

# Urshita Pal

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University of Michigan  
Department of Mathematics  
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urshitapal.github.io

## Education

**University of Michigan, USA**  
Ph.D., Mathematics, 2021-Present.  
Advisor: Jenny Wilson

**University of Michigan, USA**  
M.S., Mathematics, 2021-23.

**Chennai Mathematical Institute, India**  
B.Sc., Mathematics & Computer Science, 2018-21.

## Research Interests

(Co)homology of Arithmetic Groups, (Co)homological stability phenomena

## Awards and Fellowships

**Rackham Predoctoral Fellowship**  
Fall 2025 - Summer 2026

**Rackham One-Term Dissertation Fellowship**  
January 2025 - April 2025

**Gold Medal of Excellence, BSc Math & Computer Science**  
Chennai Mathematical Institute, 2021  
*Highest GPA at time of graduation*

**Tuition Fee Waiver**  
Chennai Mathematical Institute, Aug 2018 - April 2021

**Bronze Medal, European Girls Math Olympiad**  
Held in Florence, Italy, 2018

**International Math Olympiad Training Camp, Mumbai, India**  
Selected for Participation, 2017 & 2018

## Research Papers

**Representation Stability in the (Co)homology of Vertical Configuration Spaces**  
with D Baron, C Wang, J Wilson, and C Yang  
ArXiv preprint ArXiv:2412.01128

## Teaching

### University of Michigan

- Instructor, Math 105 (Data, Graphs & Functions), Fall 2024
- Instructor, Math 115 (Calculus 1), Fall 2023
- Instructor, Math 115 (Calculus 1), Winter 2023
- Instructor, Math 115 (Calculus 1), Fall 2022
- Instructor, Math 115 (Calculus 1), Winter 2022
- Instructor, Math 115 (Calculus 1), Fall 2021

### Chennai Mathematical Institute

- Teaching Assistant, NPTEL Rings & Fields, Jan-March 2021
- Teaching Assistant, Topology, Spring 2021
- Teaching Assistant, Complex Analysis, Spring 2021
- Teaching Assistant, Analysis 3, Fall 2020
- Teaching Assistant, Probability Theory, Spring 2020

## Talks

### Invited Talks

- A Resolution of the Symplectic Steinberg Module*  
Purdue University, October 2025

- Steinberg Modules and Hopf Algebras* (expository)  
University of Pennsylvania, March 2025

- Steinberg Modules and  $H^*(SL_n\mathbb{Z}; \mathbb{Q})$*  (expository)

Scissors Congruences, Algebraic K-Theory and Steinberg Modules, July 2024  
(Held at the American Institute of Mathematics, Pasadena)

### Workshops and Conferences

- High Connectivity of Arc Complexes* (expository)  
Talbot Workshop on Homological Stability, May 2025

- Connectivity and Cohomology* (5 min lightning talk)  
Young Geometric Group Theory, Bristol, April 2024

### Michigan Student Seminars

- The Steinberg Module of the Mapping Class Group*, Fall 2025
- High Connectivity Techniques and the Steinberg Module*, Fall 2025
- (Co)homology of Configuration Spaces*, Summer 2025  
(5 day Minicourse)
- Discrete Morse Theory*, Winter 2025
- Hopf Algebras, Steinberg Modules, and  $H^k(GL_n\mathbb{Z}; \mathbb{Q})$* , Winter 2025
- The Nerve Lemma and Spectral Sequences*, Winter 2024
- Configurations, Graphs and Trees*, Winter 2024
- Rational Duality Groups and  $H^*(SL_n\mathbb{Z}; \mathbb{Q})$* , Fall 2023
- Introduction to Group (Co)homology*, Fall 2023
- Configurations, Graphs and Trees*, Fall 2023
- High Dimensional Cohomology of  $SL_n\mathbb{Z}$* , Winter 2023
- Grassmannian Cohomology and Symmetric Polynomials*, Winter 2023
- A Gentle Introduction to Representation Stability*, Fall 2022
- The Combinatorial Nullstellensatz and its Applications*, Winter 2022
- Braid Groups*, Fall 2021

Service and  
Mentorship

**University of Michigan REU, Summer 2024**

-*Graduate Student Mentor for the REU hosted by Jenny Wilson*

**Lab of Geometry at Michigan**

-*Served on the Admissions Committee in Fall '23 & Winter '24*

**Student Dynamics/Geometry/Topology Seminar**

-*Co-organiser 2022-23, Organiser 2023-24*

**AWM Mentoring Programs**

-*Mentor in the Mentor-Mentee program for the Academic Year 2022-23*

-*Participated in the 'Vertical Mentoring Program' in Winter 2024*

**Michigan Directed Reading Program**

-*Mentor, Winter 2023, Winter 2025, and Fall 2025*

**Michigan Math Club**

-*Fagnano's Problem and Reflecting Triangles, Jan 2023*

**Michigan Math Circle**

-*Tiling With Dominoes, Feb 2022*

Conferences and  
Workshops Attended

- Perspectives on the Cohomology of  $\mathrm{GL}_n\mathbb{Z}$ , Muenster, Germany, October 2025
- Scissors Congruences and Algebraic K-Theory, UPenn, July 2025
- Discrete Groups in Topology & Algebraic Geometry, Notre Dame, June 2025
- Polylogarithms, Homology of linear groups, & Steinberg Modules, June 2025  
Held at the SwissMAP Research Station, Les Diablerets, Switzerland
- Talbot Workshop on Homological Stability, Cassapolis MI, May 2025
- Scissors Congruences, Algebraic K-Theory and Steinberg Modules, July 2024  
Organised through the American Institute of Mathematics, Pasadena
- Young Geometric Group Theory XII, Bristol, April 2024
- Stability in Topology, Arithmetic and Representation Theory, Purdue, 2023  
(Attended Virtually)
- Nearly Carbon Neutral Geometric Topology Conference, June 2023  
(Attended Topic Group: Profinite and Residual Methods in Geometric Group Theory)
- Nearly Carbon Neutral Geometric Topology Conference, September 2022  
(Attended Topic Group: Group Actions on Hyperbolic Spaces)

Languages  
and Skills

Hindi, English, Bengali (native); German (basic)  
 $\mathrm{\LaTeX}$ , C++, Haskell, Python, Java