Yilong Zhang

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Education

- May 2022 **The Ohio State University** Columbus, OH, USA *Ph.D.* in Mathematics, Advisor: Herb Clemens.
- June 2015 Harbin Institute of Technology Harbin, China *B. S.* in Mathematics, Advisor: Sheng Chen.
- June 2014 Harbin Institute of Technology Harbin, China *B. Eng.* in Electrical Engineering.

Employment

Aug. 2022 - **Purdue University**, Golomb Visiting Assistant Professor of Mathematics present

Research Papers

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

Research Talks

Seminar Talks

- Apr. 2025 University of Arkansas, Algebra Seminar
- Jan. 2025 **Purdue University**, Algebraic Geometry Seminar
- Jan. 2025 University of Oregon, Algebra Seminar
- Nov. 2024 Michigan State University, Algebra Seminar
- May 2024 Northwestern University, Algebraic Geometry Seminar
- Apr. 2024 University of Arkansas, Algebra Seminar
- Mar. 2024 New York University, Algebraic Geometry Seminar
- Nov. 2023 Duke University, Algebraic Geometry Seminar
- Oct. 2023 ShanghaiTech University, Algebraic Geometry Seminar (online)
- Oct. 2023 Michigan State University, Algebra Seminar
- Sep. 2023 Seminar on Geometry, Arithmetic and Differential Equations of Periods (online)

- Sep. 2023 **Purdue University**, Topology Seminar
- Apr. 2023 University of Arkansas, Algebra Seminar
- Oct. 2022 University of Arizona, Algebraic Geometry Seminar (online)
- May 2022 University of California, Riverside, Algebraic Geometry Seminar (online)
- Apr. 2022 The Ohio State University, Algebraic Geometry Seminar
- Feb. 2022 University of Wisconsin-Madison, Graduate/Postdoc Topology and Singularities Seminar (online)
- Feb. 2022 Purdue University, Algebraic Geometry Seminar (online)
- June 2021 University of California, Santa Barbara, Seminar on Geometry and Arithmetic (online)
- Mar. 2021 University of Illinois at Chicago, Algebraic Geometry Seminar (online) Conference talks
- May 2025 Arithematics, K theory and algebraic cycles, Ohio State University
- Mar 2025 Lefschetz Contennial Conference, University of Miami
- May 2024 Conference on Local System in Algebraic Geometry, Ohio State University
- May 2024 Commutative Algebra and Algebraic Geometry in TUcSon, University of Arizona
- Aug. 2022 Midwest Algebraic Geometry Graduate Conference, University of Illinois at Chicago
- Sept. 2021 The South Central Topology Conference, Texas A&M University
- May 2021 Graduate Student Conference on Algebra, Geometry and Topology (online), Temple University

Teaching experience

Purdue University

- Sp 2025 MA26500: Linear Algebra (2 sections, 40 students each)
- Au 2024 MA26500: Linear Algebra (2 sections, 40 students each)
- Sp 2024 MA35100: Elementary Linear Algebra (2 sections, 40 students each)
- Au 2023 MA26500: Linear Algebra (2 sections, 40 students each)
- Sp 2023 MA26600: Ordinary Differential Equations (2 sections, 40 students each)
- Au 2022 MA26600: Ordinary Differential Equations (2 sections, 40 students each) Ohio State University
- Au 2021 Designed exercises for an online Linear Algebra book.
- Su 2021 TA, Math 2153: Calculus III (3 sections, 30 students each).
- Sp 2021 TA, Math 2173: Engineer Math B (2 sections, 30 students each).
- Au 2020 TA, Math 2153: Calculus III (3 sections, 30 students each).
- Au 2018 TA, Math 1172: Engineer Math A (2 sections, 30 students each).
- Sp 2017 TA, Math 1151: Calculus I (2 sections, 30 students each).
- Au 2016 TA, Math 1151: Calculus I (2 sections, 30 students each).

Awards and Fellowships

2023-2025 AMS-Simons Travel Grant

- Sp 2018 & SpSpecial Graduate Assignment (departmental fellowship), The Ohio State Uni-
versity.
 - 2012 National Scholarship, Harbin Institute of Technology.

Professional Services

Mentoring and Outreach

- Apr. 2025 Served on career panel in the Condensed Mathematics Workshop, April 26-27, at Purdue University, Indianapolis campus.
- Su. 2024 Organized a problem-solving seminar for graduate students at Purdue University (10 participants).
- Su. 2023 Mentored two students in an REU project at Purdue University.
- Su. 2023 Mentored a graduate student reading Miranda's book *Algebraic Curves and Riemann Surfaces.*
- Sp. 2022 Mentored an undergraduate student exploring the mathematical formulation of a "figure-eight" phenomenon in astronomy. Here is my student's poster. Give an introductory talk in the Math Cycle conference. Here is the slide.
- Sp. 2022 Mentored an undergraduate student on Stereographic Projection and Mobius Transformations.
- Nov. 2020 Volunteered in the Ohio High School Mathematics Invitational Olympiad (online).
- 2019 & 2020 Mentored two first-year graduate students.

Seminar Organization

- Au 2023 now Purdue Algebraic Geometry Seminar (co-organized with Takumi Murayama and Deepam Patel).
- Sp 2019 Sp Graduate Student Algebraic Geometry Seminar (co-organized with Aniket Shah). 2020
- Au 2018 SpStudent Seminar on various topics, including D-modules, Hodge Theory, Perverse2020Sheaf and Intersection Homology, Algebraic Surfaces, Springer Theory, Deformation
Theory, Rational Curves on Quintic Threefolds.
 - Sp 2018 Graduate Student Differential Geometry Seminar.