SODA'25 Day 3 (Tuesday)

All day (8:30 AM - 5:00 PM)	Registration	Grand Gallery - 2nd Floor
All day (9:00 AM - 5:00 PM)	Exhibitor Hours	Grand Gallery - 2nd Floor
8:30 AM - 9:00 AM	Continental Breakfast	Grand Gallery - 2nd Floor

Time	SODA 7A *Grand Ballroom C/D - 2nd Floor* Chair: William Umboh (Univ. of Melbourne)	SODA 7B *Toulouse - 2nd Floor Mezzanine* Chair: Nikhil Bansal (UMich)	SODA 7C *Grand Ballroom A - 2nd Floor* Chair: Artur Czumaj (Univ. of Warwick)	SOSA 3 *St. Charles - 1st Floor* Chair: Robert Tarjan (Princeton Univ.)
9:00-9:20	**Improved Bounds for Fully Dynamic Matching Via Ordered Ruzsa-Szemeredi Graphs** *Sepehr Assadi* (Univ. of Waterloo); Sanjeev Khanna (UPenn); Peter Kiss (Univ. of Vienna)	**Bounding ε-Scatter Dimension Via Metric Sparsity** Romain Bourneuf (Inria-LIP-ENS Lyon); *Marcin Pilipczuk* (Univ. of Warsaw)	**An Analogue of Reed's Conjecture for Digraphs** Ken-ichi Kawarabayashi and *Lucas Picasarri-Arrieta* (National Institute of Informatics)	**Multi-Dimensional Approximate Counting** *Dingyu Wang* (Univ. of Michigan)
9:25-9:45	**Matching Composition and Efficient Weight Reduction in Dynamic Matching** Aaron Bernstein (Rutgers Univ.); *Jiale Chen* (Stanford Univ.); Aditi Dudeja (Univ. of Salzburg); Zachary Langley (Rutgers Univ.); Aaron Sidford and Ta-Wei Tu (Stanford Univ.)	**The Johnson-Lindenstrauss Lemma for Clustering and Subspace Approximation: From Coresets to Dimension Reduction** *Erik Waingarten* (UPenn); Moses Charikar (Stanford Univ.)	**Weak Coloring Numbers of Minor-Closed Graph Classes** *Jedrzej Hodor* (Jagiellonian Univ.); Hoang La (CNRS, Univ. Paris-Saclay); Piotr Micek (Jagiellonian Univ.); Clément Rambaud (CEPAM - CNRS)	**3sum in Preprocessed Universes: Faster and Simpler** *Adam Polak* (Bocconi Univ.); Shashwat Kasliwal and Pratyush Sharma (IIT Delhi)
9:50-10:10	**New Philosopher Inequalities for Online Bayesian Matching, Via Pivotal Sampling** Mark Braverman (Princeton Univ.); Mahsa Derakhshan (Northeastern Univ.); *Tristan Pollner* and Amin Saberi (Stanford Univ.); David Wajc (Technion Israel Institute of Technology)	**Embedding Probability Distributions into Low Dimensional ℓ_1: Tree Ising Models Via Truncated Metrics** Moses Charikar, Spencer Compton, and *Chirag Pabbaraju* (Stanford Univ.)	**Unique-Neighbor Expanders with Better Expansion for Polynomial-Sized Sets** *Yeyuan Chen* (UMich)	**Optimal Prefix-Suffix Queries with Applications** *Solon P. Pissis* (CWI, Amsterdam)
10:15-10:35	**Entropy Regularization and Faster Decremental Matching in General Graphs** Jiale Chen, Aaron Sidford, and *Ta-Wei Tu* (Stanford Univ.)	**Highway Dimension: a Metric View** *Andreas E. Feldmann* (Univ. of Sheffield); Arnold Filtser (Bar-Ilan Univ.)	**A Coarse Erd\H{o}s-P'{o}sa Theorem** *Jungho Ahn* (Korea Institute for Advanced Study); Jochen Pascal Gollin (Univ. of Primorska); Tony Huynh (Univ. Libre de Bruxelles); O-Joung Kwon (Hanyang Univ.)	**Pure Binary Finger Search Trees** Gerth S. Brodal and *Casper Rysgaard* (Aarhus Univ.)
10:40-11:00	**Online Dependent Rounding Schemes for Bipartite Matchings, with Applications** *Joseph (Seffi) Naor* (Technion Israel Institute of Technology); Aravind Srinivasan (Univ. of Maryland); David Wajc (Technion Israel Institute of Technology)	**Outlier-robust Mean Estimation near the Breakdown Point via Sum-of-Squares** Hongjie Chen, *Deepak Narayanan Sridharan*, and David Steurer (ETH Zurich)	**Planar Graphs in Blowups of Fans** *Pat Morin* (Carleton Univ.)	**A Simple Algorithm for Dynamic Carpooling with Recourse** Yuval Efron, Shyamal Patel, and *Cliff Stein* (Columbia Univ.)

11:05 AM - 11:30 AM	Coffee Break		Grand Gallery - 2nd Floor
11:30 AM - 12:30 PM	**IP2 When and Why do Efficient Algorithms Exist (for Constraint Satisfaction and Beyond)?** Venkatesan Guruswami (UC Berkeley)		Grand Ballroom C/D - 2nd Floor
12:30 PM - 2:00 PM	Lunch Break		Attendees on their own

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2:00-2:20	**Streaming Algorithms Via Local Algorithms for Maximum Directed Cut** Santhoshini Velusamy (Toyota Technological Institute at Chicago); Raghuvansh Saxena (Microsoft Research); *Noah Singer* (CMU); Madhu Sudan (Harvard Univ.)	**A Fast Algorithm for Computing Zigzag Representatives** Tamal K. Dey (Purdue Univ.); *Tao Hou* (Univ. of Oregon); Dmitriy Morozov (Lawrence Berkeley National Laboratory)	**Hardness of Counting Small Induced Subgraphs: Fourier vs. Sylow** Philip Wellnitz and *Simon Döring* (Max Planck Institute for Informatics); Dániel Marx (CISPA Helmholtz Center for Information Security); Radu Curticapean (Univ. of Regensburg and IT Univ. of Copenhagen); Daniel Neuen (Max Planck Institute for Informatics)	**Bidirectional Dijkstra's Algorithm Is Instance-Optimal** Bernhard Haeupler (INSAIT, Sofia Univ.); Richard Hladík (Sofia Univ.); Václav Rozhon (ETH Zurich); Robert Tarjan (Princeton Univ.); *Jakub Tetek* (INSAIT, Sofia Univ.)
2:25-2:45	**Universal Perfect Samplers for Incremental Streams** *Dingyu Wang* (Univ. of Michigan); Seth Pettie (UMich)	**Minimum Convex Hull and Maximum Overlap of Two Convex Polytopes** *Mook Kwon Jung*, Seokyun Kang, and Hee-Kap Ahn (POSTECH)	**Maximum Span Hypothesis: A Potentially Weaker Assumption Than Gap-ETH for Parameterized Complexity** *Karthik C. S.* (Rutgers Univ.); Subhash Khot (NYU)	**A Simple Parallel Algorithm with Near-Linear Work for Negative-Weight Single-Source Shortest Path** Nick Fischer (INSAIT, Sofia Univ.); Bernhard Haeupler (ETH Zurich); Rustam Latypov (Aalto Univ.); Antti Roeyskoe and *Aurelio L. Sulser* (ETH Zurich)
2:50-3:10	**Streaming and Communication Complexity of Load-Balancing Via Matching Contractors** Sepehr Assadi (Univ. of Waterloo); Aaron Bernstein (Rutgers Univ.); Zach Langley (Rutgers Univ.); Lap Chi Lau and *Robert Wang* (Univ. of Waterloo)	**Partitioning a Polygon Into Small Pieces** Mikkel Abrahamsen, Nichlas Rasmussen, and *Mads Jensen* (Univ. of Copenhagen)	**Parameterizing the quantification of CMSO: model checking on minor-closed graph classes** Ignasi Sau (CNRS, LIRMM); *Giannos Stamoulis* (Univ. of Warsaw); Dimitrios Thilikos (CNRS, LIRMM)	**Efficient Matroid Intersection Via a Batch-Update Auction Algorithm** Joakim Blikstad (KTH Royal Institute of Technology); *Ta-Wei Tu* (Stanford Univ.)
3:15-3:35	**Understanding Memory-Regret Trade-Off for Streaming Stochastic Multi-Armed Bandits** *Yuchen He*, Zichun Ye, and Chihao Zhang (Shanghai Jiao Tong Univ.)	**Computing the Second and Third Systoles of a Combinatorial Surface** *Matthijs Ebbens* (Univ. of Cologne); Francis Lazarus (Univ. Grenoble)	**Losing Treewidth In The Presence Of Weights** *Michal Wlodarczyk* (Univ. of Warsaw)	**Trading Prophets: How to Trade Multiple Stocks Optimally** *Surbhi Rajput*, Ashish Chiplunkar, and Rohit Vaish (IIT Delhi)

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3:40-4:00	**Near-Optimal Relative Error Streaming Quantile Estimation Via Elastic Compactors** *Hongxun Wu* (UC Berkeley); Elena Gribelyuk, Pachara Sawettamalya, and Huacheng Yu (Princeton Univ.)	**An Efficient Regularity Lemma for Semi-Algebraic Hypergraphs** *Natan Rubin* (Ben-Gurion Univ.)	**Finding irrelevant vertices in linear time on bounded-genus graphs** Petr Golovach (Univ. of Bergen); Stavros Kolliopoulos (National and Kapodistrian Univ. of Athens); *Giannos Stamoulis* (Univ. of Warsaw); Dimitrios Thilikos (CNRS, LIRMM)	**A Simple Lower Bound for Set Agreement in Dynamic Networks** Pierre Fraigniaud (Univ. Paris Sud & CNRS); *Minh Hang Nguyen* (Univ. Paris Cité); Ami Paz (CNRS LISN, Univ. Paris-Saclay)

4:05 PM - 4:30 PM	Coffee Break	Grand Gallery - 2nd Floor

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4:30-4:50	**Competitive Strategies to Use "Warm Start" Algorithms with Predictions** Avrim Blum (Toyota Technological Institute at Chicago); *Vaidehi Srinivas* (Northwestern Univ.)	**Efficient d-Ary Cuckoo Hashing at High Load Factors by Bubbling Up** *William Kuszmaul* (CMU); Michael Mitzenmacher (Harvard Univ.)	**Parks and Recreation: Color Fault-Tolerant Spanners Made Local** *Asaf Petruschka*, Merav Parter, Shay Sapir, and Elad Tzalik (Weizmann Institute of Science)	**Simple Combinatorial Construction of the $k^{o(1)}$-Lower Bound for Approximating the Parameterized k-Clique** Yijia Chen (Shanghai Jiao Tong Univ.); Yi Feng (Shanghai Univ. of Finance and Economics); *Bundit Laekhanukit* (Independent Researcher); Yanlin Liu (Ocean Univ. of China)
4:55-5:15	**Online Scheduling Via Gradient Descent for Weighted Flow Time Minimization** *Qingyun Chen*, Sungjin Im, and Aditya Petety (Univ. of California, Merced)	**Fast and Simple Sorting Using Partial Information** *Richard Hladík* (Sofia Univ.); Bernhard Haeupler (ETH Zurich); John Iacono (Univ. Libre de Bruxelles); Václav Rozhon (ETH Zurich); Robert Tarjan (Princeton Univ.); Jakub Tetek (INSAIT, Sofia Univ.)	**Asynchronous 3-Majority Dynamics with Many Opinions** *Nobutaka Shimizu* (Institute of Science Tokyo); Colin Cooper, Frederik Mallmann-Trenn, and Tomasz Radzik (King's College London); Takeharu Shiraga (Chuo Univ.)	**Validating a PTAS for Triangle-Free 2-Matching** Yusuke Kobayashi and *Takashi Noguchi* (Kyoto Univ.)
5:20-5:40	**Stronger Adversaries Grow Cheaper Forests: Online Node-Weighted Steiner Problems** *Sander Borst* (Centrum Wiskunde & Informatica); Marek Elias and Moritz Venzin (Bocconi Univ.)	**Tight Bounds and Phase Transitions for Incremental and Dynamic Retrieval** *Aaron L. Putterman* (Harvard Univ.); William Kuszmaul (CMU); Tingqiang Xu and Hangrui Zhou (Tsinghua Univ.); Renfei Zhou (CMU)	**Sublinear-Round Broadcast Without Trusted Setup** Andreea Alexandru (Duality Technologies); Julian Loss (CISPA Helmholtz Center for Information Security); Charalampos Papamanthou (Yale Univ.); *Giorgos Tsimos* (Univ. of Maryland); Benedikt Wagner (Ethereum Foundation)	**Simple Approximation Algorithms for Polyamorous Scheduling** *Yuriy Biktairov* (Univ. of Southern California); Leszek Gasieniec (Univ. of Liverpool); Wanchote Po Jiamjitrak (Univ. of Helsinki); N Namrata and Benjamin Smith (Univ. of Liverpool); Sebastian Wild (Univ. of Marburg)

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5:45-6:05	**Putting Off the Catching Up: Online Joint Replenishment Problem with Holding and Backlog Costs** Benjamin Moseley, *Aidin Niaparast*, and R. Ravi (CMU)	**A Cell Probe Lower Bound for the Predecessor Search Problem in PRAM** Peyman Afshani (Aarhus Univ.); *Nodari Sitchinava* (Univ. of Hawaii at Manoa)	**Fully-Distributed Byzantine Agreement in Sparse Networks** John Augustine (IIT Mumbai); *Fabien Dufoulon* (Lancaster Univ.); Gopal Pandurangan (Univ. of Houston)	**Spectral Sparsification by Deterministic Discrepancy Walk** Lap Chi Lau and *Robert Wang* (Univ. of Waterloo); Hong Zhou (Fuzhou Univ.)
6:10-6:30	**Unweighted Layered Graph Traversal: Passing a Crown Via Entropy Maximization** *Romain Cosson* (Inria); Xingjian Bai (MIT); Christian Coester (Univ. of Oxford)	**Top-K Document Retrieval in Compressed Space** Gonzalo Navarro (Univ. of Chile); *Yakov Nekrich* (Michigan Technological Univ.)	**On the Locality of Hall's Theorem** Sebastian Brandt (CISPA Helmholtz Center for Information Security); Yannic Maus (Technische Univ. Graz); Ananth Narayanan (CISPA Helmholtz Center for Information Security); *Florian Schager* (TU Graz); Jara Uitto (Aalto Univ.)	**Simple Length-Constrained Minimum Spanning Trees** Ellis Hershkowitz and *Richard Huang* (Brown Univ.)
6:35-6:55	**The Power of Proportional Fairness for Non-Clairvoyant Scheduling under Polyhedral Constraints** Sven Jäger (RPTU Kaiserslautern-Landau); *Alexander Lindermayr* and Nicole Megow (Univ. Bremen)	**Faster Two-Dimensional Pattern Matching with k Mismatches** *Jonas Ellert* (ENS Paris Saclay); Pawel Gawrychowski and Adam Gorkiewicz (Univ. of Wroclaw); Tatiana Starikovskaya (École Normale Supérieure Paris)	**Partial Synchrony for Free: New Upper Bounds for Byzantine Agreement** Pierre Civit (EPFL); Ayaz Dzulfikar and Seth Gilbert (National Univ. of Singapore); Rachid Guerraoui, *Jovan Komatovic*, and Manuel Vidigueira (EPFL); Igor Zablotchi (Mysten Labs)	

7:00 PM - 8:00 PM	Jane Street Estimathon	Astor Ballroom I/II - 2nd Floor