Ruoxi Li

rul44@pitt.edu
https://ruoxi-li0351.github.io/
Thackeray Hall, Pittsburgh, PA

EDUCATION

2019–Present[*] **Ph.D.**, University of Pittsburgh (Advisor: Prof. Roman Fedorov)
2016-2018   **M.S.**, University of Illinois Urbana-Champaign
2012-2016   **B.S.**, Nankai University

RESEARCH INTERESTS

My research focuses on algebraic geometry and representation theory. More specifically, I am interested in moduli stacks of Higgs bundles and bundles with connections, character varieties, and moduli spaces of quiver representations. Recently, I have also been interested in invariant D-modules.

PUBLICATIONS AND PREPRINTS

1. Explicit formulas for mixed Hodge polynomials of character varieties of nilpotent groups (with Rahul Singh). arXiv: 2410.10008.
2. Motivic classes of stacks in finite characteristic and applications to stacks of Higgs bundles. arXiv: 2509.09861.
3. Invariant algebraic D-modules on semisimple and general linear groups: classification and tensor categories (with Rudrendra Kashyap). arXiv: 2601.10934.

PROJECTS

2022– Motivic classes of stacks in finite characteristic and applications to stacks of bundles with connections (with Roman Fedorov).
2024– Motives of moduli spaces of stable quiver representations (with Sergey Mozgovoy, Markus Reineke and Rahul Singh).

INVITED TALKS

11/2025 Motivic classes in finite characteristic with applications to Higgs bundles and bundles with connections, M-Seminar, Kansas State University.
03/2025 Motivic classes of varieties and stacks with applications to Higgs bundles, Arithmetic Seminar, Binghamton University.

CONTRIBUTED TALKS

08/2025 Motivic classes in finite characteristic with applications to Higgs bundles and bundles with connections, Workshop on Character Varieties and Higgs Bundles, University of Costa Rica. 10-minute Talk and poster session.
05/2025 Motivic classes of varieties and stacks with applications to Higgs bundles, GTA Philadelphia, Temple University. 30-minute Talk.

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[*] Expected 2026.

11/2024	Motivic classes in finite characteristic with applications to Higgs bundles and bundles with connections, Western Algebraic Geometry Symposium, University of Arizona. Poster session.
11/2024	Motivic classes in finite characteristic with applications to Higgs bundles and bundles with connections, Algebraic Geometry Northeastern Series, Dartmouth College. Poster session.
11/2024	Motivic classes of varieties and stacks with applications to Higgs bundles Part II, Graduate Student Seminar, University of Pittsburgh.
10/2024	Motivic classes of varieties and stacks with applications to Higgs bundles, BUGCAT Conference, Binghamton University. 20-minute Talk.
10/2024	Motivic classes of varieties and stacks with applications to Higgs bundles Part I, Graduate Student Seminar, University of Pittsburgh.
09/2024	Motivic classes of varieties and stacks with applications to Higgs bundles, Algebraic Groups and the Geometric Langlands Program Seminar, University of Pittsburgh.
08/2024	Motivic classes of stacks in finite characteristic and applications to stacks of Higgs bundles and bundles with connections, Richmond Geometry Meeting, Virginia Commonwealth University. Poster session.

TEACHING EXPERIENCES

University of Pittsburgh

Instructor

MATH 0290	Differential Equations, SU 2024

Teaching Assistant

MATH 0120	Business Calculus, FA 2020, 2021, SU 2025
MATH 0220	Analytic Geometry & Calculus 1, SP 2021, 2022, 2024
MATH 0230	Analytic Geometry & Calculus 2, SP 2021, 2025, SU 2021, FA 2021, 2022
MATH 0413	Intro Theoretical Mathematics, SU 2021
MATH 0420	Intro Theory 1-Variable Calculus, SP 2023
MATH 0430	Intro Abstract Algebraic Systems, SP 2023, 2024

Grader

MATH 0290	Differential Equations, FA 2024, SP 2026
MATH 0400	Finite Mathematics, SP 2021
MATH 1020	Applied Elementary Number Theory, FA 2022, 2023
MATH 1050	Combinatorial Mathematics, FA 2022, 2023
MATH 1470	Partial Differential Equations 1, FA 2021

ACADEMIC SERVICE

2025	**Mentor**, *CMU-Pitt Directed Reading Program*
2024–	**Referee**, *Pittsburgh Interdisciplinary Mathematics Review*

HONORS AND AWARDS

2019	Arts & Sciences Graduate Fellowship, University of Pittsburgh
2012	Freshman's Second Prize Scholarship, Nankai University