MATHEMATICS AND COMPUTER SCIENCE III – ALGORITHMS, TREES, COMBINATORICS AND PROBABILITIES, **MICHAEL DRMOTA, PHILIPPE FLAJOLET, DANIÈLE GARDY AND BERNHARD GITTENBERGER (EDITORS), TRENDS IN MATHEMATICS, BIRKHÄUSER VERLAG, BASEL-BOSTON-BERLIN 2004, XV + 555 PP, ISBN: 3-7643-7128-5**

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The book contains invited papers, contributed papers (lectures) and short communications (posters), which were presented at the International Colloquium of Mathematics and Computers Science held at the Vienna University of Technology, in September 13-17, 2004. This colloquium is the third one in a now regularly established series, following the first two venues in September 2000 and September 2002 in Versailles. Their Proceedings were published too with Birkhäuser Verlag in 2000 and 2002, respectively. These colloquia were acknowledged as a success by the two communities, mathematicians and computer scientists, as well as other people working in various areas of applied mathematics and engineering. They offer the opportunity to establish the state of the art and, at a same time, to present new results, new trends and new ideas in common areas.

The present volume addresses problems situated at the interface between mathematics and Computer Science, with special emphasis on discrete probabilistic models and their relation to algorithms. Combinatorial and probabilistic properties of random graphs, random trees, combinatorial stochastic processes (random walks, for instance) are also included. The major field of applications is the analysis of algorithms and data structures, but applications to statistical theory, information theory and mathematical logic are also considered.

The papers are grouped in seven parts: I. *Combinatorial and Random Structures* (8 papers dealing with partitions, iterated logarithm law for random permutation); II. *Graph Theory* (5 papers on perfect matching in random graphs, avalanche polynomials, spanning trees in graphs, etc); III. *Analysis of Algorithms* (7 papers on move-to-rule rule with random weights, probabilistic bin packing, universal data compression, etc); IV. *Trees* (9 papers on multidimensional interval trees, monotonically labelled trees, number of vertices in a Galton-Watson forest); V.

Probability (10 papers on geometrically distributed samples, semi-Markov walks, Yaglom type limit theorems, and others); VI. *Combinatorial Stochastic Processes* (6 papers on jumping particles, Euler orientations of planar graphs, random walks on groups); VII. *Applications* (9 papers dealing among others with zero-one law for first-order logic on random images, stochastic chemical kinetics, decidability of simple brick codes).

Bringing together contributions in these closely related areas — mathematics and computer science, the present volume and the previous two ones, serve as an outstanding tool of information for a large audience including researchers, teachers, graduate students and engineers interested in applied mathematics, discrete mathematics and computer science. The volume emphasizes the interplay between mathematics and computer science, and the key roles each of them plays in the development of the other one.Also the range of applications is very wide and reaches beyond computer science.

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