

Manfred Nagl (Ed.)

# Graph-Theoretic Concepts in Computer Science

21st International Workshop, WG '95  
Aachen, Germany, June 20-22, 1995  
Proceedings



Springer

# Contents

|  |     |
|--|-----|
| VC-Dimensions for Graphs<br><i>E. Kranakis, D. Krizanc, B. Ruf, J. Urrutia, G. J. Woeginger</i>  | 1   |
| Finding and Counting Small Induced Subgraphs Efficiently<br><i>T. Kloks, D. Kratsch, H. Müller</i>   | 14  |
| On the Isomorphism of Graphs with Few $P_4$ s<br><i>L. Babel, S. Olariu</i>  | 24  |
| A Dynamic Algorithm for Line Graph Recognition<br><i>D.G. DeGiorgi, K. Simon</i>   | 37  |
| Incremental Hive Graph<br><i>F. d'Amore, R. Giaccio</i>  | 49  |
| Planarization of Graphs Embedded on Surfaces<br><i>H. N. Djidjev, S. M. Venkatesan</i>   | 62  |
| Complexity and Approximability of Certain<br>Bicriteria Location Problems<br><i>S. O. Krumke, H. Noltemeier, S. S. Ravi, M. V. Marathe</i> | 73  |
| On Termination of Graph Rewriting<br><i>D. Plump</i>   | 88  |
| A Uniform Approach to Graph Rewriting: The Pullback Approach<br><i>M. Bauderon</i>   | 101 |
| Visualizing Two- and Three-Dimensional Models<br>of Meristematic Growth<br><i>F. D. Fracchia</i>   | 116 |
| Graph-Theoretical Methods to Construct<br>Entity-Relationship Databases<br><i>S. Hartmann</i>  | 131 |

|   |     |
|---|-----|
| An Approximation Algorithm for 3-Colourability<br><i>I. Schiermeyer</i> .....   | 146 |
| The Malleability of $TSP_{2Opt}$<br><i>S. Fischer, L. Torenvliet</i> .....  | 152 |
| Non-Oblivious Local Search for Graph and Hypergraph<br>Coloring Problems<br><i>P. Alimonti</i> .....  | 167 |
| On Interval Routing Schemes and Treewidth<br><i>H. L. Bodlaender, R. B. Tan, D. M. Thilikos, J. van Leeuwen</i> .....                                 | 181 |
| Highly Fault-Tolerant Routings and Diameter Vulnerability<br>for Generalized Hypercube Graphs<br><i>K. Wada, T. Ikeo, K. Kawaguchi, W. Chen</i> ..... | 197 |
| Hot-Potato Routing on Multi-Dimensional Tori<br><i>F. Meyer auf der Heide, M. Westermann</i> .....  | 209 |
| On Devising Boolean Routing Schemes<br><i>M. Flammini, G. Gambosi, S. Salomone</i> .....  | 222 |
| Toward a General Theory of Unicast-Based<br>Multicast Communication<br><i>B. D. Birchler, A.-H. Esfahanian, E. Torng</i> .....                        | 237 |
| Optimal Cutwidths and Bisection Widths of<br>2- and 3-Dimensional Meshes<br><i>J. Rolim, O. Sykora, I. Vrt'o</i> .....                                | 252 |
| Searching for Faulty Leaves in Binary Trees<br><i>P. Damaschke</i> .....  | 265 |
| NC Algorithms for Partitioning Planar Graphs into Induced Forests<br>and Approximating NP-Hard Problems<br><i>Z.-Z. Chen, X. He</i> .....             | 275 |
| Efficient Parallel Modular Decomposition<br><i>E. Dahlhaus</i> .....  | 290 |

|  |     |
|--|-----|
| Modular Decomposition of Hypergraphs<br><i>P. Bonizzoni, G. Della Vedova</i>   | 303 |
| Partition Coefficients of Acyclic Graphs<br><i>J. L. Pfaltz</i>  | 318 |
| Sub-Cubic Cost Algorithms for the All Pairs Shortest Path Problem<br><i>T. Takaoka</i>                                 | 333 |
| Diametral Path Graphs<br><i>J. S. Deogun, D. Kratsch</i>   | 344 |
| Chordal Graphs and their Clique Graphs<br><i>P. Galinier, M. Habib, C. Paul</i>  | 358 |
| A Compact Data Structure and Parallel Algorithms<br>for Permutation Graphs<br><i>J. Gustedt, M. Morvan, L. Viennot</i> | 372 |
| Homogeneously Orderable Graphs and the Steiner Tree Problem<br><i>A. Brandstädt, F. F. Dragan, F. Nicolai</i>          | 381 |
| <b>List of Participants</b>  | 397 |
| <b>Authors' Index</b>  | 403 |
| <b>List of WG Proceedings</b>  | 405 |