49th EATCS International Conference on Automata, Languages, and Programming

ICALP 2022, July 4–8, 2022, Paris, France

Edited by

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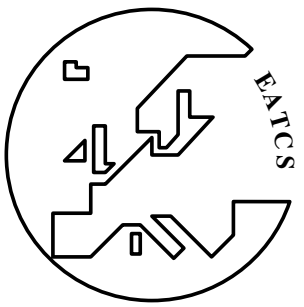

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Track B: Automata, Logic, Semantics, and Theory of Programming

Preface

This volume contains the papers presented at the *49th EATCS International Conference on Automata, Languages and Programming (**ICALP 2022**)*, held *hybrid* in Paris France, during July 4–8, 2022. 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 two tracks:

- Track A: Algorithms, Complexity, and Games
- Track B: Automata, Logic, Semantics, and Theory of Programming

In response to the call for papers, a total of 433 submissions were received: 350 for Track A and 83 for Track B. Each submission was assigned to at least three program committee members, aided by 641 external subreviewers or experts providing a quick opinion. The committees decided to accept 127 papers for inclusion in the scientific program: 103 papers for Track A and 24 for Track B. 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 in each of the two tracks, selected by the program committees.

The **best paper awards** were given to the following papers:

Track A: Ian Newman and Nithin Varma. *Strongly Sublinear Algorithms for Testing Pattern Freeness.*

Track B: Jakub Gajarský, Michał Pilipczuk, Wojciech Przybyszewski and Szymon Toruńczyk. *Twin-width and types.*

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

Track A: Joakim Blikstad. *Sublinear-round Parallel Matroid Intersection*, and Jakub Tětek. *Approximate Triangle Counting via Sampling and Fast Matrix Multiplication.*

Track B: Gaëtan Douéneau-Tabot. *Hiding pebbles when the output alphabet is unary.*

Apart from the contributed talks, ICALP 2022 included invited presentations by Leslie Ann Goldberg (Professor of Computer Science at the University of Oxford), Madhu Sudan (Gordon MacKay Professor of Computer Science at Harvard University), Albert Atserias (Professor at the Universitat Politècnica de Catalunya), Constantinos Daskalakis (Professor in MIT's Electrical Engineering and Computer Science Department), Stéphan Thomassé (Professor at the Computer Science Department at Ecole Normale Supérieure de Lyon), Santosh Vempala (Frederick Storey Chair in Computing and Professor at Georgia Tech).

This volume contains all the contributed papers presented at the conference, and an abstract or paper accompanying each of the invited talks by Albert Atserias, Constantinos Daskalakis, Leslie Ann Goldberg, Madhu Sudan, Stéphan Thomassé, and Santosh Vempala.

The program of ICALP 2022 also included presentations of the EATCS Award 2022 to Patrick Cousot, the Alonzo Church Award 2022 to Dexter Kozen, the Presburger Award 2022 to Dor Minzer, the EATCS Distinguished Dissertation Awards 2022 to Alexandros Hollender, Jason Li and Jan van den Brand, as well as the announcement of new EATCS Fellows Samson Abramsky and Orna Kupferman.

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The following workshops were held as satellite events of ICALP 2022 on July 4, 2022:

- Parameterized Approximation Algorithms (PAAW)
- Combinatorial Reconfiguration
- Recent Advances on Total Search Problems
- LearnAut: 4th edition of the Learning and Automata
- Algorithmic Aspects of Temporal Graphs V
- Trends in Arithmetic Theories
- Structure Meets Power 2022
- Straight-Line Programs, Word Equations and their Interplay
- Graph Width Parameters: from Structure to Algorithms (GWP 2022)

We wish to thank all authors who submitted extended abstracts for consideration, the program committees for their scholarly effort, and all the referees who assisted the program committees in the evaluation process.

We are also grateful to the Conference General Chair, Thomas Colcombet, and his colleagues from the Research Institute on the Foundations of Computer Science, Université Paris Cité, and Fondation Sciences Mathématiques de Paris, for organizing ICALP 2022, and to CNRS, Inria, and Nomadic Lab. for sponsorships.

We would like to thank Anca Muscholl, the Chair of the ICALP Steering Committee, for her continuous support and Artur Czumaj, the president of EATCS, for his generous advice on the organization of the conference.

July 2022

Mikołaj Bojańczyk
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