Xinchun Ma

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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*
  arXiv: 2402.18770, provisionally accepted for publication in IMRN

- 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",   *June 2025*
  Northeastern University

- 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",
  Univeresity 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 WIGS+(Women and Gender Minorities in Graduate Science) leadership team	*2022 - 2023*
UChicago AWM (Association of Women in Math) leadership team	*2023 -*
AWM network mentor	*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*