

Xinchun Ma

(773)231-3399

xcma@uchicago.edu

Education

University of Chicago 2019 - 2025

Ph.D. Candidate, Mathematics. Advised by Victor Ginzburg

Fudan University 2015 - 2019

Bachelor of Science, Mathematics and Applied Mathematics

Interests

Geometric representation theory, especially interactions between Cherednik algebras, Hilbert schemes, character D -modules, Hitchin fibrations and affine Springer fibers motivated by their connections with link homology

Research

- *From Cherednik algebras to knot Homology via cuspidal \mathcal{D} -modules* arXiv: 2407.00971
- *Rational Cherednik algebras and torus knot invariants* submitted, arXiv: 2402.18770
- with Matilde Lalín, *θ -triangle and parallelogram pairs with common area and common perimeter*
J. Number Theory 202 (2019), 1 – 26.

Teaching

At University of Chicago:

Instructor on record:

- Math 151-152, Calculus I-II 2024 - 2025
- Math 152, Calculus II 2023 - 2024
- Math 151-152, Calculus I-II 2022 - 2023
- Math 131, 132, 153 Calculus I, II, III 2021 - 2022

Teaching assistant: 2020 - 2021

Abstract Linear Algebra, Riemannian Geometry, Differential Manifolds and integration on Manifolds

Awards

McCormick Fellowship 2019 - 2021

University of Chicago

Invited Conference Talks

- Workshop on “Diagrammatic Categorification”, ICERM Oct 2025
- Conference on “Representation theory with emphasis on Langlands program”,
Northeastern University June 2025
- AMS Spring Central Sectional Meeting special session, UW Milwaukee April 2024
- AWM Research Symposium special session, Clark Atlanta University Sept 2023
- Conference on “Quantum groups, Categorification, Knot invariants, and Soergel bimodules II”,
University of Oregon Aug 2022

Invited Seminar Talks

- Combinatorics seminar, WUSTL *Jan 2025*
- Representation theory seminar, LSU *Oct 2024*
- Lie group seminar, MIT *Sept 2024*
- Representation theory seminar, UMass Amherst *Sept 2024*
- Geometry, Symmetry and Physics seminar, Yale *Sept 2024*
- Mathematics seminar, Montana State Univeristy *Aug 2024*
- Algebra and Discrete Mathematics seminar, UC Davis *Jan 2024*
- Algebra and Algebraic geometry seminar, UW Madison *Oct 2023*
- Algebra and Discrete Mathematics seminar, UC Davis *April 2022*

Services and outreach

- UChicago AWM (Association of Women in Math) leadership team *2023 -*
- UChicago WIGS+(Women and Gender Minorities in Graduate Science) leadership team *2022 - 2023*
- Co-organizer of a learning seminar on “Topics around link homology” *2023 - 2024*
- Co-organizer of the representation theory special session in AWM Biennial Research Symposium at UW Madison *May 2025*
- Referee for IMRN, Crelle’s Journal

Mentoring

REU mentor for:

2021: Sydney Bergen, Drew Melman-Rogers, Sean Ryan;

2020: Helena Perez-Stark, Ryan Wandsnider

Directed reading program mentor for:

Spring 2024: Jake Zummo; Winter 2023: Daohong Xu; Spring 2022: Jen Tang; Winter 2021: Helena Perez-Stark

Conferences attended

- Quivers, Clusters and Lie theory, UNAM *June 2024*
- VI Canada-Mexico-US Meeting, UNAM (presented a poster) *June 2024*
- Representation Theory and Related Geometry: Progress and Prospects, UGA (gave a 10-min contributed presentation) *May 2024*
- WAGS - Western Algebraic Geometry Symposium, UC Davis *April 2024*
- MSRI Summer School on New Directions in Representation Theory, Hawaii *June 2022*
- Summer School in Geometric Representation Theory, MIT *June 2022*
- Lie Theory and Poisson Geometry, CIRM *Jan 2021*