

# Yilong Zhang

Purdue University, Department of Mathematics

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## Education

2015-2022 **The Ohio State University** – Columbus, OH, USA  
*Ph.D.* in Mathematics, Advisor: Herb Clemens.

2012-2015 **Harbin Institute of Technology** – Harbin, China  
*B. S.* in Mathematics, Advisor: Sheng Chen.

2010-2014 **Harbin Institute of Technology** – Harbin, China  
*B. Eng.* in Electrical Engineering.

## Employment

2025 July - **University of Georgia**, Limited Term Assistant Professor

2022 - 2025 **Purdue University**, Golomb Visiting Assistant Professor of Mathematics

## Research Papers

1. *Algebraicity of Hodge classes on some Generalized Prym Varieties*, with Deepam Patel, [preprint](#) (2025)
2. *Hilbert Scheme of a Pair of Skew Lines on a Cubic Hypersurface*, [preprint](#) (2025)
3. *Elliptic-Elliptic Surfaces and Hesse Pencil*, with Francois Greer, [preprint](#) (2024).
4. *Degeneration of Dual Varieties of Hypersurfaces*, [preprint](#) (2024).
5. *Monodromy of Primitive Vanishing Cycles for Hypersurfaces in  $\mathbb{P}^4$* , [preprint](#) (2024).
6. *Extension of the Topological Abel-Jacobi Map for Cubic Threefolds*, submitted, [preprint](#) (2023).
7. *Hilbert Scheme of a pair of Skew Line on Cubic Threefolds*, *J. Pure Appl. Algebra* **229** (2025), no. 6.
8. *Topological Abel-Jacobi map and mixed Hodge structures*, *Math. Res. Lett.* **31**, No. 4, 1215–1247 (2024).

## Selected Invited Talks

- 2025
- *Special session on "Hodge theory, Algebraic cycles, and Arithmetic" at the AMS Central Sectional Meeting*, October 18-19, St. Louis
  - *Arithmetic, K-theory and Algebraic Cycles*, May 27-31, Ohio State University
  - *Lefschetz Centennial*, March 24-29, Miami
  - University of Arkansas, Algebra Seminar (also in 2023, 2024)
  - University of Oregon, Algebra Seminar
- 2024
- Michigan State University, Algebra Seminar (also in 2023)
  - Northwestern University, Algebraic Geometry Seminar
  - New York University, Algebraic Geometry Seminar

- 2023
  - Duke University, Algebraic Geometry Seminar
  - ShanghaiTech University, Algebraic Geometry Seminar (online)
- 2022
  - *Midwest Algebraic Geometry Graduate Conference*, Aug 10-11, University of Illinois at Chicago
  - University of Arizona, Algebraic Geometry Seminar (online)
  - University of California, Riverside, Algebraic Geometry Seminar (online)
- 2021
  - University of California, Santa Barbara, Seminar on Geometry and Arithmetic (online)
  - University of Illinois at Chicago, Algebraic Geometry Seminar (online)

## Teaching Experience

### University of Georgia

Fall 2025 Math2250: Calculus I (2 sections, 20 students each)

### Purdue University

Spring 2025 MA26500: Linear Algebra (2 sections, 40 students each)  
 Fall 2024 MA26500: Linear Algebra (2 sections, 40 students each)  
 Spring 2024 MA35100: Elementary Linear Algebra (2 sections, 40 students each)  
 Fall 2023 MA26500: Linear Algebra (2 sections, 40 students each)  
 Spring 2023 MA26600: Ordinary Differential Equations (2 sections, 40 students each)  
 Fall 2022 MA26600: Ordinary Differential Equations (2 sections, 40 students each)

### Ohio State University

Fall 2021 Designed exercises for an [online Linear Algebra book](#).  
 Summer 2021 TA, Math 2153: Calculus III (3 sections, 30 students each).  
 Spring 2021 TA, Math 2173: Engineer Math B (2 sections, 30 students each).  
 Fall 2020 TA, Math 2153: Calculus III (3 sections, 30 students each).  
 Fall 2018 TA, Math 1172: Engineer Math A (2 sections, 30 students each).  
 Spring 2017 TA, Math 1151: Calculus I (2 sections, 30 students each).  
 Fall 2016 TA, Math 1151: Calculus I (2 sections, 30 students each).

## Awards and Fellowships

2023-2025 **AMS-Simons Travel Grant**  
 Spring 2018 & Spring 2020 **Special Graduate Assignment (departmental fellowship)**, The Ohio State University.  
 2012 **National Scholarship**, Harbin Institute of Technology.

## Professional Services

### Seminar (co)-organization

2023 - 2025 Purdue University, Algebraic Geometry Seminar  
 2019 - 2020 Ohio State University, Graduate Student Algebraic Geometry Seminar

### Mentoring and outreach

|             |                                                                                                                                                                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| April 2025  | Served on career panel in the <a href="#">Condensed Mathematics Workshop</a> , Purdue University, Indianapolis campus, April 26-27.                                                                                                                                                     |
| Summer 2024 | Organized a problem-solving seminar for graduate students at Purdue University (10 participants).                                                                                                                                                                                       |
| Summer 2023 | Mentored two students in an REU project at Purdue University. (Students: Kisal Wijesooriya and Alan A. Mobley Burgos)                                                                                                                                                                   |
|             | Mentored a graduate student reading Riemann Surfaces. (Student: Mansimar Singh)                                                                                                                                                                                                         |
| Spring 2022 | Mentored an undergraduate student exploring the mathematical formulation of a "figure-eight" phenomenon in astronomy. Here is <a href="#">my student's poster</a> . Give an introductory talk in the Math Cycle conference. Here is the <a href="#">slide</a> . (Student: Yuchen Zhang) |
|             | Mentored an undergraduate student studying Stereographic Projection and Mobius Transformations. (Student: David Kruzel)                                                                                                                                                                 |
| Nov. 2020   | Volunteered in the Ohio High School Mathematics Invitational Olympiad (online).                                                                                                                                                                                                         |
| 2019 & 2020 | Mentored two first-year graduate students. (Students: James Marshall Reber and Shifan Zhao)                                                                                                                                                                                             |

## Contributed Talks

### Seminar talks

|           |                                                                                                               |
|-----------|---------------------------------------------------------------------------------------------------------------|
| 2022-2025 | Various talks given at Ohio State University, Purdue University, and University of Georgia                    |
| 2023      | Seminar on <a href="#">Geometry, Arithmetic and Differential Equations of Periods</a> (online)                |
| 2022      | University of Wisconsin-Madison, <a href="#">Graduate/Postdoc Topology and Singularities Seminar</a> (online) |

### Conference talks (short/preliminary)

|           |                                                                                                  |
|-----------|--------------------------------------------------------------------------------------------------|
| July 2025 | <i>Summer Research Institute in Algebraic Geometry</i> , Colorado State University               |
| May 2024  | <i>Conference on Local System in Algebraic Geometry</i> , Ohio State University                  |
| May 2024  | <i>Commutative Algebra and Algebraic Geometry in TUcSon</i> , University of Arizona              |
| Sep. 2021 | <i>The South Central Topology Conference</i> , Texas A&M University                              |
| May 2021  | <i>Graduate Student Conference on Algebra, Geometry and Topology</i> (online), Temple University |

### Poster presentations at conferences

|           |                                                                                  |
|-----------|----------------------------------------------------------------------------------|
| May 2024  | <i>Singularities in Ann Arbor</i> , University of Michigan                       |
| Nov. 2023 | <i>Western Algebraic Geometry Symposium</i> , Washington University in St. Louis |
| June 2022 | <i>Geometric Structures (re)United</i> , University of Illinois Chicago          |
| Oct. 2021 | <i>Algebraic Geometry North Eastern Series</i> , Boston College (online)         |
| Aug. 2021 | <i>miniMAGNTS 2021</i> , Ohio State University (online)                          |
| Oct. 2020 | <i>Algebraic Geometry North Eastern Series</i> , Stony Brook University (online) |