

# Curriculum Vitae

Weston Miller

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## Education

**The University of California, San Diego | June 2029**

- PhD, Mathematics

**The University of Texas at Dallas | May 2024**

- B.S., Mathematics; GPA: 3.99
- Summa Cum Laude
- Major Honors
- Physics minor
- Collegium V Honors Program
- Putnam Club 2022-2024

## Research Experience

**Honors Thesis | January 2023 - May 2024**

Topic: Rational Catalan Numbers for Complex Reflection Groups

- Computed the traces of powers of Coxeter elements in the Hecke algebras of spetsial complex reflection groups using the  $q$ -analogues of rational Coxeter-Catalan numbers.
- Advised by Nathan Williams

**UT Dallas Math Pathways REU | Summer 2022 | Supported by the Alfred P. Sloan**

**Foundation**

Topic: Catalan States of Lattice Crossings

- Computed the coefficients for several infinite families of Catalan states in the relative Kauffman bracket Skein module expansion of lattice crossings.
- Advised by Mieczyslaw Dabkowski

## Publications

Banaian, Esther, et al. "An elaborate new proof of Cayley's formula." *arXiv preprint arXiv:2402.07798* (2024). <https://arxiv.org/abs/2402.07798>

Miller, Weston. "Rational Catalan Numbers for Complex Reflection Groups." *arXiv preprint arXiv:2310.12354* (2023). <https://arxiv.org/abs/2310.12354>

## Presentations

March 2024. *Rational Catalan Numbers for Complex Reflection Groups*, [CombinaTexas](#).

March 2024. *Rational Catalan Numbers for Complex Reflection Groups*, [Harvard-MIT Combinatorics Seminar](#).

February 2024. *Rational Catalan Numbers for Complex Reflection Groups*, [Eleventh Discrete Geometry and Algebraic Combinatorics Conference](#).

January 2024. *Rational Catalan Numbers for Complex Reflection Groups*, [JMM PME Contributed Session](#).

November 2023. *Rational Catalan Numbers for Complex Reflection Groups*, Algebraic Combinatorics and Parking Functions, [SIAM TX-LA Sectional Meeting](#).

September 2023. *Rational Catalan Numbers for Complex Reflection Groups*, [UTD Algebra and Combinatorics Seminar](#).