

LAURA PIERSON

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EDUCATION

Master of Math (Combinatorics and Optimization)	<i>University of Waterloo</i> (2024)
• <i>Thesis:</i> On K-theoretic polynomials and the chromatic symmetric function	
• <i>Advisors:</i> Oliver Pechenik and Logan Crew	
Master of Education (Math Teaching)	<i>Harvard University</i> (2022)
Bachelor of Arts (Applied Math)	<i>Harvard University</i> (2021)

PREPRINTS

1. [Orbit lengths for promotion on 2-row and near-hook tableaux](#) (2025).
2. [Hopf algebra maps taking chromatic symmetric functions to their graph complements](#) (with Shao Yuan Lin, submitted, 2025).
3. [On graphs with equal and different Kromatic symmetric functions](#) (with Soham Samanta, submitted, 2025).
4. [K-analogues of Hivert's divided difference operators](#) (submitted, 2025).
5. [On the chromatic symmetric homology for star graphs](#) (submitted, 2024).
6. [A power sum expansion for the Kromatic symmetric function](#) (submitted, 2024).
7. [Counting induced subgraphs with the Kromatic symmetric function](#) (submitted, 2024).
8. [Balanced configurations of points in the plane](#) (with Julian Wellman, not submitted, 2021).
9. [Signatures of stable multiplicity spaces in restrictions of representations of symmetric groups](#) (high school PRIMES-USA project, not submitted, 2017).

PUBLICATIONS

10. [Power sum expansions for the Kromatic symmetric function using Lyndon heaps](#). *Annals of Combinatorics*, to appear (2025).
11. [Proof of a K-theoretic polynomial conjecture of Monical, Pechenik, and Searles](#). *Advances in Applied Math* 171 (2025).
12. [On the compatible sets expansion of the Tutte polynomial](#). *Annals of Combinatorics* 28 (2024).
13. [Positivity of permutation pattern character polynomials](#) (with Christian Gaetz). *Advances in Applied Math* 147 (2023).

AWARDS

Governor General's Gold Medal (university-wide thesis award)	<i>University of Waterloo</i> (2025)
Finalist for the Alumni Gold Medal (university-wide thesis award)	<i>University of Waterloo</i> (2024)
Elizabeth Lowell Putnam Prize (\$1,000 for top female scorer)	<i>Putnam</i> (2019)
STS 6th Prize (\$80,000 for high school math research)	<i>Regeneron Science Talent Search</i> (2017)
MPFG 5th Prize (\$1,000)	<i>Math Prize for Girls</i> (2016)
USAJMO Winner (starting in 6th grade)	<i>USA Junior Math Olympiad</i> (2012, 2015)
BAMO Grand Prize	<i>Bay Area Math Olympiad</i> (2012, 2014)
MOP Participant (starting in 6th grade)	<i>Math Olympiad Summer Program</i> (2012, 2013)
EGMO Silver Medalist (in 7th grade)	<i>European Girls' Math Olympiad</i> (2013)
CGMO Silver Medalist (in 6th grade)	<i>China Girls' Math Olympiad</i> (2012)

TALKS/PRESENTATIONS

[Power sum expansions for the Kromatic symmetric function](#)

University of Waterloo (June 2025)

[Power sum expansions for the Kromatic symmetric function](#)

AlCoVE Poster Session (May 2025)

[Two variations on the chromatic symmetric function](#)

University of Waterloo (July 2024)

MENTORING

Ashok Kimmel (high school student, Chicago QED program, 2025)

Aarush Kulkarni (high school student, informal, 2025)

Shao Yuan Lin (recent undergrad, informal, 2025)

Soham Samanta (high school student, informal, 2025)

Eleanor Bogosian, Antonella Catanzaro, Elizabeth Cavatorta, and Naomi Danison (high school students, Girls' Angle Math Club, 2020): [Toblerone Game](#). *Girls' Angle Bulletin* (December 2020).

UNIVERSITY TEACHING

Graduate Teaching Assistant

University of Waterloo (2023-2024)

- Math 118: Calculus II (Spring 2024)
- CO 250: Introduction to Optimization (Winter 2024, Spring 2024)
- Math 239: Introduction to Combinatorics (Fall 2023)

Undergraduate Teaching Assistant

Harvard University (2018-2020)

- Math 101: Sets, Groups, and Topology (Spring 2020)
 - Math 21b: Linear Algebra (Fall 2019)
 - CS 121: Theory of Computer Science (Fall 2018, Fall 2019)
 - Math 168: Making Math Material (Spring 2019)
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K-12 TEACHING

Research Mentor/Math Instructor

Math Circles of Chicago (2025-present)

Math Instructor

Stanford Math Circle (2022-present)

Math Instructor/Curriculum Designer

Cambridge Math Circle (2018-present)

Math Instructor/Grader/Curriculum Designer

Art of Problem Solving (2017-present)

Private Math Tutor

Self-employed (2015-present)

Summer Math Instructor/Camp Counselor

Canada/USA Mathcamp (2018, 2019, 2025)

Summer Math Instructor/Camp Counselor

Bridge to Enter Advanced Math (2019, 2020, 2023)

Research Mentor/Problem Set Designer

Girls' Angle Math Club (2018-2023)

Math Instructor/Monthly Contest Coordinator

Berkeley Math Circle (2015-2023)

Math Instructor

Chelsea High School (2022)

Summer Math Instructor

Firecracker Math (2017, 2021)

OTHER EMPLOYMENT

Quant Researcher (options trading)

Maven Securities (2024-2025)