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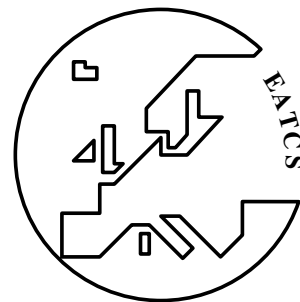
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## ■ Preface

ICALP 2016, the 43rd edition of the International Colloquium on Automata, Languages and Programming, was held in Rome, Italy during July 12–15, 2016. ICALP is a series of annual conferences of the European Association for Theoretical Computer Science (EATCS), which first took place in 1972. This year, the ICALP program consisted of the established track A (focusing on algorithms, automata, complexity, and games) and track B (focusing on logic, semantics, and theory of programming), and of the recently introduced track C (focusing on foundations of networking). In response to the call for papers, the Program Committee received 515 submissions, the highest ever: 319 for track A, 121 for track B, and 75 for track C. Out of these, 146 papers were selected for inclusion in the scientific program: 89 papers for Track A, 36 for Track B, and 21 for Track C. The selection was made by the Program Committees based on originality, quality, and relevance to theoretical computer science. The quality of the manuscripts was very high indeed, and many deserving papers could not be selected.

The EATCS sponsored awards for both a best paper and a best student paper for each of the three tracks, selected by the Program Committees. The best paper awards were given to the following papers:

- Track A: Andreas Galanis, Andreas Göbel, Leslie Ann Goldberg, John Lapinskas and David Richerby. “Amplifiers for the Moran Process”.
- Track A: Neeraj Kayal, Chandan Saha and Sébastien Tavenas. “An almost Cubic Lower Bound for Depth Three Arithmetic Circuits”.
- Track B: Olivier Bournez, Daniel Graça and Amaury Pouly. “Polynomial Time corresponds to Solutions of Polynomial Ordinary Differential Equations of Polynomial Length”.

The best student paper awards, for papers that are solely authored by students, were given to the following papers:

- Track A: Samuel Hetterich. “Analysing Survey Propagation Guided Decimation on Random Formulas”.
- Track C: Keerti Choudhary. “An Optimal Dual Fault Tolerant Reachability Oracle”.

Apart from the contributed talks, ICALP 2016 included invited presentations by Devavrat Shah, Xavier Leroy, Subhash Khot and Marta Z. Kwiatkowska. Abstracts of their talks are included in these proceedings as well. The program of ICALP 2016 also included presentation of the EATCS Award 2016 to Dexter Kozen, the Gödel Prize 2016 to Steve Brookes and Peter O’Hearn, and the Presburger Award 2016 to Mark Braverman.

This volume of the proceedings contains all contributed papers presented at the conference together with the papers and abstracts of the invited speakers.

We wish to thank all authors who submitted extended abstracts for consideration, the Program Committees for their scholarly effort, and all referees who assisted the Program Committees in the evaluation process. We thank the sponsors (Microsoft; Microsoft Research; AICA, Facebook; Department of Informatics, Sapienza University of Rome; and Austrian) for their support. We are also grateful to Tiziana Calamoneri, Irene Finocchi, Nicola Galesi and Daniele Gorla for organizing ICALP 2016 and all the support staff of the Organizing Committee.

Thanks to Andrei Voronkov for writing the conference management system EasyChair, which was used in handling the submissions and the electronic Program Committee meeting,



as well as in assisting in the assembly of the proceedings. Last but not least, we would like to thank Luca Aceto, the president of EATCS, for his generous advice on the organization of the conference and Efi Chita and the secretary office of EATCS for their support in the preparation of the proceedings.

July 2016

Ioannis Chatzigiannakis  
Michael Mitzenmacher  
Yuval Rabani  
Davide Sangiorgi



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