

ZIJING (CAROLE) ZHUANG

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ACADEMIC INTERESTS

Algebraic Geometry, Representation theory

EDUCATION

Washington University in St. Louis

- PhD Student in Mathematics (expected graduation: 2027).
- Advisor: Martha Precup.
- MA in Mathematics (Sept 2022-May 2024)

Northeastern University(Boston)

- MS in Applied Mathematics (Sept 2020 – May 2022).

Jilin University

- BS in Information and Computing Science (Sept 2015 – July 2019).

PUBLICATIONS AND PREPRINTS

2. **Components of subregular Peterson varieties** (joint with Lucas Gagnon and Alex Woo). In preparation.
1. **Nilpotent Hessenberg varieties with Hessenberg function $h(i) \leq i + 1$** . Submitted to ArXiv. (<https://arxiv.org/abs/2607.25520>)

INVITED TALKS

2. *On generalized Peterson variety*. Saint Louis University, AMS session on "Interactions between geometry, combinatorics, and flag varieties", October 18, 2025.
1. *A mysterious recursive pattern*. University of South California, Graduate Student Combinatorics Conference 2025, March 17, 2025.

TEACHING EXPERIENCE

Washington University in St. Louis

- Independent Instructor: Math 220: Finite Math (Summer 2025).
- Assisted Instructor: Math 132: Calculus II (Fall 2025, Fall 2023), Math 233: Calculus III (Spring 2025).

¹Updated July 29, 2026

- Grader: MATH 4350: Number Theory and Cryptography (Spring 2026), MATH 5031: Algebra I (Fall 2024), MATH 449: Numerical Analysis (Fall 2024), MATH 449: Numerical Analysis (Fall 2024), MATH 204: Honors Math II (Spring 2024), MATH 370: Introduction to Combinatorics (Spring 2024).

ATTENDED SEMINARS AND CONFERENCE

6. **Illinois Summer Workshop in Algebraic Combinatorics** University of Illinois Urbana-Champaign June 8-12.
5. **11th Lake Michigan Workshop on Combinatorics and Graph Theory** University of Notre Dame, May 2-3 2026.
4. **AMS session on "Interactions between geometry, combinatorics, and flag varieties"** St. Louis, October 18, 2025.
3. **Graduate Student Combinatorics Conference (GSCC)** Los Angeles, March 2025
2. **Western Algebraic Geometry Symposium (WAGS)** St. Louis, Nov 2023.
1. **Canada-Mexico-USA Conference in Representation Theory, Noncommutative Algebra, and Categorification** Bostn, June 2022.

SERVICE AND VOLUNTEERING

Women in Math Graduate Student Chapter

- Managing social media, creating posters, and helping to organize events (Spring 2025).

Sonia Kovalevsky Day

- Volunteer in helping with the activities (Spring 2024, Spring 2025).

Western Algebraic Geometry Symposium (WAGS)

- Served as a volunteer (Nov 2023).