Zhijia Zhang

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Education

2021–	**New York University**	**New York, NY**
	Ph.D. candidate in Mathematics	
2017–2021	**New York University Shanghai**	**Shanghai, China**
	B.S. in Honors Mathematics	

Research interests

Algebraic geometry, especially (equivariant) birational geometry and rationality problems.

Awards

2025	Charles Newman Fellowship, NYU Courant
	awarded each year to one or two outstanding Mathematics PhD students.
2024	Wilhelm T. Magnus Memorial Prize, NYU Courant
	awarded for significant contributions to the Mathematical Sciences.
2021–2026	MacCracken Doctoral Fellowship, NYU

Publications (in reverse chronological order)

to appear	Computing the equivariant Brauer group
	(with A. Pirutka)
	accepted by *International Journal of Mathematics*, 40 pp.
2025	Modular symbols and equivariant birational invariants
	Journal of Number Theory **271**, 308–327.
2025	Rationality of forms of $\overline{\mathcal{M}}_{0,n}$
	(with B. Hassett and Yu. Tschinkel)
	Journal of the London Mathematical Society **111**(2):e70097, 35 pp.
2025	Equivariant geometry of singular cubic threefolds
	(with I. Cheltsov and Yu. Tschinkel)
	Forum of Mathematics. Sigma **13**:e9, 52 pp.
2025	Equivariant geometry of the Segre cubic and the Burkhardt quartic
	(with I. Cheltsov and Yu. Tschinkel)
	Selecta Mathematica. New Series **31**(1):7, 36 pp.
2024	Equivariant birational geometry of linear actions
	(with Yu. Tschinkel and K. Yang)
	EMS Surveys in Mathematical Sciences **11**(2), 235–276.
2022	Combinatorial Burnside groups
	(with Yu. Tschinkel and K. Yang)
	Research in Number Theory **8**(2):33, 17 pp.

Preprints

2025   Cohomological obstructions to equivariant unirationality
        (with Yu. Tschinkel), 16 pp., *submitted*

2025   Equivariant unirationality of Fano threefolds
        (with I. Cheltsov and Yu. Tschinkel), 30 pp., *submitted*

2025   Rationality of singular cubic threefolds over $\mathbb{R}$
        (with I. Cheltsov and Yu. Tschinkel), 27 pp., *submitted*

2024   Birational invariants of volume preserving maps
        (with K. Loginov), 34 pp., *submitted*

2024   Stable equivariant birationalities of cubic and degree 14 Fano threefolds
        (with Yu. Tschinkel), 22 pp., *submitted*

2024   Equivariant geometry of singular cubic threefolds, II
        (with I. Cheltsov, L. Marquand and Yu. Tschinkel), 51 pp., *submitted*

Other writing

2024   Equivariant geometry of singular cubic threefolds, *ZAG report*, 5 pp.

Conference talks

2025   Krakow, Poland, Structures and Symmetries in Algebraic Geometry (upcoming)
2025   University of Hawaii, Polarized Varieties and Their Applications (upcoming)
2025   CIRM, Marseille, Cremona Groups (upcoming)
2025   University of Miami, New Developments of Birational Geometry
2025   UCSD, Conference on K-stability and Moduli of Varieties (short talk)
2024   ICMS, Edinburgh, Birational Geometry and Number Theory
2024   Boston College, Algebraic Geometry Northeastern Series (short talk)
2023   Princeton University, Monodromy and Its Applications (lightning talk)

Seminar talks

2025   UIUC, Algebraic Geometry Seminar
2025   CUNY Graduate Center, Commutative Algebra and Algebraic Geometry Seminar
2025   Princeton University, Algebraic Geometry Seminar
2024   University of Nottingham, Pure Mathematics Seminar
2024   Imperial College London, Algebraic Geometry Seminar
2024   NYU, Algebraic Geometry Seminar

Conferences attended

2025   Duke University, The Fifth Duke Mathematical Journal Conference (upcoming)
2024   Simons Foundation, Conference on Arithmetic Geometry, Group Actions and Rationality Problems
2024   Stony Brook University, Conference on Higher Dimensional Geometry

2023	University of Miami, Higher Invariants in Equivariant and Geometric Topology
2023	Stony Brook University, Algebraic Geometry Northeastern Series (AGNES)
2022	Simons Foundation, Conference on Higher Dimensional Geometry
2022	PCMI Graduate Summer School: Number Theory Informed by Computation

Teaching

New York University

Spring 2025	Teaching assistant, MATH-UA.0343 Algebra I
Fall 2024	Teaching assistant, MATH-UA.0348 Honors Algebra I
Spring 2024, 2025	Grader, MATH-GA.2140 Algebra II
January 2024	Instructor, Complex Variables Written Exam Workshop
Spring 2023, 2024	Grader, MATH-GA.2210 Introduction to Number Theory
Fall 2022, 2023	Grader, MATH-GA.2130 Algebra I

Services

2025	Speaker, cSplash, NYU Courant *one-day outreach event of short lectures to local high school students*
2024–2025	Member, PhD student survey committee, NYU Courant
2021–2023	Co-organizer, Graduate Student and Postdoc Seminar, NYU Courant

Relevant skills

Languages: Chinese, English

Softwares: `Magma`, `GAP`