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Preface

This volume contains the 70 contributed papers and abstracts of two invited lectures presented at the 12th Annual European Symposium on Algorithms (ESA 2004), held in Bergen, Norway, September 14–17, 2004. The papers in each section of the proceedings are arranged alphabetically. The three distinguished invited speakers were David Eppstein, Michael Fellows and Monika Henzinger.

As in the last two years, ESA had two tracks, with separate program committees, which dealt respectively with:

- the design and mathematical analysis of algorithms (the "Design and Analysis" track);
- real-world applications, engineering and experimental analysis of algorithms (the "Engineering and Applications" track).

Previous ESAs were held at Bad Honnef, Germany (1993); Utrecht, The Netherlands (1994); Corfu, Greece (1995); Barcelona, Spain (1996); Graz, Austria (1997); Venice, Italy (1998); Prague, Czech Republic (1999); Saarbrücken, Germany (2000); Århus, Denmark (2001); Rome, Italy (2002); and Budapest, Hungary (2003). The predecessor to the Engineering and Applications track of ESA was the annual Workshop on Algorithm Engineering (WAE). Previous WAEs were held in Venice, Italy (1997); Saarbrücken, Germany (1998); London, UK (1999); Saarbrücken, Germany (2000); and Århus, Denmark (2001).

The proceedings of the previous ESAs were published as Springer-Verlag's LNCS volumes 726, 855, 979, 1284, 1461, 1643, 1879, 2161, 2461, and 2832. The proceedings of the WAEs from 1999 onwards were published as Springer-Verlag's LNCS volumes 1668, 1982, and 2141.

Papers were solicited in all areas of algorithmic research, including but not limited to: computational biology, computational finance, computational geometry, databases and information retrieval, external-memory algorithms, graph and network algorithms, graph drawing, machine learning, network design, online algorithms, parallel and distributed computing, pattern matching and data compression, quantum computing, randomized algorithms, and symbolic computation. The algorithms could be sequential, distributed, or parallel. Submissions were strongly encouraged in the areas of mathematical programming and operations research, including: approximation algorithms, branch-and-cut algorithms, combinatorial optimization, integer programming, network optimization, polyhedral combinatorics, and semidefinite programming.

Each extended abstract was submitted to exactly one of the two tracks, and a few abstracts were switched from one track to the other at the discretion of the program chairs during the reviewing process. The extended abstracts were read by at least four referees each, and evaluated on their quality, originality, and relevance to the symposium. The program committees of both tracks met at King's College London at the end of May. The Design and Analysis track selected for presentation 52 out of 158 submitted abstracts. The Engineering and

Applications track selected for presentation 18 out of 50 submitted abstracts. The program committees of the two tracks consisted of:

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Paolo Ferragina	(University of Pisa)
Fedor Fomin	(University of Bergen)
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Klaus Jansen	(University of Kiel)
Ulrich Meyer	(MPI Saarbrücken)
Michael Mitzenmacher	(Harvard University)
Joseph (Seffi) Naor	(Technion, Haifa)
Micha Sharir	(Tel Aviv University)
Peter Widmayer	(ETH Zürich)
Gerhard Woeginger	(University of Twente and TU Eindhoven)

Engineering and Applications Track

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Christian Scheideler	(Johns Hopkins University)
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Michiel Smid	(Carleton University)

ESA 2004 was held along with the 4th Workshop on Algorithms in Bioinformatics (WABI 2004), the 4th Workshop on Algorithmic Methods and Models for Optimization of Railways (ATMOS 2004), the 2nd Workshop on Approximation and Online Algorithms (WAOA 2004), and an International Workshop on Parametrized and Exact Computation (IWPEC 2004) in the context of the combined conference ALGO 2004. The organizing committee of ALGO 2004 consisted of Pinar Heggernes (chair), Fedor Fomin (co-chair), Eivind Coward, Inge Jonassen, Fredrik Manne, and Jan Arne Telle, all from the University of Bergen.

ESA 2004 was sponsored by EATCS (the European Association for Theoretical Computer Science), the University of Bergen, the Research Council of

Norway, IBM, HP and SGI. The EATCS sponsorship included an award of EUR 500 for the authors of the best student paper at ESA 2004. The winners of the prize were Marcin Muca and Piotr Sandowski for their paper *Maximum Matching in Planar Graphs via Gaussian Elimination*.

Finally, we would like to thank the members of the program committees for their time and work devoted to the paper selection process.

July 2004

Susanne Albers and Tomasz Radzik
Program Chairs, ESA 2004

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