

# Tuesday July 5, morning

## Tuesday 8h30–9h30, Invited speaker 1

8h30	Amphitheatre 1A
	Santosh Vempala
	The Manifold Joys of Sampling in High Dimension

## Tuesday 10h00–12h05, Paper session 1

	Amphitheatre 1A Graph algorithms	Amphitheatre 4C Games and verification	Amphitheatre 9E Sketching and streaming	Amphitheatre 10E Coding theory
10h00	S. Forster, and T. d. Vos Faster Cut Sparsification of Weighted Graphs	L. Brice, J.-F. Raskin, and M. V. D. Bogaard The complexity of SPEs in Mean-payoff Games	A. Rubinfeld, and J. Zhao Maximizing Non-Monotone Submodular Functions over Small Subsets: Beyond 1/2-Approximation	T. Yankovitz, and G. Cohen LCC and LDC: Tailor-made Distance Amplification and a Refined Separation
10h25	T. Zhang Faster Cut-Equivalent Trees in Simple Graphs	B. Bordais, D. Busatto-Gaston, S. Guha, and J.-F. Raskin Strategy Synthesis for Global Window PCTL	M. Feldman, P. Liu, A. Norouzi-Fard, O. Svensson, and R. Zenklusen Streaming Submodular Maximization under Matroid Constraints	N. Resch, and C. Yuan Threshold Rates of Code Ensembles: Linear is Best
10h50	M. Deng, Y. Kirkpatrick, V. Rong, V. V. Williams, and Z. Zhong New Additive Approximations for Shortest Paths and Cycles	H. Gimbert, C. Mascle, A. Muscholl, and I. Walukiewicz Distributed Controller Synthesis for Deadlock Avoidance	A. Czumaj, S. H.-C. Jiang, R. Krauthgamer, and P. Vesely Streaming Algorithms for Geometric Steiner Forest	D. Doron, and M. Wootters High-Probability List-Recovery, and Applications to Heavy Hitters
11h15	C. Brosse, V. Limouzy, and A. Mary Polynomial Delay Algorithm for Minimal Chordal Completions	X. Allamigeon, S. Gaubert, R. D. Katz, and M. Skomra Universal Complexity Bounds Based on Value Iteration and Application to Entropy Games	M. Charikar, and E. Waingarten Polylogarithmic Sketches for Clustering	I. Rubinfeld Explicit and Efficient Construction of (nearly) Optimal Rate Codes for the Binary Deletion Channel and the Poisson Repeat Channel
11h40	K. Majewski, T. Masařík, J. Novotná, K. Okrasa, M. Pilipczuk, P. Rzażewski, and M. Sokolowski Max Weight Independent Set in Fraphs with no Long Claws: An Analog of the Gyárfás' Path Argument	N. Bertrand, N. Markey, O. Sankur, and N. Waldburger Parameterized Safety Verification of Round-based Shared-memory Systems	A. Deshpande, and R. Pratap One-pass Additive-error Subset Selection for $\ell_p$ Subspace approximation	Z. Lu, I. Oliveira, and M. Zimand Optimal Coding Theorems in Time-Bounded Kolmogorov Complexity

# Tuesday July 5, afternoon

## Tuesday 14h00–15h00, Invited speaker 2

	Amphitheatre 1A
14h00	Leslie Ann Goldberg Some new (and old) Results on Contention Resolution

## Tuesday 15h30–17h10, Paper session 2

	Amphitheatre 1A Quantum	Amphitheatre 4C Computability and dynamic systems	Amphitheatre 9E Reconstruction problems	Amphitheatre 10E Game theory, networks, and distributed
15h30	C.-N. Chou, P. Love, J. Shi, and J. S. Sandhu Limitations of Local Quantum Algorithms on Random MAX-k-XOR and Beyond	D. E. Amir, and M. Hoyrup Computability of Finite Simplicial Complexes	J. Diaz, V. Dani, C. Moore, and T. Hayes Improved Reconstruction of Random Geometric Graphs	W. Kuszmaul, and S. Narayanan Optimal Time-Backlog Tradeoffs for the Variable-Processor Cup Game
15h55	P. Yao, Y. Yin, and X. Zhang Polynomial-Time Approximation of Zero-Free Partition Functions	D. Stull The Dimension Spectrum Conjecture for Planar Lines	A. McGregor, and R. Sengupta Graph Reconstruction from Random Subgraphs	A. Berger, W. Kuszmaul, A. Polak, J. Tidor, and N. Wein Memoryless Worker-Task Assignment with Polylogarithmic Switching Cost
16h20	J. Radhakrishnan, S. Dhamapurkar, and S. Pawar Set Membership with Two Classical and Quantum Bit Probes	V. Salo, and I. Törmä What can Oracles Teach us about the Ultimate Fate of Life?	A. Kumar, A. Louis, and R. Paul Exact Recovery Algorithm for Planted Bipartite Graph in Semi-random Graphs	S. Ioannidis, B. d. Keijzer, and C. Ventre Strong Approximations and Irrationality in Financial Networks with Derivatives
16h45	S. Chakraborty, C. Kayal, and M. Paraashar Separations between Combinatorial Measures for Transitive Functions	J. Piribauer, O. Sankur, and C. Baier The Variance-penalized Stochastic Shortest Path Problem	G. Blanc, J. Lange, and L.-Y. Tan Reconstructing Decision Trees	T. Friedrich, H. Gawendowicz, P. Lenzner, and A. Melnichenko Social Distancing Network Creation

## Tuesday 18h00–21h00, Cocktail and vernissage of the exhibition for the 50 years of EATCS / ICALP

Université Paris Cité,  
12 Rue de l'École de Médecine,  
75006 Paris

# Wednesday July 6, morning

## Wednesday 8h30–9h30, Invited speaker 3

	Amphitheatre 1A
8h30	Constantinos Daskalakis Equilibrium Computation, Deep Learning, and Multi-Agent (Reinforcement) Learning

## Wednesday 10h00–12h05, Paper session 3

	Amphitheatre 1A Counting and sampling	Amphitheatre 4C Transducers and automata	Amphitheatre 9E Property testing	Amphitheatre 10E Dynamic algorithms and sensitivity oracles
10h00	C. Efthymiou On Sampling Symmetric Gibbs Distributions on Sparse Random Graphs and Hypergraphs.	M. Göös, S. Kiefer, and W. Yuan Lower Bounds for Unambiguous Automata via Communication Complexity	A. Ghosh, G. Mishra, R. Raychaudhury, and S. Sen Tolerant Bipartiteness Testing in Dense Graphs	J. Alman, and D. Hirsch Parameterized Sensitivity Oracles and Dynamic Algorithms using Exterior Algebras
10h25	I. Bezakova, A. Galanis, L. Goldberg, and D. Stefankovic Fast sampling via Spectral Independence beyond Bounded-degree Graphs	A. Casares, T. Colcombet, and K. Lehtinen On the Size of Good-for-games Rabin Automata and its Link with the Memory in Muller Games	L. Esperet, and S. Norin Testability and Local Certification of Monotone Properties in Minor-closed Classes	S. Baswana, K. Bhanja, and A. Pandey Minimum+1 (s,t)-cuts and Dual Edge Sensitivity Oracle
10h50	A. Coja-Oghlan, A. Galanis, L. A. Goldberg, J. B. Ravelomanana, D. Stefankovic, and E. Vigoda Metastability of the Potts Ferromagnet on Random Regular Graphs	L. Exibard, E. Filiot, and A. Khalimov A Generic Solution to Register-bounded Synthesis With an Application to Discrete Orders	O. Ben-Eliezer, S. Letzter, and E. Waingarten Finding Monotone Patterns in Sublinear Time, Adaptively	D. Bilò, K. Choudhary, S. Cohen, T. Friedrich, and M. Schirneck Deterministic Sensitivity Oracles for Diameter, Eccentricities and All Pairs Distances
11h15	A. Galanis, D. Stefankovic, and E. Vigoda Approximating Observables is as Hard as Counting	L. Bohn, and C. Löding Passive Learning of Deterministic Büchi Automata by Combinations of DFAs	T. Eden, D. Ron, and W. Rosenbaum Almost Optimal Bounds for Sublinear-Time Sampling of $k$ -Cliques in Bounded Arboricity Graphs	A. Bernstein, J. v. d. Brand, M. Probst, D. Nanongkai, T. Saranurak, A. Sidford, and H. Sun Fully-Dynamic Graph Sparsifiers Against an Adaptive Adversary
11h40	G. Qiu, Y. Wang, and C. Zhang A Perfect Sampler for Hypergraph Independent Sets	M. Ganardi, R. Majumdar, A. Pavlogiannis, L. Schütze, and G. Zetsche Reachability in Bidirected Pushdown VASS	K. Bringmann, A. Cassis, N. Fischer, and V. Nakos Improved Sublinear-Time Edit Distance for Preprocessed Strings	A. B. G. Christiansen, and E. Rotenberg Fully-dynamic $\alpha + 2$ Arboricity Decomposition and Implicit Colouring.

# Wednesday July 6, afternoon

## Wednesday 14h00–16h05, Best papers session

	Amphitheatre 1A
14h00	J. Blikstad Sublinear-round Parallel Matroid Intersection
14h25	J. Tětek Approximate Triangle Counting via Sampling and Fast Matrix Multiplication
14h50	G. Douéneau-Tabot Hiding Pebbles when the Output Alphabet is Unary
15h15	I. Newman, and N. Varma Strongly Sublinear Algorithms for Testing Pattern Freeness
15h40	J. Gajarský, M. Pilipczuk, W. Przybyszewski, and S. Toruńczyk Twin-width and Types

## Wednesday 16h45–17h30, EATCS Award 2022

	Amphitheatre 1A
16h45	TBA TBA

## Wednesday 17h30–19h30, EATCS general assembly

	Amphitheatre 1A
17h30	EATCS general assembly: EATCS fellows, EATCS distinguished dissertation Award, Best Icalp papers, Best Icalp Student Papers

# Thursday July 7, morning

## Thursday 8h30–9h30, Invited speaker 4

	Amphitheatre 1A
8h30	Albert Atserias Towards a Theory of Algorithmic Proof Complexity: Motivation and Directions

## Thursday 10h00–12h05, Paper session 4

	Amphitheatre 1A Computational Geometry	Amphitheatre 4C Parameterized complexity	Amphitheatre 9E Approximation algorithms	Amphitheatre 10E Optimization
10h00	A. Khan, A. Lonkar, A. Maiti, A. Sharma, and A. Wiese Tight Approximation Algorithms for Two-dimensional Guillotine Strip Packing	R. M. Sridharan, D. Lokshtanov, and F. Panolan Backdoor Sets on Nowhere Dense SAT	L. Chen, X. Wu, and G. Zhang Approximation Algorithms for Interdiction Problem with Packing Constraints	S. Jiang, B. Natura, and O. Weinstein A Faster Interior-Point Method for Sum-of-Squares Optimization
10h25	F. Fomin, P. Golovach, T. Inamdar, and M. Zehavi (Re)packing Equal Disks into Rectangle	B. Lin, X. Ren, Y. Sun, and X. Wang On Lower Bounds of Approximating Parameterized $k$ -Clique	K. Bringmann, and A. Cassis Faster Knapsack Algorithms via Bounded Monotone Min-Plus-Convolution	M. Ding, R. Kyng, and P. Zhang Two-Commodity Flow is Equivalent to Linear Programming under Nearly-Linear Time Reductions
10h50	Z. Huang, and J. Xu In-Range Farthest Point Queries and Related Problem in High Dimensions	I. Haviv A Fixed-Parameter Algorithm for the Kneser Problem	A. Abboud, V. Cohen-Addad, E. Lee, and P. Manurangsi Improved Approximation Algorithms and Lower Bounds for Search-Diversification Problems	M. Briński, M. Koutecký, D. Král', K. Pekárková, and F. Schröder Characterization of Matrices with Bounded Graver Bases and Depth Parameters and Applications to Anteger Programming
11h15	J. Conradi, and A. Driemel On Computing the $k$ -Shortcut Fréchet Distance	C. Legrand-Duchesne, A. Rai, and M. Tancer Parameterized Complexity of Untangling Knots	N. Ayyadevara, R. Dabas, A. Khan, and K. V. N. Sreenivas Near-optimal Algorithms for Stochastic Online Bin Packing	M. Ding, R. Kyng, M. P. Gutenberg, and P. Zhang Hardness Results for Laplacians of Simplicial Complexes via Sparse-Linear Equation Complete Gadgets
11h40	K. Jansen, A. Khan, M. Lira, and K. V. N. Sreenivas A PTAS for Packing Hypercubes into a Knapsack	A. Lassota, A. Łukasiewicz, and A. Polak Tight Vector Bin Packing with Few Small Items via Fast Exact Matching in Multigraphs	C. Mathieu, and H. Zhou A PTAS for Capacitated Vehicle Routing on Trees	M. Black, and A. Nayyeri Hodge Decomposition and General Laplacian Solvers for Embedded Simplicial Complexes

# Thursday July 7, afternoon

## Wednesday 14h30–15h50, Presburger Award and Gödel Prize 2022

	Amphitheatre 1A
14h30	TBA TBA
14h55	TBA TBA

## Thursday 16h00–17h40, Paper session 5

	Amphitheatre 1A Homomorphisms	Amphitheatre 4C Process calculi and types	Amphitheatre 9E Learning theory, fairness, and privacy	Amphitheatre 10E Randomness in computation
16h00	M. Grohe, G. Rattan, and T. Seppelt Homomorphism Tensors and Linear Equations	D. Barozzini, P. Parys, and J. Wróblewski Unboundedness for Recursion Schemes: A Simpler Type System	J. Pich, and R. Santhanam Learning Algorithms versus Automatability of Frege Systems	O. Alrabiah, E. Chattopadhyay, J. Goodman, X. Li, and J. Ribeiro Low-Degree Polynomials Extract from Local Sources
16h25	S. Kiefer, and D. Neuen A Study of Weisfeiler-Leman Colorings on Planar Graphs	E. Prebet Functions and References in the pi-Calculus: Full Abstraction and Proof Techniques	N. Harms, and Y. Yoshida Downsampling for Testing and Learning in Product Distributions	S. Peleg, G. Cohen, D. Minzer, and A. Potechin Expander Random Walks: The General Case and Limitations
16h50	R. Ganian, T. Hamm, V. Korchemna, K. Okrasa, and K. Simonov The Fine-Grained Complexity of Graph Homomorphism Parameterized by Clique-Width	T. Schmid, W. Rozowski, A. Silva, and J. Rot Processes Parametrised by an Algebraic Theory	N. Boehmer, and T. Koana The Complexity of Finding Fair Many-to-One Matchings	N. Bansal, H. Jiang, R. Meka, S. Singla, and M. Sinha Smoothed Analysis of the Komlós Conjecture
17h15	B. Komarath, A. Pandey, and C. S. Rahul Monotone Arithmetic Complexity of Graph Homomorphism Polynomials		J. Blocki, E. Grigorescu, and T. Mukherjee Privately Estimating Graph Parameters in Sublinear time	J. B. T. Houen, and M. Thorup Understanding the Moments of Tabulation Hashing via Chaoses

## Thursday 19h30–22h30, Conference dinner

Le Train Bleu  
1st Floor of "Gare de Lyon" train station  
Place Louis Armand, 75012 Paris

# Friday July 8, morning

## Friday 8h30–9h30, Invited speaker 5

	Amphitheatre 1A
8h30	Madhu Sudan Streaming and Sketching Complexity of CSPs: A survey

## Friday 10h00–12h05, Paper Session 6

	Amphitheatre 1A Data structures, sorting, and string processing	Amphitheatre 4C Graphs and complexity	Amphitheatre 9E Graph distances and fault tolerance	Amphitheatre 10E Complexity
10h00	E. Ghasemi, V. Jugé, and G. Khalighinejad Gallop in Fast-growth Natural Merge Sorts	S. Datta, C. Gupta, R. Jain, A. Mukherjee, V. R. Sharma, and R. Tewari Dynamic Meta-theorems for Distance and Matching	D. Chakraborty, K. Chatterjee, and K. Choudhary Pairwise Reachability Oracles and Preservers under Failures	K. Bringmann, A. Cassis, N. Fischer, and M. Künnemann A Structural Investigation of the Approximability of Polynomial-Time Problems
10h25	T. Nishimoto, S. Kanda, and Y. Tabei An Optimal-Time RLBWT Construction in BWT-runs Bounded Space	A. Doumane Regular Expressions for Tree-Width 2 Graphs	M. Pilipczuk, N. Schirrmacher, S. Siebertz, S. Toruńczyk, and A. Vigny Algorithms and Data Structures for First-order Logic with Connectivity under Vertex Failures	T. Papamakarios, and A. Razborov Space Characterizations of Complexity Measures and Size-space Trade-offs in Propositional Proof Systems
10h50	A. Ganguly, R. Shah, and S. V. Thankachan Fully Functional Parameterized Suffix Trees in Compact Space	T.-V. Nakajima, and S. Živný Linearly Ordered Colourings of Hypergraphs	C. Liao, Q. Chen, B. Laekhanukit, and Y. Zhang Almost Tight Approximation Hardness for Single-Source Directed k-Edge-Connectivity	A. Musipatla, R. O'Donnell, T. Schramm, and X. Wu The SDP Value of Random 2CSPs
11h15	D. Das, T. Kociumaka, and B. Saha Improved Approximation Algorithms for Dyck Edit Distance and RNA Folding	N. D. Beaudrap, A. Kissinger, and J. v. d. Wetering Circuit Extraction for ZX-diagrams can be #P-hard	P. Chalermsook, C.-C. Huang, D. Nanongkai, T. Saranurak, P. Sukprasert, and S. Yingchareonthawornchai Approximating k-Edge-Connected Spanning Subgraphs via a Near-Linear Time LP Solver	L. Gan, and J. Han The Decision Problem for Perfect Matchings in Dense Hypergraphs
11h40	P. Gawrychowski, and K. Pokorski Sublinear Dynamic Interval Scheduling (on one or multiple machines)	P. Idziak, P. Kawałek, J. Krzaczkowski, and A. Weiß Satisfiability Problems for Finite Groups	S. Kogan, and M. Parter Beating Matrix Multiplication for $n^{1/3}$ -Directed Shortcuts	D. Caballero, T. Gomez, R. Schweller, and T. Wylie Unique Assembly Verification in Two-Handed Self-Assembly



# Friday July 8, afternoon

## Friday 14h00–15h00, Invited speaker 6

	Amphitheatre 1A
14h00	Stéphan Thomassé TBA

## Friday 15h30–16h45, Paper session 7

	Amphitheatre 1A Online algorithms	Amphitheatre 4C Decremental algorithms	Amphitheatre 9E Cryptography	Amphitheatre 10E Counting and complexity
15h30	Y. Azar, C. Machluf, B. Patt-Shamir, and N. Tuitou Competitive Vertex Recoloring	J. Łącki, and Y. Nazari Near-Optimal Decremental Hopsets with Applications	Z. Brakerski, N. Döttling, S. Garg, and G. Malavolta Factoring and Pairings are not Necessary for iO: Circular-Secure LWE Suffices	S. Mathialagan, V. V. Williams, and Y. Xu Listing, Verifying and Counting Lowest Common Ancestors in DAGs: Algorithms and Fine-Grained Lower Bounds
15h55	R. Chen, J. Khatkar, and S. W. Umboh Online Weighted Cardinality Joint Replenishment Problem with Delay	A. Jambulapati, Y. Jin, A. Sidford, and K. Tian Regularized Box-Simplex Games and Dynamic Decremental Bipartite Matching	S. Agrawal, D. Stehle, and A. Yadav Round-Optimal Lattice-Based Threshold Signatures, Revisited	C. Beideman, K. Chandrasekaran, and W. Wang Counting and Enumerating Optimum Cut Sets for Hypergraph $k$ -partitioning problems for fixed $k$
16h20		S. Assadi, A. Bernstein, and A. Dudeja Decremental Matching in General Graphs	J. Holmgren, A. Lincoln, and R. Rothblum Delegation for Search Problems	P. Bergé, É. Bonnet, and H. Déprés Deciding Twin-width at most 4 is NP-complete