing ................................ 69
Petra Mutzel, René Weiskircher

Computing Orthogonal Drawings in a Variable Embedding Setting ...... 79
Walter Didimo, Giuseppe Liotta
Dynamic Grid Embedding with Few Bends and Changes .......................... 89
Ulrik Brandes, Dorothea Wagner

On-Line Algorithm and Scheduling

Two New Families of List Update Algorithms ..................................... 99
Frank Schulz

An Optimal Algorithm for On-Line Palletizing at Delivery Industry ...... 109
J. Rethmann, E. Wanke

On-Line Scheduling of Parallel Jobs with Runtime Restrictions .......... 119
Stefan Bischof, Ernst W. Mayr

CAD/CAM and Graphics

Testing the Quality of Manufactured Disks and Cylinders ..................... 129
Prosenjit Bose, Pat Morin

Casting with Skewed Ejection Direction .............................................. 139
Hee-Kap Ahn, Siu-Wing Cheng, Otfried Cheong

Repairing Flaws in a Picture Based on a Geometric Representation of a Digital Image ................................................................. 149
Tetsuo Asano, Hiro Ito, Souichi Kimura, Shigeaki Shimazu

Graph Algorithm I

k-Edge and 3-Vertex Connectivity Augmentation in an Arbitrary Multigraph 159
Toshimasa Ishii, Hiroshi Nagamochi, Toshihide Ibaraki

Polyhedral Structure of Submodular and Posi-modular Systems .............. 169
Hiroshi Nagamochi, Toshihide Ibaraki

Maximizing the Number of Connections in Optical Tree Networks .......... 179
Thomas Erlebach, Klaus Jansen

Best Paper Presentation

Selecting the k Largest Elements with Parity Tests ............................ 189
Tak Wah Lam, Hing Fung Ting
Randomized Algorithm

**Randomized K-Dimensional Binary Search Trees** ................................................. 199
Amalia Duch, Vladimir Estivill-Castro, Conrado Martínez

**Randomized O(log log n)-Round Leader Election Protocols in Packet Radio Networks** ................................................................. 209
Koji Nakano, Stephan Olariu

**Random Regular Graphs with Edge Faults: Expansion through Cores** .................................................. 219
Andreas Goerdt

Complexity II

**A Quantum Polynomial Time Algorithm in Worst Case for Simon's Problem** 229
Takashi Mihara, Shao Chin Sung

**Generalized Graph Colorability and Compressibility of Boolean Formulae** ........................................ 237
Richard Nock, Pascal Jappy, Jean Sallantin

**On the Complexity of Free Monoid Morphisms** .................................................. 247
Klaus-Jörn Lange, Pierre McKenzie

Graph Algorithm II

**Characterization of Efficiently Solvable Problems on Distance-Hereditary Graphs** .............................................. 257
Sun-Yuan Hsieh, Chin-Wen Ho, Tsan-Sheng Hsu, Ming-Tat Ko, Gen-Huey Chen

**Fast Algorithms for Independent Domination and Efficient Domination in Trapezoid Graphs** ........................................ 267
Yaw-Ling Lin

**Finding Planar Geometric Automorphisms in Planar Graphs** ........................................... 277
Seok-Hee Hong, Peter Eades, Sang-Ho Lee

Combinatorial Problem

**A New Approach for Speeding Up Enumeration Algorithms** ........................................ 287
Takeaki Uno

**Hamiltonian Decomposition of Recursive Circulants** ........................................... 297
Jung-Heum Park

**Convertibility among Grid Filling Curves** ............................................................ 307
Tetsuo Asano, Naoki Katoh, Hisao Tamaki, Takeshi Tokuyama
Geometry II

*Generalized Self-Approaching Curves* ........................................... 317
Oswin Aichholzer, Franz Aurenhammer, Christian Icking, Rolf Klein,
Elmar Langetepe, Günter Rote

*The Steiner Tree Problem in $\lambda_4$-geometry Plane* .................... 327
Guo-Hui Lin, Guoliang Xue

Computational Biology

*Approximation and Exact Algorithms for RNA Secondary Structure*
*Prediction and Recognition of Stochastic Context-Free Languages* .......... 337
Tatsuya Akutsu

*On the Multiple Gene Duplication Problem* ..................................... 347
Michael Fellows, Michael Hallett, Ulrike Stege

Geometry III

*Visibility Queries in Simple Polygons and Applications* ...................... 357
Boris Aronov, Leonidas J. Guibas, Marek Teichmann, Li Zhang

*Quadtree Decomposition, Steiner Triangulation, and Ray Shooting* ........ 367
Siu-Wing Cheng, Kam-Hing Lee

*Optimality and Integer Programming Formulations of Triangulations in*
*General Dimension* ..................................................................... 377
Akira Tajima

Approximation Algorithm

*Space-Efficient Approximation Algorithms for MAXCUT and COLORING*
*Semidefinite Programs* ............................................................... 387
Philip N. Klein, Hsueh-I Lu

*A Capacitated Vehicle Routing Problem on a Tree* ............................ 397
Shin-ya Hamaguchi, Naoki Katoh

*Approximation Algorithms for Some Optimum Communication Spanning*
*Tree Problems* ........................................................................ 407
Bang Ye Wu, Kun-Mao Chao, Chuan Yi Tang
Complexity III

The Edge-Disjoint Paths Problem is NP-Complete for Partial k-Trees .... 417
Xiao Zhou, Takao Nishizeki

Inapproximability Results for Guarding Polygons without Holes ............. 427
Stephan Eidenbenz

The Inapproximability of Non NP-hard Optimization Problems ............ 437
Liming Cai, David Juedes, Iyad Kanj

Parallel and Distributed Algorithm

An Efficient NC Algorithm for a Sparse k-Edge-Connectivity Certificate .. 447
Hiroshi Nagamochi, Toru Hasunuma

A Parallel Algorithm for Sampling Matchings from an Almost Uniform
Distribution ................................................................. 457
J. Diaz, J. Petit, P. Psycharis, M. Serna

Optimal Approximate Agreement with Omission Faults .................. 467
Richard Plunkett, Alan Fekete

Author Index ................................................................. 477