SODA'25 Day 1 (Sunday)

All day (8:00 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 1A *Grand Ballroom C/D - 2nd Floor* Chair: Kent Quanrud (Purdue Univ.)	SODA 1B *Toulouse - 2nd Floor Mezzanine* Chair: Chandra Chekuri (UIUC)	SODA 1C *Grand Ballroom A - 2nd Floor* Chair: Bill Kuszmaul (CMU)	ALENEX1 *St. Charles - 1st Floor* Chair: Kasmir Gabert (Sandia National Laboratories)
9:00-9:20	**Connectivity Labeling Schemes for Edge and Vertex Faults Via Expander Hierarchies** *Yaowei Long*, Seth Pettie, and Thatchaphol Saranurak (UMich)	**Beyond 2-Approximation for K-Center in Graphs** *Yael Kirkpatrick*, Ce Jin, and Virginia Vassilevska Williams (MIT); Nicole Wein (UMich)	**Relative-Error Monotonicity Testing** *Tianqi Yang* and Xi Chen (Columbia Univ.); Anindya De (UPenn); Yizhi Huang, Yuhao Li, Shivam Nadimpalli, and Rocco A. Servedio (Columbia Univ.)	**Optimal Neighborhood Exploration for Dynamic Independent Sets** Jannick Borowitz, *Ernestine Großmann*, and Christian Schulz (Heidelberg Univ.)
9:25-9:45	**A Dichotomy Hierarchy for Linear Time Subgraph Counting in Bounded Degeneracy Graphs** *Daniel Paul-Pena* and C. Seshadhri (UC Santa Cruz)	**Dynamic Consistent k-Center Clustering with Optimal Recourse** Sebastian Forster and *Antonis Skarlatos* (Univ. of Salzburg)	**Nearly Tight Bounds on Testing of Metric Properties** *Yiqiao Bao* (UPenn); Sampath Kannan (UPenn and UC Berkeley); Erik Waingarten (UPenn)	**Engineering Fully Dynamic Exact Δ-Orientation Algorithms** Christian Schulz, Ernestine Großmann, and *Henrik Reinstädtler* (Heidelberg Univ.); Fabian Walliser
9:50-10:10	**Embedding Planar Graphs into Graphs of Treewidth $O(\log^3 n)$** Hsien-Chih Chang (Dartmouth College); Vincent Cohen-Addad (Google Research); *Jonathan Conroy* (Dartmouth College); Hung Le (UMass Amherst); Marcin Pilipczuk and Michal Pilipczuk (Univ. of Warsaw)	**Clustering to Minimize Cluster-Aware Norm Objectives** *Martin G. Herold* (MPI Informatik); Evangelos Kipouridis (Saarland Univ. and Max Planck Institute for Informatics); Joachim Spoerhase (Univ. of Liverpool)	**Lower Bounds for Convexity Testing** Xi Chen (Columbia Univ.); Anindya De (UPenn); Shivam Nadimpalli and Rocco A. Servedio (Columbia Univ.); *Erik Waingarten* (UPenn)	**A Simpler Approach for Monotone Parametric Minimum Cut: Finding the Breakpoints in Order** *Jonas Sauer* (Univ. of Bonn); Arne Beines (Formerly of Argonne National Laboratory); Michael Kaibel, Philip Mayer, and Petra Mutzel (Univ. of Bonn)
10:15-10:35	**Deterministic Edge Connectivity and Max Flow Using Subquadratic Cut Queries** Aditya Anand and Thatchaphol Saranurak (UMich); *Yunfan Wang* (Tsinghua Univ.)	**Clustering Mixtures of Bounded Covariance Distributions Under Optimal Separation** *Thanasis Pittas* and Ilias Diakonikolas (Univ. of Wisconsin-Madison); Daniel Kane (UC San Diego); Jasper Lee (UC Davis)	**Tight Sampling Bounds for Eigenvalue Approximation** *William J. Swartworth* and David Woodruff (CMU)	**Parallel Cluster-BFS and Applications to Shortest Paths** *Letong Wang* (UC Riverside); Guy Blelloch (CMU); Yan Gu and Yihan Sun (UC Riverside)
10:40-11:00	**Massively Parallel Minimum Spanning Tree in General Metric Spaces** *Amir Azarmehr* and Soheil Behnezhad (Northeastern Univ.); Rajesh Jayaram and Jakub Lacki (Google Research); Vahab Mirrokni (Google, Inc.); Peilin Zhong (Google Research)	**Breaking the Two Approximation Barrier for Various Consensus Clustering Problems** *Debarati Das* (Pennsylvania State Univ.); Amit Kumar (IIT Delhi)	**Near-Optimal-Time Quantum Algorithms for Approximate Pattern Matching** Tomasz Kociumaka (Max Planck Institute for Informatics); *Jakob Nogler* (ETH Zurich); Philip Wellnitz (Max Planck Institute for Informatics)	

Time				
11:05 AM - 11:30 AM	Coffee Break			Grand Gallery - 2nd Floor
11:30 AM - 12:30 PM	**IP1 Fully Dynamic Matching, Matching Sparsifiers, and (Ordered) Ruzsa-Szemerédi Graphs** Sanjeev Khanna (UPenn)			Grand Ballroom C/D - 2nd Floor
12:30 PM - 2:00 PM	Luncheon (**ticketed event**)			Astor Ballroom - 2nd Floor

Time	SODA 2A *Grand Ballroom C/D - 2nd Floor* Chair: Chandra Chekuri (UIUC)	SODA 2B *Toulouse - 2nd Floor Mezzanine* Chair: Soheil Behnezhad (Northeastern Univ.)	SODA 2C *Grand Ballroom A - 2nd Floor* Chair: Bundit Laekhanukit (Independent Researcher)	ALENEX2 *St. Charles - 1st Floor* Chair: Christian Schulz (Heidelberg Univ.)
2:00-2:20	**A Subexponential Time Algorithm for Makespan Scheduling of Unit Jobs with Precedence Constraints** *Jesper Nederlof* (Utrecht Univ.); Céline Swennenhuis (Univ. of Utrecht); Karol Wegrzycki (Saarland Univ. and Max Planck Institute for Informatics)	**Tree-Packing Revisited: Faster Fully Dynamic Min-Cut and Arboricity** *Tijn De Vos* (Univ. of Salzburg); Aleksander Christiansen (Technical Univ. of Denmark)	**Quartic Quantum Speedups for Planted Inference** *Alexander Schmidhuber* (MIT); Ryan O'Donnell (CMU); Robin Kothari and Ryan Babbush (Google Research)	**Graph Neural Networks As Ordering Heuristics for Parallel Graph Coloring** *Kenneth Langedal* and Fredrik Manne (Univ. of Bergen)
2:25-2:45	**Approximating Unrelated Machine Weighted Completion Time Using Iterative Rounding and Computer Assisted Proofs** *Shi Li* (Nanjing Univ.)	**Fully Dynamic Approximate Minimum Cut in Subpolynomial Time Per Operation** Jason M. Li (CMU); *Antoine El-Hayek* (Institute of Science and Technology); Monika Henzinger (Institute of Science and Technology Austria)	**Triply Efficient Shadow Tomography** *Robbie King* (California Institute of Technology); David Gosset (Univ. of Waterloo); Robin Kothari and Ryan Babbush (Google Research)	**Discrete Transforms of Quantized Persistence Diagrams** Vadim Lebovici (Université Sorbonne Paris Nord); *Matteo Palo* (ETH Zurich); Olympio Hacquard (Kyoto Univ.); Michael E. Van Huffel (ETH Zurich)
2:50-3:10	**Lift-and-Project Integrality Gaps for Santa Claus** *Etienne Bamas* (ETH Zurich)	**Fully Dynamic Algorithms for Graph Spanners Via Low-Diameter Router Decomposition** *Julia Chuzhoy* (Toyota Technological Institute at Chicago); Merav Parter (Weizmann Institute of Science)	**On Estimating the Trace of Quantum State Powers** *Yupan Liu* (Nagoya Univ.); Qisheng Wang (Univ. of Edinburgh)	**Scalable Multilevel and Memetic Signed Graph Clustering** Felix Hausberger, Marcelo Fonseca Faraj, and *Christian Schulz* (Heidelberg Univ.)
3:15-3:35	**The Submodular Santa Claus Problem** *Etienne Bamas* (ETH Zurich); Sarah Morell (Technische Univ. Berlin); Lars Rohwedder (Maastricht Univ.)	**Nearly Optimal Dynamic Set Cover: Breaking the Quadratic-in-f Time Barrier** *Anton Bukov*, Shay Solomon, and Tianyi Zhang (Tel Aviv Univ.)	**A Quantum Speed-Up for Approximating the Top Eigenvectors of a Matrix** *Yanlin Chen* (CWI and QuSoft); Andras Gilyen (Rényi Institute of Mathematics); Ronald de Wolf (CWI Amsterdam and Univ. of Amsterdam)	**Batched K-Mer Lookup on the Spectral Burrows-Wheeler Transform** Simon J. Puglisi, Jarno Alanko, and *Elena Biagi* (Univ. of Helsinki); Joel Mackenzie (Univ. of Queensland)

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3:40-4:00	**A Tight $(3/2 + \varepsilon)$-Approximation Algorithm for Demand Strip Packing** *Franziska Eberle* (Technische Univ. Berlin); Felix Hommelsheim (Univ. of Bremen); Malin Rau (Chalmers Univ. of Technology); Stefan Walzer (Karlsruhe Institute of Technology)	**Settling the Pass Complexity of Approximate Matchings in Dynamic Graph Streams** *Janani Sundaresan* and Sepehr Assadi (Univ. of Waterloo); Soheil Behnezhad (Northeastern Univ.); Christian Konrad and Kheeran K. Naidu (Univ. of Bristol)	**Polynomial-Time Classical Simulation of Noisy IQP Circuits with Constant Depth** *Joel Rajakumar*, James Watson, and Yi-Kai Liu (Univ. of Maryland)	

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

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4:30-4:50	**Lipschitz Continuous Algorithms for Covering Problems** *Soh Kumabe* (CyberAgent, Inc.); Yuichi Yoshida (National Institute of Informatics)	**New Prophet Inequalities Via Poissonization and Sharding** *Elfarouk Harb* (Univ. of Illinois at Chicago)	**Fixed-Parameter Tractability of Hedge Cut** Fedor Fomin and Petr Golovach (Univ. of Bergen); Tuukka Korhonen (Univ. of Copenhagen); Daniel Lokshtanov (UC Santa Barbara); *Saket Saurabh* (Institute of Mathematical Sciences and Univ. of Bergen)	**Linear Assignment on Tile-Centric Accelerators: Redesigning Hungarian Algorithm on IPUs** *Cheng Huang* (Aarhus Univ.); Alexander Mathiasen (Independent Researcher); Josef Dean (Graphcore); Johannes Langguth (Simula Research Laboratory); Davide Mottin and Ira Assent (Aarhus Univ.)
4:55-5:15	**Approximately Counting Knapsack Solutions in Subquadratic Time** Weiming Feng (ETH Zurich); *Ce Jin* (MIT)	**Prophet Inequalities: Competing with the Top ℓ Items Is Easy** *Mathieu Molina*, Nicolas Gast, and Patrick Loiseau (Inria); Vianney Perchet (ENSAE ParisTech)	**Crossing Number in Slightly Superexponential Time** Jie Xue (NYU-Shanghai); Daniel Lokshtanov (UC Santa Barbara); Fahad Panolan (Univ. of Leeds); *Saket Saurabh* (Institute of Mathematical Sciences and Univ. of Bergen); Roohani Sharma (Univ. of Bergen); Meirav Zehavi (Ben-Gurion Univ.)	**Spiderdan: Matching Augmentation in Demand-Aware Networks** *Aleksander Figiel*, Darya Melnyk, André Nichterlein, Arash Pourdamghani, and Stefan Schmid (Technische Univ. Berlin)

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5:20-5:40	**Balancing Notions of Equity: Trade-Offs Between Fair Portfolio Sizes and Achievable Guarantees** Swati Gupta (MIT); *Jai Moondra* and Mohit Singh (Georgia Institute of Technology)	**New Combinatorial Insights for Monotone Apportionment** *Javier Cembrano* (Max Planck Institute); Jose Correa (Univ. of Chile); Ulrike Schmidt-Kraepelin (Eindhoven Univ. of Technology); Alexandros Tsigonias-Dimitriadis (European Central Bank); Victor Verdugo (Pontificia Univ. Católica de Chile)	**Packing Short Cycles** *Matthias Bentert*, Fedor Fomin, and Petr Golovach (Univ. of Bergen); Tuukka Korhonen (Univ. of Copenhagen); William Lochet (CNRS); Fahad Panolan (Univ. of Leeds); M. S. Ramanujan (Univ. of Warwick); Saket Saurabh (Institute of Mathematical Sciences and Univ. of Bergen); Kirill Simonov (Technische Univ. Wien)	**Exploring the Landscape of Distributed Graph Sketching** *David Tench* (Lawrence Berkeley National Laboratory); Evan West (Stony Brook Univ.); Kenny Zhang (UMich); Michael A. Bender and Daniel Delayo (Stony Brook Univ.); Martin Farach-Colton (Rutgers Univ.); Gilvir Gill (Stony Brook Univ.); Tyler Seip (MongoDB); Victor Zhang (Meta Platforms, Inc.)
5:45-6:05	**Approximating Traveling Salesman Problems Using a Bridge Lemma** *Tobias Mömke* (Univ. of Augsburg); Martin Böhm (Univ. of Wrocław); Zachary Friggstad (Univ. of Alberta); Joachim Spoerhase (Univ. of Liverpool)	**Designing Automated Market Makers for Combinatorial Securities: A Geometric Viewpoint** Prommy Sultana Hossain (George Mason Univ.); Xintong Wang (Rutgers Univ.); *Fang-Yi Yu* (George Mason Univ.)	**Unbreakable Decomposition in Close-to-Linear Time** *Aditya Anand* and Euiwoong Lee (UMich); Jason M. Li (CMU); Yaowei Long and Thatchaphol Saranurak (UMich)	**The Constrained Layer Tree Problem and Applications to Solar Farm Cabling** Thomas Bläsius, Max Göttlicher, Sascha Gritzbach, and *Wendy Yi* (Karlsruhe Institute of Technology)
6:10-6:30	**Min-CSPs on Complete Instances** Aditya Anand and Euiwoong Lee (UMich); *Amatya Sharma* (UMich)	**An Elementary Predictor Obtaining $2\sqrt{T}+1$ Distance to Calibration** Eshwar Ram Arunachaleswaran, Natalie Collina, Aaron Roth, and *Mirah Shi* (UPenn)	**The Primal Pathwidth Seth** *Michael Lampis* (Université Paris Dauphine)	
6:35-6:55	**Constraint Satisfaction Problems with Advice** *Suprovat Ghoshal* (Northwestern Univ.); Konstantin Makarychev (Northwestern Univ.); Yury Makarychev (Toyota Technological Institute at Chicago)	**Prophet Secretary and Matching: the Significance of the Largest Item** *Ziyun Chen* (Univ. of Washington); Zhiyi Huang and Dongchen Li (Univ. of Hong Kong); Zhihao Tang (Shanghai Univ. of Finance and Economics)	**Parameterized Approximation for Capacitated d-Hitting Set with Hard Capacities** *Vaishali Surianarayanan* and Daniel Lokshtanov (UC Santa Barbara); Abhishek Sahu (Homi Bhabha National Institute); Saket Saurabh (Institute of Mathematical Sciences and Univ. of Bergen); Jie Xue (NYU-Shanghai)	

6:15 PM - 7:00 PM	ALENEX Business Meeting	St. Charles - 1st Floor