

# SODA'25 Day 4 (Wednesday)

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	<b>SODA 10A</b> <i>Grand Ballroom C/D - 2nd Floor</i> Chair: Nikhil Bansal (UMich)	<b>SODA 10B</b> <i>Toulouse - 2nd Floor Mezzanine</i> Chair: Venkat Guruswami (UC Berkeley)	<b>SODA 10C</b> <i>Grand Ballroom A - 2nd Floor</i> Chair: Avrim Blum (Toyota Technological Institute at Chicago)	<b>SOSA 6</b> <i>St. Charles - 1st Floor</i> Chair: Sepehr Assadi (Univ. of Waterloo)
9:00-9:20	<b>Spanners in Planar Domains Via Steiner Spanners and Non-Steiner Tree Covers</b> <i>Hung Le</i> (UMass Amherst); Sujoy Bhore (IIT Bombay); Balázs Keszegh (Renyi Institute); Andrey Kupavskii (CNRS - Ecole Normale Supérieure); Alexandre Louvet; Dömötör Pálvölgyi (MTA-ELTE); Csaba D. Toth (California State Univ., Northridge)	<b>New Separations and Reductions for Directed Hopsets and Preservers</b> Yinzhan Xu (MIT); <i>Gary Hoppenworth</i> (UMich); Zixuan Xu (MIT)	<b>Sumsets, 3SUM, Subset Sum: Now for Real!</b> <i>Nick Fischer</i> (INSAIT, Sofia Univ.)	<b>Simpler Optimal Sorting from a Directed Acyclic Graph</b> Ivor Van Der Hoog, Eva Rotenberg, and <i>Daniel P. Rutschmann</i> (Technical Univ. of Denmark)
9:25-9:45	<b>A Lower Bound for Light Spanners in General Graphs</b> Greg Bodwin and <i>Jeremy Flics</i> (UMich)	<b>Tree Independence Number IV. Even-Hole-Free Graphs</b> Maria Chudnovsky (Princeton Univ.); <i>Peter Gartland</i> (UC Santa Barbara); Sepehr Hajebi (Univ. of Waterloo); Daniel Lokshantov (UC Santa Barbara); Sophie Spirkl (Univ. of Waterloo)	<b>New Applications of 3SUM-Counting in Fine-Grained Complexity and Pattern Matching</b> Nick Fischer (INSAIT, Sofia Univ.); <i>Ce Jin</i> and Yinzhan Xu (MIT)	<b>Finding Longer Cycles Via Shortest Colourful Cycle</b> Andreas Björklund and <i>Thore Husfeldt</i> (IT Univ. of Copenhagen)
9:50-10:10	<b>Subquadratic Algorithms in Minor-Free Digraphs: (weighted) Distance Oracles, Decremental Reachability, and More</b> Adam Karczmarz (Univ. of Warsaw); <i>Da Wei Zheng</i> (UIUC)	<b>A Refutation of the Pach-Tardos Conjecture for 0-1 Matrices</b> <i>Seth Pettie</i> (UMich); Gábor Tardos (Renyi Institute)	<b>Beating Bellman's Algorithm for Subset Sum</b> Karl Bringmann (Saarland Univ. and Max Planck Institute for Informatics); <i>Nick Fischer</i> (INSAIT, Sofia Univ.); Vasileios Nakos (National & Kapodistrian Univ. of Athens)	<b>Connectivity Certificate Against Bounded-Degree Faults: Simpler, Better and Supporting Vertex Faults</b> <i>Elad Tzalik</i> and Merav Parter (Weizmann Institute of Science)
10:15-10:35	<b>Having Hope in Missing Spanners: New Distance Preservers and Light Hopsets</b> Shimon Kogan and <i>Merav Parter</i> (Weizmann Institute of Science)	<b>Recognizing Sumsets is NP-Complete</b> Amir Abboud (Weizmann Institute of Science); Nick Fischer (INSAIT, Sofia Univ.); Ron Safier and <i>Nathan Wallheimer</i> (Weizmann Institute of Science)	<b>Average-Case Hardness of Parity Problems: Orthogonal Vectors, K-Sum and More</b> <i>Mina Dalirrooyfard</i> (Morgan Stanley); Andrea Lincoln (Boston Univ.); Barna Saha (UC San Diego); Virginia Vassilevska Williams (MIT)	<b>A Simplified Parameterized Algorithm for Directed Feedback Vertex Set</b> <i>Ziliang Xiong</i> (Linköping Univ.); Mingyu Xiao (Univ. of Electronic Science and Technology of China)

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10:40-11:00	<b>Improved Online Reachability Preservers</b> Greg Bodwin and <i>Tuong Le</i> (UMich)	<b>A Topological Proof Of The Hell-Nešetřil Dichotomy</b> <i>Sebastian Meyer</i> (TU Dresden); Jakub Opršal (Univ. of Birmingham)	<b>Exact Thresholds for Noisy Non-Adaptive Group Testing</b> <i>Junren Chen</i> (Univ. of Hong Kong); Jonathan Scarlett (National Univ. of Singapore)	<b>Connectivity Carcass of a Vertex Subset in a Graph - Both Odd and Even Case</b> Surender Baswana and <i>Abhyuday Pandey</i> (IIT Kanpur)

11:05 AM - 11:30 AM	Coffee Break	Grand Gallery - 2nd Floor
11:30 AM - 12:30 PM	<b>IP3 Learning in Environments with Carryover Effects</b> Éva Tardos (Cornell Univ.)	Grand Ballroom C/D - 2nd Floor
12:30 PM - 2:00 PM	Lunch Break	Attendees on their own

<b>Time</b>	<b>SODA 11A</b> <i>Grand Ballroom C/D - 2nd Floor</i> Chair: Rajmohan Rajaraman (Northeastern Univ.)	<b>SODA 11B</b> <i>Toulouse - 2nd Floor Mezzanine</i> Chair: Soheil Behnezhad (Northeastern Univ.)	<b>SODA 11C</b> <i>Grand Ballroom A - 2nd Floor</i> Chair: Hung Le (UMass Amherst)	<b>SOSA 7</b> <i>St. Charles - 1st Floor</i> Chair: Thore Husfeldt (IT Univ. of Copenhagen)
2:00-2:20	<b>Inapproximability of Maximum Diameter Clustering for Few Clusters</b> <i>Ashwin Padaki</i> (UPenn); Henry Fleischmann (CMU); Kyrylo Karlov (Charles Univ.); Karthik C. S. (Rutgers Univ.); Stepan ZHARKOV (Columbia Univ.)	<b>Faster Vizing and Near-Vizing Edge Coloring Algorithms</b> <i>Sepehr Assadi</i> (Univ. of Waterloo)	<b>Relating Interleaving and Fréchet Distances Via Ordered Merge Trees</b> Thijs Beurskens (TU Eindhoven); <i>Tim Ophelders</i> (TU Eindhoven and Utrecht Univ.); Bettina Speckmann and Kevin Verbeek (TU Eindhoven)	<b>The Quasi-Probability Method and Applications for Trace Reconstruction</b> <i>Ittai Rubinstein</i> (MIT)
2:25-2:45	<b>Coresets for Constrained Clustering: General Assignment Constraints and Improved Size Bounds</b> <i>Lingxiao Huang</i> (Nanjing Univ.); Jian Li (Tsinghua Univ.); Pinyan Lu (Shanghai Univ. of Finance and Economics); Xuan Wu (Nanyang Technological Univ.)	<b>A Sublinear-Time Algorithm for Nearly-Perfect Matchings in Regular Non-Bipartite Graphs</b> <i>Thomas P. Hayes</i> (Univ. at Buffalo); Varsha Dani (Rochester Institute of Technology)	<b>Facet-Hamiltonicity</b> <i>Hugo A. Akitaya</i> (UMass Lowell); Jean Cardinal (Université Libre de Bruxelles); Stefan Felsner (Technische Univ. Berlin); Linda Kleist (Univ. of Potsdam); Robert Lauff (Technische Univ. Berlin)	<b>A Parametric Version of the Hilbert Nullstellensatz</b> Klara Nosan (Université Paris Cité); <i>Rida Ait El Manssour</i> (Oxford Univ.); Nikhil Balaji (IIT Delhi); Mahsa Shirmohammadi (Université Paris Cité); James Worrell (Oxford Univ.)
2:50-3:10	<b>A Tight Vc-Dimension Analysis of Clustering Coresets with Applications</b> Chris Schwiegelshohn (Aarhus Univ.); Vincent Cohen-Addad (Google Research); Andrew Draganov (Aarhus Univ.); <i>Matteo Russo</i> (Università La Sapienza); David Saulpic (IST)	<b>Even Faster (Delta + 1)-Edge Coloring Via Shorter Multi-Step Vizing Chains</b> <i>Martin Costa</i> and Sayan Bhattacharya (Univ. of Warwick); Shay Solomon (Tel Aviv Univ.); Tianyi Zhang (ETH Zurich)	<b>Differentiable Approximations for Distance Queries</b> <i>Ahmed Abdelkader</i> (Google); David M. Mount (Univ. of Maryland)	<b>Experimental Design Using Interlacing Polynomials</b> Lap Chi Lau and <i>Robert Wang</i> (Univ. of Waterloo); Hong Zhou (Fuzhou Univ.)

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3:15-3:35	<b>Efficient Approximation Algorithm for Computing Wasserstein Barycenter under Euclidean Metric</b> Pankaj K. Agarwal (Duke Univ.); Sharath Raghvendra (North Carolina State Univ.); <i>Pouyan Shirzadian</i> (Virginia Tech); Keegan Yao (Duke Univ.)	<b>Randomized Greedy Online Edge Coloring Succeeds for Dense and Randomly-Ordered Graphs</b> Aditi Dudeja (Univ. of Salzburg); <i>Rashmika Goswami</i> and Michael Saks (Rutgers Univ.)	<b>Fréchet Distance in Subquadratic Time</b> Siu-Wing Cheng (Hong Kong Univ. of Science and Technology); <i>Haoqiang Huang</i> (Hong Kong Univ. of Science and Technology)	<b>Revisiting Tree Canonization using polynomials</b> V. Arvind (Chennai Mathematical Institute); Samir Datta (Chennai Mathematical Institute and UMI ReLaX); SALMAN Faris (BITS Pilani); <i>Asif Khan</i> (Chennai Mathematical Institute and UMI ReLaX)
3:40-4:00	<b>Gains-from-Trade in Bilateral Trade with a Broker</b> <i>Suho Shin</i> (Univ. of Maryland); Ilya Hajiaghayi (Takoma Park Middle School); MohammadTaghi Hajiaghayi and Gary Peng (Univ. of Maryland)	<b>Fully Dynamic (<math>\Delta + 1</math>) Coloring Against Adaptive Adversaries</b> <i>Omer Wasim</i> , Soheil Behnezhad, and Rajmohan Rajaraman (Northeastern Univ.)	<b>A Discrete Analog of Tutte’s Barycentric Embeddings on Surfaces</b> <i>Loïc Dubois</i> (CNRS / LIGM Université Gustave Eiffel); Éric Colin de Verdière (Université Paris-Est et al.); Vincent Despré (Université Henri Poincaré)	<b>Faster Algorithms for Average-Case Orthogonal Vectors and Closest Pair Problems</b> Josh Alman, Alexandr Andoni, and <i>Hengjie Zhang</i> (Columbia Univ.)

4:05 PM - 4:30 PM	Coffee Break	Grand Gallery - 2nd Floor
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4:30-4:50	<b>Fine-Grained Optimality of Partially Dynamic Shortest Paths and More</b> <i>Christopher Ye</i> (UC San Diego); Barna Saha (UC San Diego); Virginia Vassilevska Williams and Yinzhan Xu (MIT)	<b>Rényi-Infinity Constrained Sampling with <math>D^3</math> Membership Queries</b> <i>Yunbum Kook</i> (Georgia Institute of Technology); Matthew Zhang (Univ. of Toronto)	<b>Low Degree Local Correction Over the Boolean Cube</b> <i>Prashanth Amireddy</i> (Harvard Univ.); Amik Raj Behera, Manaswi Paraashar, and Srikanth Srinivasan (Univ. of Copenhagen); Madhu Sudan (Harvard Univ.)	<b>Dynamic Independent Set of Disks (and Hypercubes) Made Easier</b> <i>Sujoy Bhore</i> (IIT Bombay); Timothy M. Chan (UIUC)
4:55-5:15	<b>All-Hops Shortest Paths</b> Yinzhan Xu, Virginia Vassilevska Williams, and <i>Zoe Xi</i> (MIT); Uri Zwick (Tel Aviv Univ.)	<b>Potential Hessian Ascent: The Sherrington-Kirkpatrick Model</b> <i>Juspreet Singh Sandhu</i> (UC Santa Cruz); David Jekel (Univ. of Copenhagen); Jonathan Shi (UC San Diego)	<b>Quantum Locally Recoverable Codes</b> <i>Louis Golowich</i> and Venkatesan Guruswami (UC Berkeley)	<b>A Simple Partially Embedded Planarity Test Based on Vertex-Addition</b> <i>Simon D. Fink</i> (Technische Univ. Wien); Ignaz Rutter (Univ. of Passau); Sandhya T P (Stockholms Univ.)
5:20-5:40	<b>New Approximation Algorithms and Reductions for <math>n</math>-Pairs Shortest Paths and All-Nodes Shortest Cycles</b> Shiri Chechik, <i>Itay Hoch</i> , and Gur Lifshitz (Tel Aviv Univ.)	<b>Spectral Independence Beyond Total Influence on Trees and Related Graphs</b> Xiaoyu Chen (Nanjing Univ.); Xiongxin Yang (Northeast Normal Univ.); Yitong Yin and <i>Xinyuan Zhang</i> (Nanjing Univ.)	<b>Locally Testable Tree Codes</b> <i>Tamer Mour</i> and Alon Rosen (Bocconi Univ.); Ron Rothblum (Technion Israel Institute of Technology)	<b>An Optimal Algorithm for Half-Plane Hitting Set</b> <i>Gang Liu</i> and Haitao Wang (Univ. of Utah)

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5:45-6:05	<b>Faster Single-Source Shortest Paths with Negative Real Weights Via Proper Hop Distance</b> Yufan Huang, <i>Peter Jin</i> , and Kent Quanrud (Purdue Univ.)	<b>Optimal Mixing for Randomly Sampling Edge Colorings on Trees Down to the Max Degree</b> Charlie A. Carlson (UC Santa Barbara); <i>Xiaoyu Chen</i> (Nanjing Univ.); Weiming Feng (ETH Zurich); Eric Vigoda (UC Santa Barbara)	<b>Improved Explicit Near-Optimal Codes in the High-Noise Regimes</b> Xin Li and <i>Songtao Mao</i> (Johns Hopkins Univ.)	<b>On Beating <math>2^n</math> for the Closest Vector Problem</b> <i>Rajendra Kumar</i> (IIT Delhi); Amir Abboud (Weizmann Institute of Science and INSAIT, Sofia Univ.)
6:10-6:30	<b>Improved Shortest Path Restoration Lemmas for Multiple Edge Failures: Trade-Offs Between Fault-Tolerance and Subpaths</b> Greg Bodwin and <i>Lily Wang</i> (UMich)	<b>Mean-Field Potts and Random-Cluster Dynamics from High-Entropy Initializations</b> <i>Antonio Blanca</i> (Pennsylvania State Univ.); Reza Gheissari (Northwestern Univ.); Xusheng Zhang (Pennsylvania State Univ.)	<b>More Efficient Approximate <math>k</math>-Wise Independent Permutations from Random Reversible Circuits Via Log-Sobolev Inequalities</b> William He (CMU); <i>Lucas Gretta</i> and Angelos Pelecanos (UC Berkeley)	<b>Recursive Lattice Reduction-A Framework for Finding Short Lattice Vectors</b> <i>Divesh Aggarwal</i> (National Univ. of Singapore); Thomas Espitau (PQShield); Spencer Peters (Cornell Univ.); Noah Stephens-Davidowitz (NYU)
6:35-6:55	<b>Faster Approximation Algorithms for Restricted Shortest Paths in Directed Graphs</b> <i>Vikrant Ashvinkumar</i> (Rutgers Univ.); Aaron Bernstein (Rutgers Univ.); Adam Karczmarz (Univ. of Warsaw)	<b>FPTAS for Holant Problems with Log-Concave Signatures</b> Kun He (Chinese Academy of Sciences); Zhidan Li, <i>Guoliang Qiu</i> , and Chihao Zhang (Shanghai Jiao Tong Univ.)	<b>Hermitian Diagonalization in Linear Precision</b> <i>Rikhav Shah</i> (UC Berkeley)	