

Lena Ji

1855 East Hall, 530 Church Street
Ann Arbor, MI 48109

lenaji.math@gmail.com
<http://www-personal.umich.edu/~lenaji/>

- RESEARCH INTERESTS Algebraic geometry & relations to arithmetic geometry.
In particular: Fano varieties, rationality, non-closed fields, characteristic $p > 0$
- EMPLOYMENT **University of Michigan**, Ann Arbor, MI September 2022–May 2024
NSF Postdoctoral Research Fellow 2022–2024
Postdoctoral Assistant Professor and Research Fellow (Number Theory RTG) 2021–2022
- EDUCATION **Princeton University**, Princeton, NJ September 2016–May 2021
PhD in Mathematics
Advisor: János Kollár
Thesis: Topics on algebraic varieties in characteristic p
- University of California, Berkeley**, Berkeley, CA January–May 2019
Exchange Scholar
- Columbia University**, New York, NY September 2012–May 2016
B.A. in Mathematics with Honors, *summa cum laude*
Senior thesis advisor: Johan de Jong
- PUBLISHED & ACCEPTED RESEARCH PAPERS
1. *Curve classes on conic bundle threefolds and applications to rationality*, with S. Frei, S. Sankar, B. Viray, and I. Vogt. Preprint available at [arXiv:2207.07093](https://arxiv.org/abs/2207.07093). Accepted by **Algebraic Geometry**.
 2. *A threefold violating a local-to-global principle for rationality*, with S. Frei. **Research in Number Theory**, Volume 10, Number 39 (2024).
 3. *The Noether–Lefschetz theorem in arbitrary characteristic*. **Journal of Algebraic Geometry**, Volume 33, Number 3 (2024), 567–600.
 4. *Rationality of real conic bundles with quartic discriminant curve*, with M. Ji. **International Mathematics Research Notices**, Volume 2024, Issue 1 (2024), 115–151.
 5. *Structure of geometrically non-reduced varieties*, with J. Waldron. **Transactions of the American Mathematical Society**, Volume 374, Number 12 (2021), 8333–8363.
 6. *Completely controlling the dimensions of formal fiber rings at prime ideals of small height*, with S. Fleming, S. Loepp, P. McDonald, N. Pande, and D. Schwein. **Journal of Commutative Algebra**, Volume 11, Number 3 (2019), 363–388.
 7. *Controlling the dimensions of formal fibers of a unique factorization domain at the height one prime ideals*, with S. Fleming, S. Loepp, P. McDonald, N. Pande, and D. Schwein. **Journal of Commutative Algebra**, Volume 10, Number 4 (2018), 475–498.
- PREPRINTS
8. *The K -moduli space of a family of conic bundle threefolds*, with K. DeVleming, P. Kennedy-Hunt, and M. Quek. Preprint available at [arXiv:2403.09557](https://arxiv.org/abs/2403.09557) (2024).
 9. *Arithmetic and birational properties of linear spaces on intersections of two quadrics*, with F. Suzuki. Preprint available at [arXiv:2402.18857](https://arxiv.org/abs/2402.18857) (2024).
 10. *Symmetries of Fano varieties*, with L. Esser and J. Moraga. Preprint available at [arXiv:2308.12958](https://arxiv.org/abs/2308.12958). Submitted (2023).
 11. *The fibering genus of Fano hypersurfaces*, with N. Chen, B. Church, and D. Stapleton. Preprint available at [arXiv:2308.12401](https://arxiv.org/abs/2308.12401). Submitted (2023).
 12. *Fano hypersurfaces with no finite order birational automorphisms*, with N. Chen and D. Stapleton. Preprint available at [arXiv:2208.07396](https://arxiv.org/abs/2208.07396). Submitted (2022).
- AWARDS
- NSF Mathematical Sciences Postdoctoral Research Fellowship, DMS-2202444 (2022–2025)
 - NSF Graduate Research Fellowship Program, DGE-1656466 (2018–2021)
 - Princeton University President’s Fellowship (2016)

- (Junior) Phi Beta Kappa: top 2% of Columbia College's graduating class (2016)

INVITED
CONFERENCE
TALKS

- 40 Years of Higher Dimensional Geometry, Princeton University, June 2026.
- Structures and Symmetries in Algebraic Geometry. University of the National Education Commission, Kraków, June 2025.
- Real Algebraic Geometry and Birational Geometry. CIRM, Marseille, June 2025.
- Cremona Groups. CIRM, Marseille, May 2025.
- Birational Geometry and Number Theory. ICMS, Edinburgh, October 2024.
- MPS Conference on Higher Dimensional Geometry. Simons Center, May 2024.
- AGNES (Algebraic Geometry Northeastern Series). Boston College, March 2024.
- Fields Medal Symposium in Honor of Caucher Birkar. The Fields Institute, October 2023.
- International Workshop on Birational Geometry. Nagoya University, October 2023.
- AWM Research Symposium. Special Session on Recent Advances in Curves and Abelian Varieties. Clark Atlanta University, September 2023.
- Clay Research Workshop: K-stability and Birational Geometry. University of Oxford, September 2023.
- Conference on Rationality and Hyperbolicity. University of Notre Dame, June 2023.
- MPS Conference on Higher Dimensional Geometry. Simons Center, May 2023.
- Michigan Algebraic Geometry Symposium. University of Michigan, March 2023.
- Explicit Moduli Problems in Higher Dimensions. Banff, February 2023.
- Birational Complexity of Algebraic Varieties. Simons Center, December 2022.
- AMS Fall Western Sectional Meeting, Special Session on Recent Advances in Algebraic Geometry and Commutative Algebra in or Near Characteristic p (associated with the Invited Address by Bhargav Bhatt). University of Utah, October 2022.
- Conference on Algebraic Geometry and Singularities. Univ. of Washington, June 2022.
- AWM Research Symposium. Special Session on WiAG: Women in Algebraic Geometry. University of Minnesota, June 2022.
- JAMI 2022: Higher Dimensional Algebraic Geometry. Johns Hopkins Univ., May 2022.
- MPS Conference on Higher Dimensional Geometry. Simons Foundation, February 2022.
- AGNES Showcase (Online). October 2021.
- Western Algebraic Geometry Symposium (Online). April 2021.
- AMS Fall Eastern Sectional Meeting, Special Session on Algebraic Singularities in Arbitrary Characteristic (Online). October 2020

INVITED
SEMINAR
TALKS

- École Polytechnique Fédérale de Lausanne; Groups, Arithmetic and Algebraic Geometry Seminar. June 2024.
- Institut de Mathématiques de Bordeaux, Séminaire de Théorie des Nombres. June 2024.
- Tsinghua University, Algebraic Geometry Seminar. May 2024.
- Brown University, Algebraic Geometry Seminar. April 2024.
- NYU Courant, Joint Columbia-CUNY-NYU Number Theory Seminar. April 2024.
- Washington University in St. Louis, Algebraic & Arithmetic Geom Seminar. March 2024.
- University of Illinois Chicago, Algebraic Geometry Seminar. February 2024.
- University of Nottingham, Online Algebraic Geometry Seminar. November 2023.
- Tufts University; Algebra, Geometry, and Number Theory Seminar. October 2023.
- University of Michigan, Commutative Algebra Seminar. October 2023.
- The University of Tokyo, Algebraic Geometry Seminar. October 2023.
- UT Austin, Geometry Seminar. September 2023.
- UW Madison, Algebra and Algebraic Geometry Seminar. April 2023.
- Johns Hopkins University, Algebraic Geometry Seminar. April 2023.
- UCLA, Algebra Seminar. April 2023.
- Columbia University, Algebraic Geometry Seminar. March 2023.
- **Birational Geometry Seminar** (Online). January 2023.
- University of Notre Dame, Algebraic Geometry/Commutative Alg. Seminar. Dec. 2022.
- University of Illinois Urbana-Champaign, Algebraic Geometry Seminar. November 2022.

- Michigan State University, Algebra Seminar. November 2022.
- University of Utah, Algebraic Geometry Seminar. October 2022.
- Simon Fraser University, Number Theory and Algebraic Geometry Seminar (Online). September 2022.
- Northwestern University, Algebraic Geometry Seminar (Online). November 2021.
- Ohio State University, Algebraic Geometry Seminar (Online). November 2021.
- University of Michigan, Algebraic Geometry Seminar. September 2021.
- Stanford University, Algebraic Geometry Seminar (Online). June 2021.
- University of Utah, Algebraic Geometry Seminar (Online). February 2021.
- Yale University, Algebra and Number Theory Seminar (Online). February 2021.
- University of Michigan, Algebraic Geometry Seminar (Online). November 2020.
- Princeton University, Algebraic Geometry Seminar (Online). November 2020.

TEACHING INSTRUCTOR, UNIVERSITY OF MICHIGAN September 2021–December 2023
 EXPERIENCE

- Fall 2023: Math 115 (Calculus I) – two sections
- Fall 2021: Math 115 (Calculus I) – two sections

Assistantship in Instruction, Princeton University September–December 2018

- Fall 2018: MAT214 (Numbers, Equations, and Proofs) with Chris Skinner

Teaching Assistant, Columbia University January 2014–May 2016

- Review sessions, office hours, and grading for Math V2010 (Linear Algebra), W4041 (Modern Algebra I), W4042 (Modern Algebra II)

EXPOSITORY ARTICLES

- Theorem of the base, with R. Cheng, M. Larson, and N. Olander. In *Stacks Project Expository Collection (SPEC)*, 163–193, London Math. Soc. Lecture Note Ser., 480, Cambridge Univ. Press, Cambridge, 2022.
- Weil restriction for schemes and beyond, with S. Li, P. McFaddin, D. Moore, and M. Stevenson. In *Stacks Project Expository Collection (SPEC)*, 194–221, London Math. Soc. Lecture Note Ser., 480, Cambridge Univ. Press, Cambridge, 2022.

MENTORSHIP

- Bootcamp mentor for Algebraic Geometry Summer Research Institute, Colorado State University (2025)
- Mentor for UM AWM vertical mentoring program (2023–2024)
- REU (Research Experience for Undergraduates) mentor, University of Michigan (2022) – Student: Mattie Ji¹ from Brown University (2024 AWM Schafer prize runner-up)
 Project: *Examples of real conic bundles with quartic discriminant curve*
- Working session advisor for AGNES (Algebraic Geometry Northeastern Series) Summer School on Higher Dimensional Moduli, Brown University (August 2022): Led exercise and research problem sessions for the graduate summer school.
- Project group leader for AGNES Summer School on Higher Dimensional Moduli (with K. DeVleming): Led a group continuing the research started at the graduate summer school.
- Group leader for Mentoring Möbius, Princeton University (2016–2021): Mentored math undergraduate students at Princeton.
- MathReach volunteer: Taught enrichment math at STEMCivics Purplefect Palace High School in Ewing Township, NJ (2017–2018)
- Maintain REU application information and help website for undergraduates
<http://www-personal.umich.edu/~lenaji/reus/> (2017–present)

SEMINARS AND WORKSHOPS ORGANIZED

- Stacks Project Workshop, August 2023 (local organizer)
- K-stability learning seminar, University of Michigan, Winter 2023 (co-organizer)
- Brauer–Manin obstruction learning seminar, University of Michigan, Fall 2022 (organizer)

¹We have the same last name but are not related.

- **American Graduate Student Algebraic Geometry Seminar**, 2020–2021 (co-organizer): On-line research seminar for graduate students in algebraic geometry during the pandemic.
- Noetherian Ring lecture series, Princeton University, 2019–2021 (co-organizer): Lecture series highlighting the work of early career women and non-binary mathematicians.

SERVICE

- Executive Board of the AWM (Association for Women in Mathematics) Chapter at the University of Michigan (2022–2024)
- Various activities, Mathematics Department, University of Michigan (2022–2024)
 - Organizer of “Cake Time” department social (2022–2024): Math department social for grad students, postdocs, faculty, and staff. On average 120+ attendees per event.
 - Workshop leader for Jobs in Academia for Mathematicians Sessions for graduate students (2022, 2023): Led workshops to help math grad students with job applications.
 - U(M) Undergraduate Math Club expository talks: *Solutions of polynomials mod q* (2022), *What is a moduli space?* (2023)
- Co-organizer of Noetherian Ring (women in math), Princeton University (2019–2021)
- Co-organizer of Princeton Mathematics Department Friday Social (2018–2020)
- Co-organizer of Princeton Mathematics Graduate Student Seminar (2017–2018)
- Women in Stem Leadership Council, Princeton University (2016–2018)
- Contributor to the Stacks Project, <http://stacks.math.columbia.edu>

LANGUAGES

English (native), Mandarin Chinese (intermediate)

Last updated: April 2024.