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Preface

The 31st International Colloquium on Automata, Languages, and Programming (ICALP 2004) was held from July 12 to July 16 in Turku, Finland. This volume contains all contributed papers presented at ICALP 2004, together with the invited lectures by Philippe Flajolet (INRIA), Robert Harper (Carnegie Mellon), Monika Henzinger (Google), Martin Hofmann (Munich), Alexander Razborov (Princeton and Moscow), Wojciech Rytter (Warsaw and NJIT), and Mihalis Yannakakis (Stanford).

ICALP is a series of annual conferences of the European Association for Theoretical Computer Science (EATCS). The first ICALP took place in 1972 and the ICALP program currently consists of track A (focusing on algorithms, automata, complexity, and cryptography) and track B (focusing on databases, logics, semantics, and principles of programming).

In response to the call for papers, the program committee received 379 papers, 272 for track A and 107 for track B. This is the highest number of submitted papers in the history of ICALP conferences. The program committees selected 97 papers for inclusion into the scientific program. The program committee for track A met on March 27 and 28 in Barcelona and selected 69 papers from track A. The program committee for track B selected 28 papers from track B in the course of an electronic discussion lasting for two weeks in the second half of March.

The selections were based on originality, quality, and relevance to theoretical computer science. We wish to thank all authors who submitted extended abstracts for consideration, the program committee for its hard work, and all referees who assisted the program committee in the evaluation process.

The EATCS best paper award for track A was given to the paper "Quantum Query Complexity of Some Graph Problems" by Christoph Dürr, Mark Heiligman, Peter Høyer, and Mehdi Mhalla, and the award for track B was given to the paper "Tree-Walking Automata Cannot Be Determinized" by Mikolaj Bojanczyk and Thomas Colcombet. Ryan Williams received the best student paper award for track A for his contribution "A New Algorithm for Optimal Constraint Satisfaction and Its Implications", and the best student paper award for track B was given to Olivier Serre for his paper "Games with Winning Conditions of High Borel Complexity".

ICALP 2004 was held in conjunction with the 19th Annual IEEE Symposium on Logic in Computer Science (LICS 2004). ICALP 2004 was also notable as, for the first time, ICALP returned to the same town: Turku also hosted ICALP 1977. The ICALP 2004 webpages can be found at <http://www.math.utu.fi/icalp04/>.

During ICALP 2004 the following special events also took place: A colloquium in honor of Academician Arto Salomaa on the occasion of his 70th birthday was organized on July 11, and the EATCS award was given to Arto Salomaa. The following workshops were held as satellite events of ICALP 2004 and LICS 2004

with Mika Hirvensalo as the coordinator: 1st International Workshop on Algorithmic Aspects of Wireless Sensor Networks (ALGOSENSORS), Workshop on Discrete Models for Complex Systems (DMCS), Workshop on Foundations of Computer Security (FCS), Workshop on Intersection Types and Related Systems (ITRS), 6th International Workshop on Logic and Computational Complexity (LCC), Workshop on Logics for Resources, Processes, and Programs (LRPP), Workshop on Logic and Systems Biology (LSB), 2nd International Workshop on Quantum Programming Languages (QPL), Workshop on Word Avoidability, Complexity and Morphisms (WACAM), Workshop on Logical Foundations of an Adaptive Security Infrastructure (WOLFASI), and Workshop on Synchronizing Automata (WSA).

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