

Computational Interactions between Algebra, Combinatorics, and Discrete Geometry

Monday February 10, 2025

- 8:00–8:55 *Check-In/Breakfast (Hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00 *MODERATOR: Andrés R. Vindas Meléndez*
- 9:00–9:50 **Galen Dorpalen-Barry** (Texas A&M University - College Station)
Yoshinaga's Criterion & the Topology of a Complexified Complement of a Real Arrangement
- 10:00–10:15 *Break*
- 10:15–11:05 *Open Problem Sessions*
- 11:15–11:30 *Break*
- 11:30–12:20 **Federico Castillo** (Pontificia Universidad Católica de Chile)
Minkowski bases of type cones
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *MODERATOR: Andrés R. Vindas Meléndez*
- 2:30–3:20 **Anton Dochtermann** (Texas State University - San Marcos)
Interval complexes, linear resolutions, and spaces of digraph maps
- 3:30–4:00 *Break*
- 4:00–5:15 *Lightning Introductions*
- 5:15–6:30 *Poster Session & Reception (Hosted by IPAM)*

Tuesday February 11, 2025

- 8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*
- 9:00 *MODERATOR: Selvi Kara*
- 9:00–9:50 **Ayah Almousa** (University of South Carolina)
Stirling numbers and Koszul algebras with symmetry
- 10:00–10:15 *Break*
- 10:15–11:05 **Sarah Brauner** (Brown University)
Symmetries of rings from hyperplane arrangements
- 11:15–11:30 *Break*

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- 11:30–12:20 **Benjamin Braun** (University of Kentucky)
Facets of Symmetric Edge Polytopes: Clustering, Degree Sequences, and Graphs with Few Edges
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *MODERATOR: Selvi Kara*
- 2:30–3:20 **Bennet Goeckner** (University of San Diego)
Vertex order shellings
- 3:30–4:00 *Break*
- 4:00–5:00 *Collaboration Time*

Wednesday February 12, 2025

- 8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*
- 9:00 *MODERATOR: Andrés R. Vindas Meléndez*
- 9:00–9:50 **Martina Juhnke** (Universität Osnabrück)
Algebra, Geometry and Combinatorics of Cosmological polytopes
- 10:00–10:15 *Break*
- 10:15–11:05 **Akiyoshi Tsuchiya** (Toho University)
Interactions between commutative algebra and graph coloring theory
- 11:15–11:30 *Break*
- 11:30–12:20 **Luis Ferroni** (Institute for Advanced Study)
The polytope of all matroids.
- 12:30 *Group Photo*
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *MODERATOR: Andrés R. Vindas Meléndez*
- 2:30–3:20 **Sonja Petrovic** (Illinois Institute of Technology)
Probability and Randomness in Nonlinear Algebra
- 3:30–4:00 *Break*
- 4:00–5:00 **Colleen Robichaux** (University of California, Los Angeles (UCLA))
Deciding positivity of Schubert coefficients

Thursday February 13, 2025

- 8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*
- 9:00 *MODERATOR: Dan Erman*
- 9:00–9:50 **Laura Escobar** (University of California, Santa Cruz)
Families of degenerations from mutations of polytopes
- 10:00–10:15 *Break*
- 10:15–11:05 **Michael DiPasquale** (New Mexico State University)
Generalized Hamming weights and symbolic powers of Stanley-Reisner ideals of matroids
- 11:15–11:30 *Break*
- 11:30–12:20 **Anastasia Chavez** (Saint Mary's College of California)
The valuation polytope on height two posets
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *MODERATOR: Dan Erman*
- 2:30–3:20 **Irem Portakal** (Max-Planck Institute for Mathematics in the Sciences)
Combinatorics of equilibria in game theory
- 3:30–4:00 *Break*
- 4:00–4:50 **Jonathan Montaña** (Arizona State University)
Presburger modules: quasipolynomial and tameness

Friday February 14, 2025

- 8:00–9:00 *Check-In/Breakfast (Hosted by IPAM)*
- 9:00 *MODERATOR: Matt Beck*
- 9:00–9:50 **Lauren Cranton Heller** (University of Nebraska-Lincoln)
Cellular resolutions for normalizations of toric ideals
- 10:00–10:15 *Break*
- 10:15–11:05 **José Alejandro Samper Casas** (Pontificia Universidad Católica de Chile)
The cd-index of a semi-Eulerian complex
- 11:15–11:30 *Break*
- 11:30–12:20 **Felipe Rincon** (Queen Mary University of London)
Tropical Ideals

