

ZHIJIA ZHANG

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Education

New York University

Ph.D. candidate in Mathematics

New York, NY

2021 – present

New York University Shanghai

B.S. in Honors Mathematics

Shanghai, China

2017 – 2021

Research interests

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

Awards

Charles Newman Fellowship, NYU Courant 2025

awarded each year to one or two outstanding Mathematics PhD students.

Wilhelm T. Magnus Memorial Prize, NYU Courant 2024

awarded for significant contributions to the Mathematical Sciences.

MacCracken Doctoral Fellowship, NYU 2021–2026

Publications (in reverse chronological order)

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

Preprints

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| 8. Equivariant unirationality of Fano threefolds
(with I. Cheltsov and Yu. Tschinkel), 30 pp., <i>submitted</i> | 2025 |
| 9. Rationality of singular cubic threefolds over \mathbb{R}
(with I. Cheltsov and Yu. Tschinkel), 27 pp., <i>submitted</i> | 2024 |
| 10. Birational invariants of volume preserving maps
(with K. Loginov), 34 pp., <i>submitted</i> | 2024 |
| 11. Stable equivariant birationalities of cubic and degree 14 Fano threefolds
(with Yu. Tschinkel), 22 pp., <i>submitted</i> | 2024 |
| 12. Equivariant geometry of singular cubic threefolds, II
(with I. Cheltsov, L. Marquand and Yu. Tschinkel), 51 pp., <i>submitted</i> | 2024 |

Other writing

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| 1. Equivariant geometry of singular cubic threefolds, <i>ZAG report</i> , 5 pp. | 2024 |
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Conference talks

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| 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) | 2025 |
| ICMS, Edinburgh, Birational Geometry and Number Theory | 2024 |
| Boston College, Algebraic Geometry Northeastern Series (short talk) | 2024 |
| Princeton University, Monodromy and Its Applications (lightning talk) | 2023 |

Seminar talks

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

Conferences attended

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| Duke University, The Fifth Duke Mathematical Journal Conference (upcoming) | 2025 |
| Simons Foundation, Conference on Arithmetic Geometry, Group Actions and Rationality Problems | 2024 |
| Stony Brook University, Conference on Higher Dimensional Geometry | 2024 |
| University of Miami, Higher Invariants in Equivariant and Geometric Topology | 2023 |
| Stony Brook University, Algebraic Geometry Northeastern Series (AGNES) | 2023 |
| Simons Foundation, Conference on Higher Dimensional Geometry
<i>presented a poster</i> | 2022 |
| PCMI Graduate Summer School: Number Theory Informed by Computation | 2022 |

Teaching

New York University

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

Services

PhD student survey committee, NYU Courant	2024–2025
Co-organizer, Graduate Student and Postdoc Seminar, NYU Courant	2021–2023

Relevant skills

Languages: Chinese, English
Softwares: Magma, GAP