

# YIDI WANG

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RESEARCH INTERESTS Algebra, algebraic geometry, arithmetic geometry, algebraic number theory.  
In particular, local-global principles, the arithmetic of stacky curves, algebraic groups and differential Galois theory.

EDUCATION **University of Pennsylvania**, Philadelphia, Pennsylvania, U.S.A.  
Ph.D. Candidate in Mathematics, Graduate School of Art and Science, expected graduation May 2024.

- Advisor: Julia Hartmann
- Thesis: Local aspects and local-global principles of algebraic objects
- Benjamin Franklin Fellowship
- Passed Ph.D. Qualifying Examination on May 7th, 2020.

**University of California, Berkeley**, Berkeley, California, U.S.A.  
B.A. in Mathematics, May 2018

- Honors in Mathematics

PUBLICATIONS AND PREPRINTS

- Arithmetic invariant theory of reductive groups. 21 pages. Submitted. 2023 preprint available at [arXiv:2212.12863](https://arxiv.org/abs/2212.12863).
- Cohomology for Picard-Vessiot theory. Joint work with Man Cheung Tsui. 19 pages. Submitted. 2023 preprint available at [arXiv:2308.03025](https://arxiv.org/abs/2308.03025).
- Patching for étale algebras and the period-index problem for higher degree Galois cohomology groups over Hensel semi-global fields. 25 pages. 2023 Preprint available at [arXiv:2310.20119](https://arxiv.org/abs/2310.20119).

ONGOING PROJECTS

- A local-global principle for differential torsors. In progress.
- Local-global principles for integral points on stacky curves. Joint with Juanita Duque Rosero, Christopher Keyes, Andrew Kobin, Manami Roy and Soumya Sankar. In progress.
- Local-global principle for zero-cycles on stacky curves. Joint with Caleb Ji. In progress.

RESEARCH TALKS

- Local-global principles for integral points on Stacky curves. *Special session: Explicit computations with Stacks, Joint Mathematics Meeting, January 2024*
- The period-index problem for higher degree Galois cohomology groups over Hensel semi-global fields. *AGNES at UPenn, University of Pennsylvania, October 2023*
- Local-global principles over Hensel semi-global fields and the applications to the generalized period-index problem, *Arithmetic Geometry and Algebraic Groups Conference, University of Virginia, May 2023*
- Patching, local-global principles, and their application to the generalized period-index problem, *Algebra seminar, University of Pennsylvania, February 2023*
- Local-global principles over hensel semi-global fields and their applications to the generalized period-index problem, *Algebra seminar, Florida State University, November 2022*
- Linearly reductive group schemes over rings, *Algebra seminar, University of Pennsylvania, February 2022*

- EXPOSITORY TALKS
- Group theory in Rubik's cubes, *Penn Undergraduate Math Society talk series, April 2023*.
- TEACHING EXPERIENCE
- Princeton Prison Teaching Initiative**
- Volunteer Instructor, MATH015, *South Woods State Prison, New Jersey, Fall 2023*
- Math Circles for Grade 7–9**
- Volunteer, *West Philadelphia High School, Fall 2023*
- University of Pennsylvania**
- Teaching Assistant, Math 3140, Advanced Linear Algebra, *Spring 2023*
  - Teaching Assistant, Math 312, Linear Algebra, *Spring 2020*
  - Teaching Assistant, Math 104, Calculus II, *Fall 2020*
  - Teaching Assistant, Math 313, Computational Linear Algebra, *Spring 2020*
  - Teaching Assistant, Math 240, Calculus III: Linear Algebra and Differential Equations, *Fall 2019*
- University of California, Berkeley**
- Adjunct Instructor, Math 16B, Calculus II for Social Science and Environmental Science, *Student Learning Center, Spring 2017*
- MENTORSHIP
- Directed Reading Program for Undergraduates, *University of Pennsylvania***
- Mentor, topic: Algebraic geometry, *Fall 2023*
  - Mentor, topic: Étale cohomology, *Spring 2023*
  - Mentor, topic: Elliptic curves, *Spring 2022*
- HONORS AND AWARDS
- Good Teaching Award for Math 3140, *University of Pennsylvania, 2023*
  - CTL Teaching Certificate, *Center for Teaching and Learning, University of Pennsylvania, 2023*
  - Benjamin Franklin Fellowship, *Graduate School of Arts and Science, University of Pennsylvania, 2018*
  - Honors in Mathematics, *University of California, Berkeley, 2018*
- CONFERENCES AND WORKSHOP
- Joint Mathematics Meeting, *San Francisco, January 2024*
  - FRG workshop on Brauer groups and derived categories, *Northwestern University, October 2023*
  - AGNES: Algebraic Geometry Northeastern Section at UPenn, *University of Pennsylvania, October 2023*
  - Mathematical Research Community: Explicit Computations with Stacks, *American Mathematical Society, Java center, June 2023*
  - Arithmetic Geometry and Algebraic Groups Conference, *University of Virginia, May 2023*
  - Arizona Winter School: Unlikely Intersections, *Tucson, March 2023*
  - Joint Mathematics Meeting, *Boston, January 2023*

- GTA Philadelphia 2022: Graduate student conference at Temple University in algebra, geometry and topology, *Philadelphia, May 2022*
- ALGAR 2020: Valuations, quadratic forms and definability, *University of Antwerp, online, July 2020*
- Chicago Number Theory Day, *online, June 2020*

RELEVANT  
SKILLS

- Languages: English, Mandarin Chinese, Japanese
- Skills: Latex, Mathematica, MatLab, Python, Java