IWOCA'2025 Final Program

All sessions are in NAH 165 (across street from SUB).

July 21, 2025 (Monday)

8:15am—8:25am
Opening address: Henning Fernau and Binhai Zhu

8:30am—9:20am
Invited talk I: Algorithms and Combinatorics on Two-Dimensional Strings
Invited Speaker: ———— Paweł Gawrychowski

9:20am—9:50am————————*Coffee break*

9:50am—11:50am: Session 1; *Computational Geometry and Graph Drawing*
Chair: to be determined

1. Guarding a 1.5D terrain with Imprecise Viewpoints ———— Vahideh Keikha, Maarten Löffler, Maria Saumell, Pavel Valtr
2. Extending simple monotone drawings ———— Jan Kynčl, Jan Soukup
3. Guarding Terrains with Guards on a Line ———— Byeonguk Kang, Hwi Kim, Hee-Kap Ahn
4. Minimum-Complexity Graph Simplification under the Fréchet Distance ———— Omrit Filtser, Majid Mirzanezhad, Carola Wenk
5. Drawing Reeb Graphs ———— Erin Chambers, Brittany Terese Fasy, Erfan Hosseini Sereshgi, Maarten Löffler
6. Monotone Partitions of Simple Polygons ———— Jaegun Lee, Hyojeong An, Hwi Kim, Hee-Kap Ahn

12:00pm—13:40pm————————*Lunch*

13:40pm—15:00pm: Session 2; *Graph Algorithms I*
Chair: Arash Rafiey

1. A Linear Delay Algorithm of Enumerating Strongly-Connected Induced Subgraphs Based on SSD Set System ———— Kan Shota, Kazuya Haraguchi

2. Exact Learning of Weighted Graphs Using Composite Queries ———— Michael T. Goodrich, Songyu (Alfred) Liu, Ioannis Panageas

3. Monotone classes, even graphs and the Hamiltonian cycle problem ———— Vadim Lozin

4. Covering vertices by 4^+-paths: A simpler local search coupled with a more delicate amortization ———— Mingyang Gong, Guangting Chen, Guohui Lin, Eiji Miyano, Abbinash Ranjitkar

15:00pm—15:30pm————————*Coffee break*

15:30pm—16:50pm: Session 3; *String Algorithms*
Chair: Adiesha Liyanage

1. Inverting Parameterized Burrows-Wheeler Transform ———— Shogen Kawanami, Kento Iseri, Tomohiro I

2. A Space-Efficient Algorithm for Longest Common Almost Increasing Subsequence of Two Sequences ———— Md. Tanzeem Rahat, Md. Manzurul Hasan, Debajyoti Mondal

3. Fast Pattern Matching with Epsilon Transitions ———— Nicola Cotumaccio

4. Reconstructing Sets of Strings from Their k-way Projections: Algorithms & Complexity ———— Elise Tate, Joshua A. Grochow

19:00pm—21:00pm————————**Banquet**, *jointly with the ATMCS Conference, those needing a ride will meet at the front of SUB at 18:40pm*

July 22, 2025 (Tuesday)

8:30am—9:20am
Invited talk II: FPT Approximation Algorithms for Coverage and Satisfiability Problems
Invited Speaker: ———— Saket Saurabh

9:20am—9:50am————————*Coffee break*

9:50am—11:50am: Session 4; *Graph Algorithms II*
Chair: to be determined

1. Bicluster Editing with Overlaps: A Vertex Splitting Approach ———— Faisal N. Abu-Khzam, Lucas Isenmann, Zeina Merchad
2. Vector spaces of graphs closed under isomorphism ———— Vadim Lozin, Darya Zakharova
3. Average Sensitivity of Breadth-First Search Algorithms on Grids ———— Ryan Assari, Qianping Gu
4. Permanent of bipartite graphs in terms of determinants ———— Surabhi Chakrabartty, Ranveer Singh
5. Bicriteria FPT-Approximation Algorithms for Vertex Deletion to Bounded Degeneracy Graphs ———— Tanmay Inamdar, Lawqueen Kanesh, R. Krithika, Harshil Mittal, Saket Saurabh
6. Improved Approximation for Unpopularity in (3,3)-Hypergraph Matching with one-sided preferences ———— Yashdeep Singh, Sushanta Karmakar

12:00pm—13:40pm————————*Lunch*

13:40pm—15:00pm: Session 5; *Games: Complexity and Combinatorics*
Chair: to be determined

1. ETH Lower Bounds for n-Queens: Time Waits for Nobody ———— Josh Brunner, Erik D. Demaine, Timothy Gomez, Markus Hecher, Meryl Zhang (MIT Hardness Group)
2. On Solving Simple Curved Nonograms ———— Maarten Löffler, Günter Rote, Soeren Terziadis, Alexandra Weinberger

3. Tile-based Knot Assembly with Celtic! ———— Divya Bajaj, Ryan Knobel, Juan Manuel Perez, Rene Reyes, Ramiro Santos, Rim Wylie

4. On existence of subgroup magic rectangle ———— Karthik S, Aruna Venkatesan, Krishnan Paramasivam

15:00pm—15:30pm————————*Coffee break*

15:30pm—17:10pm: Session 6; *FPT Algorithms and Optimization I*
Chair: to be determined

1. Parameterized Algorithms for Power Edge Set and Zero Forcing Set ———— Sriram Bhyravarapu, Lawqueen Kanesh, Madhumita Kundu, Daniel Lokshtanov, Saket Saurabh

2. Minimizing ℓ_2 Norm of Flow Time by Starvation Mitigation ———— Tung-Wei Kuo

3. Recoverable Robust Cardinality Constrained Maximization with Commitment of a Submodular Function ———— Sabine Münch, Stephen Raach, Sven de Vries

4. Optimal Random Bit Sampling for Set Partition-like Structures ———— Olivier Bodini, Francis Durand

5. Streaming Algorithms for Scheduling Jobs with Priorities ———— Bin Fu, Yumei Huo, Hairong Zhao

17:20pm—18:00pm: Business Meeting;
Chair: Henning Fernau and Binhai Zhu

July 23, 2025 (Wednesday)

1. Today, there is no technical session. You are free. But a group excursion is organized to hike near Hyliate Reservoir (about 25 to 30 minutes of drive from campus), those who want to participate (and especially need a ride) would need to sign up and then we meet at the front of SUB at 9:30am. (We will provide some drinking water, and you should bring some light snacks or lunch.) It is expected that we return to SUB around 3pm the latest.

2. Note that for the group excursion we will not try the hardest trail near Hyliate. If you do otherwise you need to plan carefully; definitely leave earlier and wear the right hiking shoes, etc, as the Hyliate Peak Trail, or the Blackmore Trail, would both take a whole day.

3. If you are not interested in the group excursion, another option is to explore the American Computer & Robotics Museum which is located at 2023 Stadium Drive (#1a), Bozeman, MT 59715, and is within a walking distance from campus.

4. Regardless of whether you take part in the group excursion, besides your summer clothing, an umbrella and a thick jacket is necessary. The temperature in Bozeman (or more generally, around Yellowstone) could be cold even in the summer in the early morning or late evening — could be around 40F or 5°C sometimes. During the day it should be much better.

5. Have fun, and be safe!

July 24, 2025 (Thursday)

- This morning, we will start with the last technical session. After that is over, an open problem session will be started — you are welcome to contact bhz@montana.edu earlier about your open problems (preferably by July 17, 2025), but you can also just present them on-site. Then we work the whole day on those problems.

8:30am—9:30am: Session 7; *FPT Algorithms and Optimization II (plus some on-line presentations)*
Chair: Binhai Zhu

1. Exact Set Packing in Multimodal Transportation with Ridesharing System for First/Last Mile ———— Qian-Ping Gu, Jiajian Liang
2. Linear Search with Probabilistic Detection and Variable Speeds ———— Jared Coleman, Oscar Morales-Ponce
3. The Closed Geodetic Game: algorithms and strategies ———— Antoine Dailly, Harmender Gahlawat, Zin Mar Myint

9:30am—10:00am————————*Coffee break*

10:00am—11:50am: Session 8; *Open Problems (followed with discussions, etc)*
Chair: Binhai Zhu

12:00pm—13:40pm————————*Lunch*

13:40pm—16:50pm: Session 9; *Open Problems Working Session (loose organization)*
Chair: Binhai Zhu

————————*End of technical program*————————

July 25, 2025 (Friday)

- We expect many people would be leaving today, but if you decide to stay and work further on the open problems, we would be happy to accommodate you. Thanks to the generous support from NSF, we would be able to cover the coffee breaks and lunch — those are not covered by your registration fees.
- Please email bhz@montana.edu before July 18, 2025, so that we would have a good estimate on the head counts for coffee breaks and lunch.
- We will start at 9:00am, with the usual morning coffee break from 9:30am-10:00am, and lunch from 12:00pm-13:40pm.
- Have a safe returning trip!