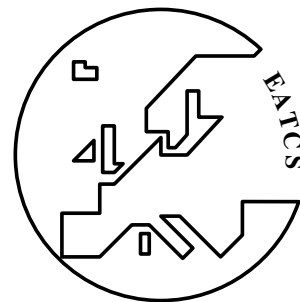


# 49th EATCS International Conference on Automata, Languages, and Programming

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Edited by

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## ■ Contents

Preface	
<i>Mikołaj Bojańczyk, Emanuela Merelli, and David P. Woodruff</i> .....	0:xv
Organization	
.....	0:xvii
Authors	
.....	0:xxv

### Invited Talks

Towards a Theory of Algorithmic Proof Complexity	
<i>Albert Atserias</i> .....	1:1–1:2
Equilibrium Computation, Deep Learning, and Multi-Agent Reinforcement Learning	
<i>Constantinos Daskalakis</i> .....	2:1–2:1
Some New (And Old) Results on Contention Resolution	
<i>Leslie Ann Goldberg</i> .....	3:1–3:3
The Manifold Joys of Sampling	
<i>Yin Tat Lee and Santosh S. Vempala</i> .....	4:1–4:20
Streaming and Sketching Complexity of CSPs: A Survey	
<i>Madhu Sudan</i> .....	5:1–5:20
A Brief Tour in Twin-Width	
<i>Stéphan Thomassé</i> .....	6:1–6:5

### Track A: Algorithms, Complexity and Games

Improved Approximation Algorithms and Lower Bounds for Search-Diversification Problems	
<i>Amir Abboud, Vincent Cohen-Addad, Euiwoong Lee, and Pasin Manurangsi</i> .....	7:1–7:18
Round-Optimal Lattice-Based Threshold Signatures, Revisited	
<i>Shweta Agrawal, Damien Stehlé, and Anshu Yadav</i> .....	8:1–8:20
Parameterized Sensitivity Oracles and Dynamic Algorithms Using Exterior Algebras	
<i>Josh Alman and Dean Hirsch</i> .....	9:1–9:19
Low-Degree Polynomials Extract From Local Sources	
<i>Omar Alrabiah, Eshan Chattopadhyay, Jesse Goodman, Xin Li, and João Ribeiro</i> .....	10:1–10:20
Decremental Matching in General Graphs	
<i>Sepehr Assadi, Aaron Bernstein, and Aditi Dudeja</i> .....	11:1–11:19



Near-Optimal Algorithms for Stochastic Online Bin Packing <i>Nikhil Ayyadevara, Rajni Dabas, Arindam Khan, and K. V. N. Sreenivas</i> .....	12:1–12:20
Competitive Vertex Recoloring <i>Yossi Azar, Chay Machluf, Boaz Patt-Shamir, and Noam Touitou</i> .....	13:1–13:20
Smoothed Analysis of the Komlós Conjecture <i>Nikhil Bansal, Haotian Jiang, Raghu Meka, Sahil Singla, and Makrand Sinha</i> ....	14:1–14:12
Minimum+1 (s,t)-cuts and Dual Edge Sensitivity Oracle <i>Surender Baswana, Koustav Bhanja, and Abhyuday Pandey</i> .....	15:1–15:20
Counting and Enumerating Optimum Cut Sets for Hypergraph $k$ -Partitioning Problems for Fixed $k$ <i>Calvin Beideman, Karthekeyan Chandrasekaran, and Weihang Wang</i> .....	16:1–16:18
Finding Monotone Patterns in Sublinear Time, Adaptively <i>Omri Ben-Eliezer, Shoham Letzter, and Erik Waingarten</i> .....	17:1–17:19
Deciding Twin-Width at Most 4 Is NP-Complete <i>Pierre Bergé, Édouard Bonnet, and Hugues Déprés</i> .....	18:1–18:20
Memoryless Worker-Task Assignment with Polylogarithmic Switching Cost <i>Aaron Berger, William Kuszmaul, Adam Polak, Jonathan Tidor, and Nicole Wein</i> .....	19:1–19:19
Fully-Dynamic Graph Sparsifiers Against an Adaptive Adversary <i>Aaron Bernstein, Jan van den Brand, Maximilian Probst Gutenberg, Danupon Nanongkai, Thatchaphol Saranurak, Aaron Sidford, and He Sun</i> .....	20:1–20:20
Fast Sampling via Spectral Independence Beyond Bounded-Degree Graphs <i>Ivona Bezáková, Andreas Galanis, Leslie Ann Goldberg, and Daniel Štefankovič</i> ..	21:1–21:16
Deterministic Sensitivity Oracles for Diameter, Eccentricities and All Pairs Distances <i>Davide Bilò, Keerti Choudhary, Sarel Cohen, Tobias Friedrich, and Martin Schirneck</i> .....	22:1–22:19
Hodge Decomposition and General Laplacian Solvers for Embedded Simplicial Complexes <i>Mitchell Black and Amir Nayyeri</i> .....	23:1–23:17
Reconstructing Decision Trees <i>Guy Blanc, Jane Lange, and Li-Yang Tan</i> .....	24:1–24:17
Sublinear-Round Parallel Matroid Intersection <i>Joakim Blikstad</i> .....	25:1–25:17
Privately Estimating Graph Parameters in Sublinear Time <i>Jeremiah Blocki, Elena Grigorescu, and Tamalika Mukherjee</i> .....	26:1–26:19
The Complexity of Finding Fair Many-To-One Matchings <i>Niclas Boehmer and Tomohiro Koana</i> .....	27:1–27:18
Factoring and Pairings Are Not Necessary for IO: Circular-Secure LWE Suffices <i>Zvika Brakerski, Nico Döttling, Sanjam Garg, and Giulio Malavolta</i> .....	28:1–28:20

Characterization of Matrices with Bounded Graver Bases and Depth Parameters and Applications to Integer Programming <i>Marcin Briański, Martin Koutecký, Daniel Král', Kristýna Pekárková, and Felix Schröder</i> .....	29:1–29:20
A Structural Investigation of the Approximability of Polynomial-Time Problems <i>Karl Bringmann, Alejandro Cassis, Nick Fischer, and Marvin Künnemann</i> .....	30:1–30:20
Faster Knapsack Algorithms via Bounded Monotone Min-Plus-Convolution <i>Karl Bringmann and Alejandro Cassis</i> .....	31:1–31:21
Improved Sublinear-Time Edit Distance for Preprocessed Strings <i>Karl Bringmann, Alejandro Cassis, Nick Fischer, and Vasileios Nakos</i> .....	32:1–32:20
Polynomial Delay Algorithm for Minimal Chordal Completions <i>Caroline Brosse, Vincent Limouzy, and Arnaud Mary</i> .....	33:1–33:16
Unique Assembly Verification in Two-Handed Self-Assembly <i>David Caballero, Timothy Gomez, Robert Schweller, and Tim Wylie</i> .....	34:1–34:21
Pairwise Reachability Oracles and Preservers Under Failures <i>Diptarka Chakraborty, Kushagra Chatterjee, and Keerti Choudhary</i> .....	35:1–35:16
Separations Between Combinatorial Measures for Transitive Functions <i>Sourav Chakraborty, Chandrima Kayal, and Manaswi Paraashar</i> .....	36:1–36:20
Approximating $k$ -Edge-Connected Spanning Subgraphs via a Near-Linear Time LP Solver <i>Parinya Chalermsook, Chien-Chung Huang, Danupon Nanongkai, Thatchaphol Saranurak, Pattara Sukprasert, and Sorrachai Yingchareonthawornchai</i> .....	37:1–37:20
Polylogarithmic Sketches for Clustering <i>Moses Charikar and Erik Waingarten</i> .....	38:1–38:20
Approximation Algorithms for Interdiction Problem with Packing Constraints <i>Lin Chen, Xiaoyu Wu, and Guochuan Zhang</i> .....	39:1–39:19
Online Weighted Cardinality Joint Replenishment Problem with Delay <i>Ryder Chen, Jahanvi Khatkar, and Seeun William Umboh</i> .....	40:1–40:18
Limitations of Local Quantum Algorithms on Random MAX- $k$ -XOR and Beyond <i>Chi-Ning Chou, Peter J. Love, Juspreet Singh Sandhu, and Jonathan Shi</i> .....	41:1–41:20
Fully-Dynamic $\alpha + 2$ Arboricity Decompositions and Implicit Colouring <i>Aleksander B. G. Christiansen and Eva Rotenberg</i> .....	42:1–42:20
Expander Random Walks: The General Case and Limitations <i>Gil Cohen, Dor Minzer, Shir Peleg, Aaron Potechin, and Amnon Ta-Shma</i> .....	43:1–43:18
LCC and LDC: Tailor-Made Distance Amplification and a Refined Separation <i>Gil Cohen and Tal Yankovitz</i> .....	44:1–44:20
Metastability of the Potts Ferromagnet on Random Regular Graphs <i>Amin Coja-Oghlan, Andreas Galanis, Leslie Ann Goldberg, Jean Bernoulli Ravelomanana, Daniel Štefankovič, and Eric Vigoda</i> .....	45:1–45:20

On Computing the $k$ -Shortcut Fréchet Distance <i>Jacobus Conradi and Anne Driemel</i> .....	46:1–46:20
Streaming Algorithms for Geometric Steiner Forest <i>Artur Czumaj, Shaofeng H.-C. Jiang, Robert Krauthgamer, and Pavel Veselý</i> .....	47:1–47:20
Improved Reconstruction of Random Geometric Graphs <i>Varsha Dani, Josep Díaz, Thomas P. Hayes, and Christopher Moore</i> .....	48:1–48:17
Improved Approximation Algorithms for Dyck Edit Distance and RNA Folding <i>Debarati Das, Tomasz Kociumaka, and Barna Saha</i> .....	49:1–49:20
New Additive Approximations for Shortest Paths and Cycles <i>Mingyang Deng, Yael Kirkpatrick, Victor Rong, Virginia Vassilevska Williams, and Ziqian Zhong</i> .....	50:1–50:10
One-Pass Additive-Error Subset Selection for $\ell_p$ Subspace Approximation <i>Amit Deshpande and Rameshwar Pratap</i> .....	51:1–51:14
Set Membership with Two Classical and Quantum Bit Probes <i>Shyam S. Dhamapurkar, Shubham Vivek Pawar, and Jaikumar Radhakrishnan</i> ...	52:1–52:19
Hardness Results for Laplacians of Simplicial Complexes via Sparse-Linear Equation Complete Gadgets <i>Ming Ding, Rasmus Kyng, Maximilian Probst Gutenberg, and Peng Zhang</i> .....	53:1–53:19
Two-Commodity Flow Is Equivalent to Linear Programming Under Nearly-Linear Time Reductions <i>Ming Ding, Rasmus Kyng, and Peng Zhang</i> .....	54:1–54:19
High-Probability List-Recovery, and Applications to Heavy Hitters <i>Dean Doron and Mary Wootters</i> .....	55:1–55:17
Almost Optimal Bounds for Sublinear-Time Sampling of $k$ -Cliques in Bounded Arboricity Graphs <i>Talya Eden, Dana Ron, and Will Rosenbaum</i> .....	56:1–56:19
On Sampling Symmetric Gibbs Distributions on Sparse Random Graphs and Hypergraphs <i>Charilaos Efthymiou</i> .....	57:1–57:16
Testability and Local Certification of Monotone Properties in Minor-Closed Classes <i>Louis Esperet and Sergey Norin</i> .....	58:1–58:15
Streaming Submodular Maximization Under Matroid Constraints <i>Moran Feldman, Paul Liu, Ashkan Norouzi-Fard, Ola Svensson, and Rico Zenklusen</i> .....	59:1–59:20
(Re)packing Equal Disks into Rectangle <i>Fedor V. Fomin, Petr A. Golovach, Tanmay Inamdar, and Meirav Zehavi</i> .....	60:1–60:17
Faster Cut Sparsification of Weighted Graphs <i>Sebastian Forster and Tijn de Vos</i> .....	61:1–61:19
Social Distancing Network Creation <i>Tobias Friedrich, Hans Gawendowicz, Pascal Lenzner, and Anna Melnichenko</i> ....	62:1–62:21



Approximating Observables Is as Hard as Counting <i>Andreas Galanis, Daniel Štefankovič, and Eric Vigoda</i> .....	63:1–63:18
The Decision Problem for Perfect Matchings in Dense Hypergraphs <i>Luyining Gan and Jie Han</i> .....	64:1–64:16
Fully Functional Parameterized Suffix Trees in Compact Space <i>Arnab Ganguly, Rahul Shah, and Sharma V. Thankachan</i> .....	65:1–65:18
The Fine-Grained Complexity of Graph Homomorphism Parameterized by Clique-Width <i>Robert Ganian, Thekla Hamm, Viktoriia Korchemna, Karolina Okrasa, and Kirill Simonov</i> .....	66:1–66:20
Sublinear Dynamic Interval Scheduling (On One or Multiple Machines) <i>Pawel Gawrychowski and Karol Pokorski</i> .....	67:1–67:19
Galloping in Fast-Growth Natural Merge Sorts <i>Elahe Ghasemi, Vincent Jugé, and Ghazal Khalighinejad</i> .....	68:1–68:19
Tolerant Bipartiteness Testing in Dense Graphs <i>Arijit Ghosh, Gopinath Mishra, Rahul Raychaudhury, and Sayantan Sen</i> .....	69:1–69:19
Homomorphism Tensors and Linear Equations <i>Martin Grohe, Gaurav Rattan, and Tim Seppelt</i> .....	70:1–70:20
Downsampling for Testing and Learning in Product Distributions <i>Nathaniel Harms and Yuichi Yoshida</i> .....	71:1–71:19
A Fixed-Parameter Algorithm for the Kneser Problem <i>Ishay Haviv</i> .....	72:1–72:18
Delegation for Search Problems <i>Justin Holmgren, Andrea Lincoln, and Ron D. Rothblum</i> .....	73:1–73:18
Understanding the Moments of Tabulation Hashing via Chaoses <i>Jakob Bæk Tejs Houen and Mikkel Thorup</i> .....	74:1–74:19
In-Range Farthest Point Queries and Related Problem in High Dimensions <i>Ziyun Huang and Jinhui Xu</i> .....	75:1–75:21
Strong Approximations and Irrationality in Financial Networks with Derivatives <i>Stavros D. Ioannidis, Bart de Keijzer, and Carmine Ventre</i> .....	76:1–76:18
Regularized Box-Simplex Games and Dynamic Incremental Bipartite Matching <i>Arun Jambulapati, Yujia Jin, Aaron Sidford, and Kevin Tian</i> .....	77:1–77:20
A PTAS for Packing Hypercubes into a Knapsack <i>Klaus Jansen, Arindam Khan, Marvin Lira, and K. V. N. Sreenivas</i> .....	78:1–78:20
A Faster Interior-Point Method for Sum-Of-Squares Optimization <i>Shunhua Jiang, Bento Natura, and Omri Weinstein</i> .....	79:1–79:20
Tight Approximation Algorithms for Two-Dimensional Guillotine Strip Packing <i>Arindam Khan, Aditya Lonkar, Arnab Maiti, Amatya Sharma, and Andreas Wiese</i> .....	80:1–80:20

A Study of Weisfeiler–Leman Colorings on Planar Graphs <i>Sandra Kiefer and Daniel Neuen</i> .....	81:1–81:20
Beating Matrix Multiplication for $n^{1/3}$ -Directed Shortcuts <i>Shimon Kogan and Merav Parter</i> .....	82:1–82:20
Monotone Arithmetic Complexity of Graph Homomorphism Polynomials <i>Balagopal Komarath, Anurag Pandey, and Chengot Sankaramenon Rahul</i> .....	83:1–83:20
Exact Recovery Algorithm for Planted Bipartite Graph in Semi-Random Graphs <i>Akash Kumar, Anand Louis, and Rameesh Paul</i> .....	84:1–84:20
Optimal Time-Backlog Tradeoffs for the Variable-Processor Cup Game <i>William Kuszmaul and Shyam Narayanan</i> .....	85:1–85:20
Near-Optimal Decremental Hopsets with Applications <i>Jakub Łącki and Yasamin Nazari</i> .....	86:1–86:20
Tight Vector Bin Packing with Few Small Items via Fast Exact Matching in Multigraphs <i>Alexandra Lassota, Aleksander Łukasiewicz, and Adam Polak</i> .....	87:1–87:15
Parameterized Complexity of Untangling Knots <i>Clément Legrand-Duchesne, Ashutosh Rai, and Martin Tancer</i> .....	88:1–88:17
Almost Tight Approximation Hardness for Single-Source Directed $k$ -Edge-Connectivity <i>Chao Liao, Qingyun Chen, Bundit Laekhanukit, and Yuhao Zhang</i> .....	89:1–89:17
On Lower Bounds of Approximating Parameterized $k$ -Clique <i>Bingkai Lin, Xuandi Ren, Yican Sun, and Xiuhan Wang</i> .....	90:1–90:18
Backdoor Sets on Nowhere Dense SAT <i>Daniel Lokshantov, Fahad Panolan, and M. S. Ramanujan</i> .....	91:1–91:20
Optimal Coding Theorems in Time-Bounded Kolmogorov Complexity <i>Zhenjian Lu, Igor C. Oliveira, and Marius Zimand</i> .....	92:1–92:14
Max Weight Independent Set in Graphs with No Long Claws: An Analog of the Gyárfás’ Path Argument <i>Konrad Majewski, Tomáš Masařík, Jana Novotná, Karolína Okrasa, Marcin Pilipczuk, Paweł Rzżewski, and Marek Sokółowski</i> .....	93:1–93:19
Listing, Verifying and Counting Lowest Common Ancestors in DAGs: Algorithms and Fine-Grained Lower Bounds <i>Surya Mathialagan, Virginia Vassilevska Williams, and Yinzhan Xu</i> .....	94:1–94:20
A PTAS for Capacitated Vehicle Routing on Trees <i>Claire Mathieu and Hang Zhou</i> .....	95:1–95:20
Graph Reconstruction from Random Subgraphs <i>Andrew McGregor and Rik Sengupta</i> .....	96:1–96:18
The SDP Value of Random 2CSPs <i>Amulya Musipatla, Ryan O’Donnell, Tselil Schramm, and Xinyu Wu</i> .....	97:1–97:19

Strongly Sublinear Algorithms for Testing Pattern Freeness <i>Ilan Newman and Nithin Varma</i> .....	98:1–98:20
An Optimal-Time RLBWT Construction in BWT-Runs Bounded Space <i>Takaaki Nishimoto, Shunsuke Kanda, and Yasuo Tabei</i> .....	99:1–99:20
Space Characterizations of Complexity Measures and Size-Space Trade-Offs in Propositional Proof Systems <i>Theodoros Papamakarios and Alexander Razborov</i> .....	100:1–100:20
Learning Algorithms Versus Automatability of Frege Systems <i>Ján Pich and Rahul Santhanam</i> .....	101:1–101:20
Algorithms and Data Structures for First-Order Logic with Connectivity Under Vertex Failures <i>Michał Pilipczuk, Nicole Schirrmacher, Sebastian Siebertz, Szymon Toruńczyk, and Alexandre Vigny</i> .....	102:1–102:18
A Perfect Sampler for Hypergraph Independent Sets <i>Guoliang Qiu, Yanheng Wang, and Chihao Zhang</i> .....	103:1–103:16
Threshold Rates of Code Ensembles: Linear Is Best <i>Nicolas Resch and Chen Yuan</i> .....	104:1–104:19
Explicit and Efficient Construction of Nearly Optimal Rate Codes for the Binary Deletion Channel and the Poisson Repeat Channel <i>Ittai Rubinfeld</i> .....	105:1–105:17
Maximizing Non-Monotone Submodular Functions over Small Subsets: Beyond 1/2-Approximation <i>Aviad Rubinfeld and Junyao Zhao</i> .....	106:1–106:17
Approximate Triangle Counting via Sampling and Fast Matrix Multiplication <i>Jakub Tětek</i> .....	107:1–107:20
Polynomial-Time Approximation of Zero-Free Partition Functions <i>Penghui Yao, Yitong Yin, and Xinyuan Zhang</i> .....	108:1–108:20
Faster Cut-Equivalent Trees in Simple Graphs <i>Tianyi Zhang</i> .....	109:1–109:18

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

Universal Complexity Bounds Based on Value Iteration and Application to Entropy Games <i>Xavier Allamigeon, Stéphane Gaubert, Ricardo D. Katz, and Mateusz Skomra</i> ....	110:1–110:20
Computability of Finite Simplicial Complexes <i>Djamel Eddine Amir and Mathieu Hoyrup</i> .....	111:1–111:16
Unboundedness for Recursion Schemes: A Simpler Type System <i>David Barozzini, Paweł Parys, and Jan Wróblewski</i> .....	112:1–112:19
Parameterized Safety Verification of Round-Based Shared-Memory Systems <i>Nathalie Bertrand, Nicolas Markey, Ocan Sankur, and Nicolas Waldburger</i> .....	113:1–113:20

Passive Learning of Deterministic Büchi Automata by Combinations of DFAs <i>León Bohn and Christof Löding</i> .....	114:1–114:20
Strategy Synthesis for Global Window PCTL <i>Benjamin Bordaïs, Damien Busatto-Gaston, Shibashis Guha, and Jean-François Raskin</i> .....	115:1–115:20
The Complexity of SPEs in Mean-Payoff Games <i>Léonard Brice, Jean-François Raskin, and Marie van den Bogaard</i> .....	116:1–116:20
On the Size of Good-For-Games Rabin Automata and Its Link with the Memory in Muller Games <i>Antonio Casares, Thomas Colcombet, and Karoliina Lehtinen</i> .....	117:1–117:20
Dynamic Meta-Theorems for Distance and Matching <i>Samir Datta, Chetan Gupta, Rahul Jain, Anish Mukherjee, Vimal Raj Sharma, and Raghunath Tewari</i> .....	118:1–118:20
Circuit Extraction for ZX-Diagrams Can Be #P-Hard <i>Niel de Beaudrap, Aleks Kissinger, and John van de Wetering</i> .....	119:1–119:19
Hiding Pebbles When the Output Alphabet Is Unary <i>Gaëtan Douéneau-Tabot</i> .....	120:1–120:17
Regular Expressions for Tree-Width 2 Graphs <i>Amina Doumane</i> .....	121:1–121:20
A Generic Solution to Register-Bounded Synthesis with an Application to Discrete Orders <i>Léo Exibard, Emmanuel Filiot, and Ayrat Khalimov</i> .....	122:1–122:19
Twin-Width and Types <i>Jakub Gajarský, Michał Pilipczuk, Wojciech Przybyszewski, and Szymon Toruńczyk</i> .....	123:1–123:21
Reachability in Bidirected Pushdown VASS <i>Moses Ganardi, Rupak Majumdar, Andreas Pavlogiannis, Lia Schütze, and Georg Zetsche</i> .....	124:1–124:20
Distributed Controller Synthesis for Deadlock Avoidance <i>Hugo Gimbert, Corto Mascle, Anca Muscholl, and Igor Walukiewicz</i> .....	125:1–125:20
Lower Bounds for Unambiguous Automata via Communication Complexity <i>Mika Göös, Stefan Kiefer, and Weiqiang Yuan</i> .....	126:1–126:13
Satisfiability Problems for Finite Groups <i>Paweł M. Idziak, Piotr Kawalek, Jacek Krzaczkowski, and Armin Weiß</i> .....	127:1–127:20
Linearly Ordered Colourings of Hypergraphs <i>Tamio-Vesa Nakajima and Stanislav Živný</i> .....	128:1–128:18
The Variance-Penalized Stochastic Shortest Path Problem <i>Jakob Piribauer, Ocan Sankur, and Christel Baier</i> .....	129:1–129:19
Functions and References in the Pi-Calculus: Full Abstraction and Proof Techniques <i>Enguerrand Prebet</i> .....	130:1–130:19

What Can Oracles Teach Us About the Ultimate Fate of Life?  
*Ville Salo and Ilkka Törmä* ..... 131:1–131:0

Processes Parametrised by an Algebraic Theory  
*Todd Schmid, Wojciech Rozowski, Alexandra Silva, and Jurriaan Rot* .....132:1–132:20

The Dimension Spectrum Conjecture for Planar Lines  
*D. M. Stull* .....133:1–133:20



## ■ 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.



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.

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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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