

Alexander Black

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APPOINTMENTS	Bowdoin College Assistant Professor (Tenure Track)	Jul 2025 –
	ETH Zürich Hermann Weyl Instructor	Sep 2024 – Jul 2025
EDUCATION	University of California at Davis, CA, USA ▪ Ph.D. in Mathematics • Advised by Jesús De Loera	Sep 2019 – Jun 2024
	Cornell University, Ithaca, NY, USA ▪ B.A. in Mathematics with Distinction in All Subjects ▪ Summa Cum Laude in Mathematics	Jul 2017 – May 2019
	Hamilton College, Clinton, NY, USA	Aug 2015 - Jul 2017
	SELECTED PUBLICATIONS 1. <i>Any Proof of Polynomial Hirsch Must be Completely Incoherent</i> A. Black and L. Xue arXiv:2607.11628	SODA 2027
	2. <i>Finding Short Paths on Simple Polytopes</i> A. Black and R. Steiner arXiv:2603.05482	SODA 2027
SELECTED INVITED TALKS	3. <i>Beyond Smoothed Analysis: Analyzing the Simplex Method by the Book</i> E. Bach, A. Black , S. Huiberts, and S. Kafer arXiv:2510.21613	STOC 2026
	4. <i>Short Circuit Walks in Fixed Dimension</i> A. Black , C. Nöbel, and R. Steiner arXiv:2510.01916 Invited to TALG Special Issue	SODA 2026
	5. <i>Small Shadows of Lattice Polytopes</i> A. Black George Nicholson Paper Competition Finalist	SODA 2023
	Mazes, Shadows, and Breaking Algorithms <i>University of Maine Colloquium</i>	Oct 2026
	Finding Non-negative Solutions to $Ax = b$ in Theory and Practice <i>Colby-Bowdoin-Bates Joint Seminar</i>	Oct 2026
	Non-symmetric Macdonald Polynomials and Graph Coloring <i>UQAM Combinatorics Seminar</i>	Apr 2026
	Beyond Smoothed Analysis: Analyzing the Simplex Method by the Book <i>SIAM Conference on Optimization</i>	Jun 2026
	Non-symmetric Macdonald Polynomials and Graph Coloring <i>UIUC Algebra-Geometry-Combinatorics Seminar</i>	Apr 2026

AWARDS & SCHOLARSHIPS

- SIAM Travel Award for SIAM Conference on Optimization Jun 2026
- NSERC Postdoctoral Fellowship (Declined) Feb 2024
 Scholarship funds of \$90,000 CAD for two years of postdoctoral study in mathematics
- 2022 George Nicholson Paper Competition Finalist Sep 2022
 Top 6 of 129 students in competition for the best graduate student operations research paper among students graduating after June 2021 for my paper “Small Shadows of Lattice Polytopes”
- Mixed Integer Programming (MIP) 2022 Workshop Best Poster Award May 2022
 Best poster among 30 graduate students presenting at MIP 2022
- NSF Graduate Research Fellowship Mar 2021
 Scholarship funds amounting to more than \$100,000 to pursue graduate study in applied mathematics

SERVICE

- Advised Senior Thesis of Richard Lim (Joint with Jeova Farias)
- Advised Research of Jonathan Gordon (Joint with Ray Maresca)
- Organizer for the 2025 Mixed Integer Programming Workshop European Edition
- Poster Competition Judge at Integer Programming and Combinatorial Optimization (IPCO) 2025
- Refereed **31 papers** in total for the following venues:
 - Algebraic Combinatorics [1]
 - Innovations in Theoretical Computer Science (ITCS) [1]
 - European Journal of Combinatorics [1]
 - Mathematical Foundations of Computer Science (MFCS) [1]
 - Foundations of Computer Science (FOCS) [1]
 - Linear Algebra and its Applications [1]
 - Electronic Journal of Combinatorics [1]
 - Symposium on Theoretical Aspects of Computer Science (STACS) [1]
 - International Mathematics Research Notices [1]
 - Journal of Optimization Theory and Applications [1]
 - Annals of Combinatorics [1]
 - Mathematical Programming [3]
 - TheoretiCS [1]
 - the Symposium on Discrete Algorithms (SODA) [2]
 - Combinatorial Theory [1]
 - the SIAM Journal of Discrete Mathematics (SIDMA) [3]
 - Integer Programming and Combinatorial Optimization (IPCO) [3]
 - Operations Research Letters [2]
 - Mathematics of Operations Research [1]
 - Symposium on the Theory of Computing (STOC) [1]
 - Discrete and Computational Geometry [1]
 - Formal Power Series in Algebraic Combinatorics (FPSAC) [1]
 - Bulletin of the London Mathematical Society [1]
- Jointly ran a preparation workshop for the GRE Quantitative section for the University of Nebraska Lincoln McNair Scholars program in summer 2023
- Co-founded and ran a commutative algebra REU for first generation, low-income students at University of Nebraska Lincoln in summer 2023 (PI: Eloísa Grifo) that has been funded and graduate student run annually again in summers 2024 and 2025
- Advised research of undergraduate Owen Gao at UC Davis (Joint with Jesús De Loera)