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

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

11:05 AM - 11:30 AM	Coffee Break	Grand Gallery - 2nd Floor
11:30 AM - 12:30 PM	**IP3 Learning in Environments with Carryover Effects** Éva Tardos (Cornell Univ.)	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	**Inapproximability of Maximum Diameter Clustering for Few Clusters** *Ashwin Padaki* (UPenn); Henry Fleischmann (CMU); Kyrylo Karlov (Charles Univ.); Karthik C. S. (Rutgers Univ.); Stepan ZHARKOV (Columbia Univ.)	**Faster Vizing and Near-Vizing Edge Coloring Algorithms** *Sepehr Assadi* (Univ. of Waterloo)	**Relating Interleaving and Fréchet Distances Via Ordered Merge Trees** Thijs Beurskens (TU Eindhoven); *Tim Ophelders* (TU Eindhoven and Utrecht Univ.); Bettina Speckmann and Kevin Verbeek (TU Eindhoven)	**Dynamic Independent Set of Disks (and Hypercubes) Made Easier** *Sujoy Bhore* (IIT Bombay); Timothy M. Chan (UIUC)
2:25-2:45	**Coresets for Constrained Clustering: General Assignment Constraints and Improved Size Bounds** *Lingxiao Huang* (Nanjing Univ.); Jian Li (Tsinghua Univ.); Pinyan Lu (Shanghai Univ. of Finance and Economics); Xuan Wu (Nanyang Technological Univ.)	**A Sublinear-Time Algorithm for Nearly-Perfect Matchings in Regular Non-Bipartite Graphs** *Thomas P. Hayes* (Univ. at Buffalo); Varsha Dani (Rochester Institute of Technology)	**Facet-Hamiltonicity** *Hugo A. Akitaya* (UMass Lowell); Jean Cardinal (Univ. Libre de Bruxelles); Stefan Felsner (TU Berlin); Linda Kleist (Univ. of Potsdam); Robert Lauff (TU Berlin)	**A Simple Partially Embedded Planarity Test Based on Vertex-Addition** *Simon D. Fink* (TU Wien); Ignaz Rutter (Univ. of Passau); Sandhya T P (Stockholms Univ.)
2:50-3:10	**A Tight Vc-Dimension Analysis of Clustering Coresets with Applications** Chris Schwiegelshohn (Aarhus Univ.); Vincent Cohen-Addad (Google Research); Andrew Draganov (Aarhus Univ.); *Matteo Russo* (Univ. La Sapienza); David Saulpic (IST)	**Even Faster (Delta + 1)-Edge Coloring Via Shorter Multi-Step Vizing Chains** *Martin Costa* and Sayan Bhattacharya (Univ. of Warwick); Shay Solomon (Tel Aviv Univ.); Tianyi Zhang (ETH Zurich)	**Differentiable Approximations for Distance Queries** *Ahmed Abdelkader* (Google); David M. Mount (Univ. of Maryland)	**An Optimal Algorithm for Half-Plane Hitting Set** *Gang Liu* and Haitao Wang (Univ. of Utah)
3:15-3:35	**Efficient Approximation Algorithm for Computing Wasserstein Barycenter under Euclidean Metric** Pankaj K. Agarwal (Duke Univ.); Sharath Raghvendra (North Carolina State Univ.); *Pouyan Shirzadian* (Virginia Tech); Keegan Yao (Duke Univ.)	**Randomized Greedy Online Edge Coloring Succeeds for Dense and Randomly-Ordered Graphs** Aditi Dudeja (Univ. of Salzburg); *Rashmika Goswami* and Michael Saks (Rutgers Univ.)	**Fréchet Distance in Subquadratic Time** Siu-Wing Cheng (Hong Kong Univ. of Science and Technology); *Haoqiang Huang* (Hong Kong Univ. of Science and Technology)	**On Beating 2^n for the Closest Vector Problem** *Rajendra Kumar* (IIT Delhi); Amir Abboud (Weizmann Institute of Science and INSAIT, Sofia Univ.)

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3:40-4:00	**Gains-from-Trade in Bilateral Trade with a Broker** *Suho Shin* (Univ. of Maryland); Ilya Hajiaghayi (Takoma Park Middle School); MohammadTaghi Hajiaghayi and Gary Peng (Univ. of Maryland)	**Fully Dynamic $(\Delta+1)$ Coloring Against Adaptive Adversaries** *Omer Wasim*, Soheil Behnezhad, and Rajmohan Rajaraman (Northeastern Univ.)	**A Discrete Analog of Tutte's Barycentric Embeddings on Surfaces** *Loïc Dubois* (CNRS / LIGM Univ. Gustave Eiffel); Éric Colin de Verdière (Univ. Paris-Est); Vincent Despré (Univ. Henri Poincaré)	**Recursive Lattice Reduction-A Framework for Finding Short Lattice Vectors** *Divesh Aggarwal* (National Univ. of Singapore); Thomas Espitau (PQShield); Spencer Peters (Cornell Univ.); Noah Stephens-Davidowitz (NYU)

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

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4:30-4:50	**Fine-Grained Optimality of Partially Dynamic Shortest Paths and More** *Christopher Ye* (UC San Diego); Barna Saha (UC San Diego); Virginia Vassilevska Williams and Yinzhan Xu (MIT)	**Rényi-Infinity Constrained Sampling with D^3 Membership Queries** *Yunbum Kook* (Georgia Tech); Matthew Zhang (Univ. of Toronto)	**Low Degree Local Correction Over the Boolean Cube** *Prashanth Amireddy* (Harvard Univ.); Amik Raj Behera, Manaswi Paraashar, and Srikanth Srinivasan (Univ. of Copenhagen); Madhu Sudan (Harvard Univ.)	**Dynamic Independent Set of Disks (and Hypercubes) Made Easier** *Sujoy Bhore* (IIT Bombay); Timothy M. Chan (UIUC)
4:55-5:15	**All-Hops Shortest Paths** Yinzhan Xu, Virginia Vassilevska Williams, and *Zoe Xi* (MIT); Uri Zwick (Tel Aviv Univ.)	**Potential Hessian Ascent: The Sherrington-Kirkpatrick Model** *Juspreet Singh Sandhu* (UC Santa Cruz); David Jekel (Univ. of Copenhagen); Jonathan Shi (UC San Diego)	**Quantum Locally Recoverable Codes** *Louis Golowich* and Venkatesan Guruswami (UC Berkeley)	**A Simple Partially Embedded Planarity Test Based on Vertex-Addition** *Simon D. Fink* (TU Wien); Ignaz Rutter (Univ. of Passau); Sandhya T P (Stockholms Univ.)
5:20-5:40	**New Approximation Algorithms and Reductions for n-Pairs Shortest Paths and All-Nodes Shortest Cycles** Shiri Chechik, *Itay Hoch*, and Gur Lifshitz (Tel Aviv Univ.)	**Spectral Independence Beyond Total Influence on Trees and Related Graphs** Xiaoyu Chen (Nanjing Univ.); Xiongxin Yang (Northeast Normal Univ.); Yitong Yin and *Xinyuan Zhang* (Nanjing Univ.)	**Locally Testable Tree Codes** *Tamer Mour* and Alon Rosen (Bocconi Univ.); Ron Rothblum (Technion Israel Institute of Technology)	**An Optimal Algorithm for Half-Plane Hitting Set** *Gang Liu* and Haitao Wang (Univ. of Utah)
5:45-6:05	**Faster Single-Source Shortest Paths with Negative Real Weights Via Proper Hop Distance** Yufan Huang, *Peter Jin*, and Kent Quanrud (Purdue Univ.)	**Optimal Mixing for Randomly Sampling Edge Colorings on Trees Down to the Max Degree** Charlie A. Carlson (UC Santa Barbara); *Xiaoyu Chen* (Nanjing Univ.); Weiming Feng (ETH Zurich); Eric Vigoda (UC Santa Barbara)	**Improved Explicit Near-Optimal Codes in the High-Noise Regimes** Xin Li and *Songtao Mao* (Johns Hopkins Univ.)	**On Beating 2^n for the Closest Vector Problem** *Rajendra Kumar* (IIT Delhi); Amir Abboud (Weizmann Institute of Science and INSAIT, Sofia Univ.)

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6:10-6:30	**Improved Shortest Path Restoration Lemmas for Multiple Edge Failures: Trade-Offs Between Fault-Tolerance and Subpaths** Greg Bodwin and *Lily Wang* (UMich)	**Mean-Field Potts and Random-Cluster Dynamics from High-Entropy Initializations** *Antonio Blanca* (Penn State); Reza Gheissari (Northwestern Univ.); Xusheng Zhang (Penn State)	**More Efficient Approximate k-Wise Independent Permutations from Random Reversible Circuits Via Log-Sobolev Inequalities** William He (CMU); *Lucas Gretta* and Angelos Pelecanos (UC Berkeley)	**Recursive Lattice Reduction-A Framework for Finding Short Lattice Vectors** *Divesh Aggarwal* (National Univ. of Singapore); Thomas Espitau (PQShield); Spencer Peters (Cornell Univ.); Noah Stephens-Davidowitz (NYU)
6:35-6:55	**Faster Approximation Algorithms for Restricted Shortest Paths in Directed Graphs** *Vikrant Ashvinkumar* (Rutgers Univ.); Aaron Bernstein (Rutgers Univ.); Adam Karczmarz (Univ. of Warsaw)	**FPTAS for Holant Problems with Log-Concave Signatures** Kun He (Chinese Academy of Sciences); Zhidan Li, *Guoliang Qiu*, and Chihao Zhang (Shanghai Jiao Tong Univ.)	**Hermitian Diagonalization in Linear Precision** *Rikhav Shah* (UC Berkeley)	