

YIDI WANG

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RESEARCH INTERESTS Algebra, algebraic and arithmetic geometry.
In particular, local-global principles and their obstructions, the arithmetic of algebraic stacks, Brauer groups, algebraic groups, and differential Galois theory.

APPOINTMENT **Sydney Mathematical Research Institute/University of Sydney**, Sydney, Australia

- Postdoctoral Research Associate in Mathematics September 2027 – August 2030

University of Haifa, Haifa, Israel

- Postdoctoral Fellow in Mathematics September 2026 – August 2027

Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany

- Leibniz Fellow October 2026 – November 2026

Fields Institute/University of Western Ontario, London, ON, Canada

- Fields Institute Postdoctoral Associate September 2024 – July 2026

EDUCATION **University of Pennsylvania**, Philadelphia, PA, USA

- Ph.D. in Mathematics August 2018 – May 2024
- Advisor: Julia Hartmann
- Thesis: Patching over Hensel semi-global fields and local-global principles for algebraic and differential objects

University of California, Berkeley, Berkeley, CA, USA

- B.A. in Mathematics with Honors August 2014 – May 2018

FELLOWSHIPS
AND GRANTS

- Leibniz Fellow, **Mathematisches Forschungsinstitut Oberwolfach**, 2026.
- Spring Section Graduate Student Travel Grant, **American Mathematical Society**, Spring 2024
- Joint Mathematics Meeting MRC Travel Grant, **American Mathematical Society**, January 2024.
- Benjamin Franklin Fellowship, **University of Pennsylvania**, Graduate School of Arts and Science, 2018–2024.

RESEARCH
ACTIVITIES

- Galois representations arising from triangle groups, **Research Institute for Mathematical Science**, Kyoto University, January 2027.
- Galois representations arising from triangle groups, Research in residence, **Centre international de rencontres mathématiques**, December 2026.
- Women in Numbers 7, **Banff International Research Station**, June 2026.
- Local-global principles for Stacky curves, Research in group, **Mathematisches Forschungsinstitut Oberwolfach**, October 2026.

- Existence and enumeration of integral points on spherical stacky curves, **Banff International Research Station**, Focused Research Group, October 26 – November 2, 2025.
- Existence and enumeration of integral points on spherical stacky curves, **International Centre for Mathematical Sciences**, Research in Groups program, June 23 – July 4, 2025.

PUBLICATIONS
AND
PREPRINTS

- Arithmetic invariant theory of reductive groups. *Communications in Algebra*, vol 53(11) (2025) 4749–4765. Also available at [arXiv:2212.12863](#).
- Cohomology for Picard-Vessiot theory. Joint with Man Cheung Tsui. *Journal of Algebra*, vol 658 (2024) 49–72. Also available at [arXiv:2308.03025](#).
- Patching for étale algebras and the period-index problem for higher degree Galois cohomology groups over Hensel semi-global fields. 27 pages. *manuscripta mathematica*, 177, 43 (2026). Also available at [arXiv:2310.20119](#).
- The integral Hasse principle for stacky curves associated to a family of generalized Fermat equations. 41 pages. Joint work with Juanita Duque-Rosero, Christopher Keyes, Andrew Kobin, Manami Roy and Soumya Sankar. Submitted. Preprint available at [arXiv:2509.13248](#).
- The étale Brauer-Manin obstructions for classifying stacks. Joint with Ajneet Dhillon, Nicole Lemire and Jonathan Martin. Submitted.33 Preprint available at [arXiv:2512.01014](#).

RESEARCH
TALKS

- The integral Hasse principle on stacky curves and generalised Fermat equations. *Algebraic Cycles and Rationality*, Tianyuan Mathematics Research Center, Yunnan, China, August 2026
- Local-global principles on stacky curves and its application in solving generalized Fermat equations. *Fields Institute Postdoc Day*, Fields Institute, May 2026.
- Local-global principles on stacky curves. *Geometry and Topology seminar*, University of Waterloo, April 2025.
- Local-global principles on stacky curves and solving generalized Fermat equations. *Algebra and number theory seminar*, Emory University, February 2025.
- A geometric approach of solving generalized Fermat equations. *Geometry and topology seminar*, University of Western Ontario, February 2025.
- The period-index problem for higher degree Galois cohomology groups over Hensel semi-global fields. *Number Theory Seminar*, Fields Institute, October 2024.
- Local-global principles on stacky curves and the application to solving generalized Fermat equations. *AMS Sectional Meeting: Ramification in Algebraic and Arithmetic Geometry*, University of Wisconsin-Milwaukee, April 2024.
- Local-global principles on stacky curves. *AGNES at BC*, Boston College, March 2024.
- 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. <i>Algebra seminar, University of Pennsylvania, February 2022.</i>
JOURNALS REFEREED	- International Mathematics Research Notices - Simons Symposia Proceedings series
OUTREACH ACTIVITIES	Western Summer Math Camps - Volunteer instructor for Western θ-camp, <i>University of Western Ontario, July 2026</i> - Volunteer instructor for Western β-camp, <i>University of Western Ontario, July 2025</i> Canadian Open Mathematical Challenge - Volunteer, <i>Canadian Mathematical Society, November 2025</i> Penn Art and Science High School Program - Director of Penn Summer Math Academy, <i>University of Pennsylvania, July 2024</i> Princeton Prison Teaching Initiative - Volunteer Instructor, MATH020, <i>South Woods State Prison, New Jersey, Spring 2024</i> - Volunteer Instructor, MATH015, <i>South Woods State Prison, New Jersey, Fall 2023</i> Math Circles - Volunteer, <i>West Philadelphia High School, Fall 2023</i>
TEACHING EXPERIENCE	University of Western Ontario - Instructor of record, MATH1600, Linear Algebra, <i>University of Western Ontario, Fall 2025</i> - Instructor of record, UpMath, Preparatory course for incoming first year students, <i>University of Western Ontario, Summer 2025</i> - Instructor of record, MATH2156, Mathematical Structures II, <i>University of Western Ontario, Winter 2025</i> - Instructor of record, MATH1600, Linear Algebra, <i>University of Western Ontario, Fall 2024</i> University of Pennsylvania - Teaching Assistant, Math 3140, Advanced Linear Algebra, <i>Spring 2023</i> - Teaching Assistant, Math 312, Linear Algebra, <i>Spring 2020</i> - Teaching Assistant, Math 104, Calculus II, <i>Fall 2020</i> - Teaching Assistant, Math 313, Computational Linear Algebra, <i>Spring 2020</i> - Teaching Assistant, Math 240, Calculus III: Linear Algebra and Differential Equations, <i>Fall 2019</i> University of California, Berkeley - Adjunct Instructor, Math 16B, Calculus II for Social Science and Environmental Science, <i>Student Learning Center, Spring 2017</i>

EXPOSITORY TALKS	• Origami and the geometry of impossible constructions. <i>Pizza seminar, Math Club at Western, March 2026</i> • Symmetries as how mathematicians see them. <i>Western β-camp for 8th graders, University of Western Ontario, July 2025</i> • A local-global principle for differential torsors, <i>UP GRADe Workshop, University of Pennsylvania, May 2024.</i> • Group theory in Rubik's cubes, <i>Penn Undergraduate Math Society talk series, April 2023.</i>
MENTORSHIP	Directed Reading Program for Undergraduates, University of Western Ontario • Mentor, topic: Invariant theory of linear algebraic groups, <i>Winter 2025</i> Directed Reading Program for Undergraduates, University of Pennsylvania • Mentor, topic: Stacks and moduli, <i>Spring 2024</i> • Mentor, topic: Algebraic geometry, <i>Fall 2023</i> • Mentor, topic: Étale cohomology, <i>Spring 2023</i> • Mentor, topic: Elliptic curves, <i>Spring 2022</i>
HONORS AND AWARDS	• Good Teaching Award for Math 3140, <i>University of Pennsylvania, Spring 2023</i> • CTL Teaching Certificate, <i>Center for Teaching and Learning, University of Pennsylvania, 2023</i> • Honors in Mathematics, <i>University of California, Berkeley, 2018</i>
CONFERENCES AND WORKSHOPS	• Women in Numbers 7, <i>Banff International Research Station, June 2026.</i> • Fields Institute Postdoc Day, <i>Fields Institute, May 2026</i> • GTA Philadelphia 2024: Graduate student conference at Temple University in algebra, geometry and topology, <i>Philadelphia, May 2024</i> • AMS Sectional Meeting: Ramification in Algebraic and Arithmetic Geometry, <i>University of Wisconsin-Milwaukee, April 2024</i> • AGNES: Algebraic Geometry Northeastern Section at Boston College, <i>Boston College, March 2024</i> • Joint Mathematics Meeting, <i>San Francisco, January 2024</i> • FRG workshop on Brauer groups and derived categories, <i>Northwestern University, October 2023</i> • AGNES: Algebraic Geometry Northeastern Section at UPenn, <i>University of Pennsylvania, October 2023</i> • Mathematical Research Community: Explicit Computations with Stacks, <i>American Mathematical Society, Java center, June 2023</i> • Arithmetic Geometry and Algebraic Groups Conference, <i>University of Virginia, May 2023</i> • Arizona Winter School: Unlikely Intersections, <i>Tucson, March 2023</i> • Joint Mathematics Meeting, <i>Boston, January 2023</i> • GTA Philadelphia 2022: Graduate student conference at Temple University in algebra, geometry and topology, <i>Philadelphia, May 2022</i> • ALGAR 2020: Valuations, quadratic forms and definability, <i>University of Antwerp, online, July 2020</i>

RELEVANT
SKILLS

- Chicago Number Theory Day, *online, June 2020*
- Languages: English, Mandarin Chinese, Japanese
- Skills: Latex, Mathematica, MatLab, Python, Java