

## SUN

18.00-20.00: Welcome reception.

25Th Anniversary Celebration for Discrete and Computational Geometry with Springer.

---

### MON 1 (chair: Herbert Edelsbrunner)

09.00-09.20: Orthogonal Range Searching on the RAM, Revisited .Timothy M. Chan, Kasper Green Larsen and Mihai Patrascu.

09.20-09.40: Convex Hull of Imprecise Points in  $o(n \log n)$  Time after Preprocessing. Esther Ezra and Wolfgang Mulzer.

09.40-10.00: A Static Optimality Transformation with Applications to Planar Point Location. John Iacono

10.00-10.20: Three Problems about Dynamic Convex Hulls. Timothy M. Chan.

### MON 2 (chair: Micha Sharir)

10.50-11.10: Metric Graph Reconstruction from Noisy Data. Mridul Aanjaneya, Frederic Chazal, Daniel Chen, Marc Glisse, Leonidas Guibas and Dmitriy Morozov.

11.10-11.30: Comparing Distributions and Shapes using the Kernel Distance. Sarang Joshi, Raj Varma Kommaraju, Jeff Phillips and Suresh Venkatasubramanian.

11.30-11.50: Witnessed  $k$ -distance. Leonidas Guibas, Quentin Merigot and Dmitriy Morozov.

11.50-12.10: Stochastic Minimum Spanning Trees in Euclidean Spaces. Pegah Kamousi, Timothy Chan and Subhash Suri.

### INVITED TALK (chair: Ferran Hurtado)

14.10-15.00: Can they cross? And how? (The Hitchhiker's Guide to the Universe of Geometric Intersection Graphs). Jan Kratochvíl.

### MON 3 (chair: Esther Arkin)

15.15-15.35: Exploiting Temporal Coherence in Forest Dynamics Simulation. Pankaj K. Agarwal, Thomas Mølhave, Hai Yu and Jim S. Clark.

15.35-15.55: Compressive Sensing with Local Geometric Features. Rishi Gupta, Piotr Indyk, Eric Price and Yaron Rachlin.

15.55-16.15: Persistence-Based Clustering in Riemannian Manifolds. Frédéric Chazal, Leonidas Guibas, Steve Oudot and Primoz Skraba.

### MON 4 (chair: Prosenjit Bose)

16.40-17.00: A Kuratowski-type Theorem for Planarity of Partially Embedded Graphs. Vít Jelínek, Jan Kratochvíl and Ignaz Rutter.

17.40-17.20: A Center Transversal Theorem for Hyperplanes and Applications to Graph Drawing. Vida Dujmovic and Stefan Langerman.

17.20-17.40: Disjoint Compatible Geometric Matchings. Mashood Ishaque, Diane Souvaine and Csaba Toth.

### BUSINESS MEETING

17.45-19.15

---

### TUE 1a (chair: Monique Teillaud)

09.00-09.20: The Least Spanning Area of a Knot and the Optimal Bounding Chain Problem. Nathan Dunfield and Anil Hirani.

09.20-09.40: A Tree Traversal Algorithm for Decision Problems in Knot Theory and 3-Manifold Topology. Benjamin A. Burton and Melih Ozlen.

09.40-10.00: The Pachner Graph and the Simplification of 3-Sphere Triangulations. Benjamin A. Burton.

10.00-10.20: Space Crossing Numbers. Boris Bukh and Alfredo Hubard.

### TUE 1b (chair: Olivier Devillers)

09.00-09.20: Theoretical and Practical Results on Straight Skeletons of Planar Straight-Line Graphs. Stefan Huber and Martin Held.

09.20-09.40: A Generic Algebraic Kernel for Non-linear Geometric Applications. Eric Berberich, Michael Hemmer and Michael Kerber.

09.40-10.00: Deconstructing Approximate Offsets. Eric Berberich, Dan Halperin, Michael Kerber and Roza Pogalnikova.

10.00-10.20: Stable Snap Rounding. John Hershberger.

**TUE 2a** (chair: Éric Colin de Verdière)

10.50-11.10: An Output-Sensitive Algorithm for Persistent Homology. Chao Chen and Michael Kerber.

11.10-11.30: Zigzag Persistent Homology in Matrix Multiplication Time. Nikola Milosavljevic, Dmitriy Morozov and Primož Škraba

11.30-11.50: Reeb Graphs: Approximation and Persistence. Tamal Dey and Yusu Wang.

11.50-12.10: Shortest nontrivial cycles in directed surface graphs. Jeff Erickson.

**TUE 2b** (chair: Stefan Schirra)

10.50-11.10: Kinetic Convex Hulls and Delaunay Triangulations in the Black-Box Model. Mark de Berg, Marcel Roeloffzen and Bettina Speckmann.

11.10-11.30: The Geometric Stability of Voronoi Diagrams with Respect to Small Changes of the Sites. Daniel Reem.

11.30-11.50: Improved Upper Bound on the Stretch Factor of Delaunay Triangulations. Ge Xia.

11.50-12.10: Delaunay Triangulations of Point Sets in Closed Euclidean  $d$ -Manifolds. Manuel Caroli and Monique Teillaud.

**VIDEO & MULTIMEDIA** (chair: Tamal Dey)

12:45 – 14:00

- Redelmeier's Algorithm for Counting Lattice Animals. Gadi Aleksandrowicz, Gill Barequet.
- Geometric Computation with Smart Pixels. Paul Accisano, Alper Üngör.
- Ant-Sweep – A Decentral Strategy for Cooperative Cleaning in Expanding Domains. Thilo Beckmann, Rolf Klein, David Kriesel, Elmar Langetepe.
- Visualization of Discrete Gradient Construction. Attila Gyulassy, Joshua A. Levine, Valerio Pascucci.
- Fitting Spheres to Electron Density. Jack Snoeyink, Vishal Verma.
- Minimum Perimeter Convex Hull of Imprecise Points in Convex Regions. Christophe Weibel, Linqiao Zhang.
- Point Location Strategies. Pedro Machado Manhaes de Castro, Olivier Devillers.

**INVITED TALK** (chair: Marc van Kreveld)

14.10-15.00: Answering Geographic Questions with User Generated Content: Experiences from the Coal Face. Ross Purves.

**TUE 3a** (chair: Sergio Cabello)

15.15-15.35: Integer Representations of Convex Polygon Intersection Graphs. Tobias Müller, Erik Jan van Leeuwen and Jan van Leeuwen.

15.35-15.55: Sphere and Dot Product Representations of Graphs. Ross J. Kang and Tobias Mueller.

15.55-16.15: Contact representations of planar graphs with cubes. Stefan Felsner and Mathew Francis.

**TUE 3b** (chair: Lars Arge)

15.15-15.35: Beating the Spread: Time-Optimal Point Meshing. Don Sheehy, Gary Miller and Todd Phillips.

15.35-15.55: Edge Flips and Deforming Surface Meshes. Siu-Wing Cheng and Jiongxin Jin.

15.55-16.15: Kinetic Mesh Refinement in 2D. Umut Acar, Benoît Hudson and Duru Türkoglu.

**TUE 4a** (chair: Adrian Dumitrescu)

16.40-17.00: Complete Minors of Hypergraphs, I. Random and Expanding Hypergraphs. Uli Wagner.

17.40-17.20: Bounds on the Complexity of Halfspace Intersections when the Bounded Faces have Small Dimension. David Eppstein and Maarten Löffler.

17.20-17.40: On the Structure and Composition of Forbidden Sequences, with Geometric Applications. Seth Pettie.

17.40-18.00: A New Upper Bound for the VC-Dimension of Visibility Regions. Alexander Gilbers and Rolf Klein.

**TUE 4b** (chair: Klara Kedem)

- 16.40-17.00: Guarding Polyominoes. Justin Iwerks, Joseph Mitchell, Joondong Kim, Mohammad Irfan and Therese Biedl.
- 17.40-17.20: Convex Hulls of Spheres and Convex Hulls of Convex Polytopes Lying on Parallel Hyperplanes. Menelaos I. Karavelas and Eleni Tzanaki.
- 17.20-17.40: Approximation Algorithms for Computing Partitions with Minimum Stabbing Number of Rectilinear and Simple Polygons. Mohammad Ali Abam, Boris Aronov, Mark de Berg and Amirali Khosravi.
- 17.40-18.00: Covering Cubes and the Closest Vector Problem. Friedrich Eisenbrand, Nicolai Hähnle and Martin Niemeier.

## **BANQUET**

19.30-

---

### **WED 1** (chair: Mark de Berg)

- 09.00-09.20: The Potential to Improve the Choice: List Conflict-free Coloring for Geometric Hypergraphs. Panagiotis Cheilaris, Shakhbar Smorodinsky and Marek Sulovsky.
- 09.20-09.40: On the Euclidean Bottleneck Full Steiner Tree Problem. Karim Abu-Affash.
- 09.40-10.00: The Euclidean Bottleneck Steiner Path Problem. Karim Abu-Affash, Paz Carmi, Matthew Katz and Michael Segal.
- 10.00-10.20: The Frechet Distance Revisited and Extended. Sariel Har-Peled and Benjamin Raichel.

### **WED 2** (chair: Günter Rote)

- 10.50-11.10: Tight Lower Bounds for the Size of epsilon-Nets. Janos Pach and Gabor Tardos.
- 11.10-11.30: No Dimension Independent Core Sets for Containment under Homothetics. René Brandenberg and Stefan König.
- 11.30-11.50: Extremal Reaches in Polynomial Time. Ciprian Borcea and Ileana Streinu.
- 11.50-12.10: Exact Workspace Boundary by Extremal Reaches. Ciprian Borcea and Ileana Streinu.

### **WED 3** (chair: David Mount)

- 14.10-14.30: Vietoris-Rips Complexes also Provide Topologically Correct Reconstructions of Sampled Spaces. Dominique Attali, Andre Lieutier and David Salinas.
- 14.30-14.50: Efficient Data Structure for Representing and Simplifying Simplicial Complexes in High Dimension. Dominique Attali, Andre Lieutier and David Salinas.
- 14.50-15.10: Boundary of a Non-uniform Point Cloud for Reconstruction. Nicolas Chevallier and Yvan Maillot.
- 

## **ADDITIONAL TALK**

- 15.30-16.30: From Joints to Distinct Distances and Beyond: The Dawn of an Algebraic Era in Combinatorial Geometry. Micha Sharir.