

## 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*

