

Zengrui Han

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Department of Mathematics
Rutgers, the State University of New Jersey
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EDUCATION

- Ph.D. Rutgers, the State University of New Jersey, 2020-2025
Advisor: Lev Borisov
- B.S. University of Science and Technology of China, 2016-2020

RESEARCH AREAS

Algebraic Geometry, especially mirror symmetry and related areas.

PUBLICATIONS AND PREPRINTS

- 2024 Stringy Hodge numbers of Pfaffian double mirrors and Homological Projective Duality. arXiv:2409.17449.
- 2024 Central charges in local mirror symmetry via hypergeometric duality. arXiv:2404.16258. Submitted.
- 2023 Analytic continuation of better-behaved GKZ systems and Fourier-Mukai transforms, recommended by referees for publication in **Épjournal de Géométrie Algébrique**. arXiv:2305.12241
- 2023 On hypergeometric duality conjecture, with Lev Borisov, **Advances in Mathematics**, Volume 442 (2024): 109582. arXiv:2301.01374
- 2019 On duality of certain GKZ hypergeometric systems, with Lev Borisov and Chengxi Wang, **Asian Journal of Mathematics**, Volume 25 (2021), No.1, 65-88. arXiv:1910.04039

TALKS AND PRESENTATIONS

- 2024 “Pfaffian double mirrors, stringy Hodge numbers and Homological Projective Duality”, Rutgers Algebra Seminar, Rutgers University, Oct 2024
- 2024 “GKZ systems and their applications to toric mirror symmetry”, Columbia Enumerative Geometry Seminar, Columbia University, Sept 2024
- 2024 “GKZ Hypergeometric Systems and Their Applications to Mirror Symmetry”, poster, Richmond Geometry Meeting, Virginia Commonwealth University, Aug 2024.
- 2024 “Central charges in local mirror symmetry”, Rutgers Algebra Seminar, Rutgers University, April 2024
- 2023 “Better-behaved GKZ systems and toric mirror symmetry”, 5 minutes talk, Algebraic Geometry Northeastern Series, University of Pennsylvania, Oct 2023
- 2023 “Duality of better-behaved GKZ systems”, Rutgers Algebra Seminar, Rutgers University, Feb 2023

TEACHING

Rutgers University

Math 551: Abstract Algebra I, TA, Fall 2024

Math III: Precalculus, TA, Spring 2024

Math 552: Abstract Algebra II, TA, Spring 2024

Math 551: Abstract Algebra I, TA, Fall 2023

Math 477: Mathematical Theory of Probability, TA, Fall 2023

Math 244: Differential Equations for Engineering and Physics, TA, Spring 2023

Math 354: Linear Optimization, TA, Fall 2022

Math 251: Multivariable Calculus, TA, Spring 2022

Math 251H: Multivariable Calculus, TA, Fall 2021

AWARDS AND HONORS

2025 Rutgers SAS Fellowship, Rutgers University, 2025

2024 Summer PhD student Research Fellowship, Rutgers University, 2024

2019 Huang Yu Memorial Scholarship, University of Science and Technology of China, 2019

2018 Outstanding Student Scholarship, Silver Award, University of Science and Technology of China

2017 Outstanding Student Scholarship, Silver Award, University of Science and Technology of China

2015 Chinese Mathematical Olympiad (CMO), Bronze Medal, 2015

Updated October 2024