MENGWEI HU

✉ m.hu@yale.edu | 🌐 hmengwei.github.io

EDUCATION

Ph.D. in Mathematics, Yale University   *2020 - 2026*
Advisor: Prof. Ivan Losev

B.Sc. (Honor) in Mathematics, Sichuan University   *2016 - 2020*

INTERESTS

Geometric representation theory, specifically on symmetric pairs and nilpotent orbits, Nakajima quiver varieties, deformation quantizations and Harish-Chandra $(\mathfrak{g}, K)$-modules.

RESEARCH

- *On certain Lagrangian subvarieties in minimal resolutions of Kleinian singularities.* Submitted. `arXiv:2504.08717`

- *Presentations of diagram categories.* PUMP J. Undergrad. Res., 3:1-25, 2020.

TALKS AND PRESENTATIONS

Seminar Talks

· Algebra Seminar, Syracuse University	*Fall 2025**
· Algebra Seminar, University of Georgia	*Fall 2025**
· Algebra Seminar, University of Oregon	*Mar 2025*
· Algebra Seminar, UCLA	*Mar 2025*
· Geometry, Symmetry and Physics Seminar, Yale	*Jan 2025*

Conference Talks

· AWM Research Symposium Special Session, UW-Madison	*May 2025*
· Southeastern Lie Theory Workshop XV, College of Charleston	*May 2025*
· AMS Fall Western Sectional Meeting Special Session, UCR	*Oct 2024*
· AMS Fall Eastern Sectional Meeting Special Session, UAlbany	*Oct 2024*

Poster and Short Talks

· Categorification and Symplectic Duality Workshop, NEU (presented a poster)	*Jun 2025*
· Women in Mathematics in New England, Smith College (15-min student talk)	*Sep 2024*
· Representation Theory and Related Geometry: Progress and Prospects, UGA (12-min talk)	*May 2024*
· MSRI New Directions in Representation Theory, Hawaii (3-min participant talk)	*Jun 2022*

TEACHING AND MENTORING

At Yale University

· REU Co-mentor: Superalgebras and Polynomial Spaces	*Summer 2025*
· Instructor: Multivariable Calculus and Linear Algebra for Econ, `Syllabus`	*Summer 2024*
· Graduate Instructor: Calculus I, II	*Fall 2022, 2023, 2024, Spring 2026*
· Teaching Assistant: Linear Algebra, Calculus	*Spring, Summer, Fall 2021, Summer 2023*

EXPOSITORY TALKS

· Kleinian singualarities and Nakajima quiver varieties, I-III, *Yale Topics in Rep Theory*	*Nov 2024*
· Anti-Poisson involutions of Kleinian singularities, *Yale Graduate Student Seminar*	*Oct 2024*
· Derived Koszul duality, I-III, *Yale Koszul Duality Reading Group*	*Mar 2024*
· The six functors, I-III, *Yale Learning Seminar on D-modules*	*Oct-Nov 2023*
· Harish-Chandra bimodules over quantum algebras, I-II *Yale W-algebras Reading Group*	*Mar 2023*
· Borel-Moore homology I-II, *Joint Yale-Columbia Representation Seminar*	*Sep 2022*
· Schur-Weyl duality and its generalizations, *Yale Graduate Student Seminar*	*Feb 2022*
· Derived categories and derived functors. *Yale Perverse Sheaf Reading Group*	*Oct 2021*

VISITS

· Shanghai Center for Mathematical Sciences, Research Assistant	*09/2020-06/2021*
· MIT, Visiting Student, *Supervisor: Prof. Zhiwei Yun*	*01/2020-03/2020*
· UOttawa, Visiting Student Researcher, *Supervisor: Prof. Alistair Savage*	*07/2019-10/2019*
· HKUST, Visiting Internship Student, *Supervisor: Prof. Jingsong Huang*	*07/2019-08/2019*
· Peking University, Exchange Student	*09/2018-01/2019*

AWARDS

· Fan Family Fellowship Endowment, *awarded by Yale University*	*2020*
· China National Scholarship, *awarded by the Ministry of Education of China*	*2017, 2019*
· Gold Medal in Chinese Mathematics Competition for College Students	*2019*

SERVICES AND OUTREACH

· Women in Mathematics in New England, *Graduate School Panelist*	*Sep 2024*
· Lang Teaching Seminar at Yale, *Graduate Instructor Panelist.*	*Mar 2024*
· Yale Graduate Student Advisory Committee, *Cohort Representative.*	*2023 - present*
· Certificate of College Mathematics Teaching Preparation, *In Preparation*	*2023 - present*
· Joint Yale-Columbia Representation Seminar, *Co-organizer*	*Fall 2022*
· Yale Math Graduate Student Seminar, *Co-organizer*	*Spring 2022*
· Yale Take an Undergraduate to School, *Mentor*	*Spring 2022*

CONFERENCES ATTENDED

· Workshop on Cluster Algebras and Braid Varieties, UO	*Aug 2025*
· 7th Canada-USA-Maxico Meeting, USC	*Jul 2025*
· Representation Theory Days, MIT	*Nov 2024*
· Poisson Gone Fishing 2024, Northwestern University,	*Apr 2024*
· Summer School on Coulomb Branches and Knot Homology, MIT	*Jun 2023*
· Summer School on Quantized Symplectic Singularities and Applications to Lie Theory, MIT	*Jun 2022*
· 4th Canada-USA-Maxico Meeting, NEU	*Jun 2022*
· From Representation Theory to Mathematical Physics and Back, SCGP	*Jun 2022*
· On the Crossroads of Algebra, Geometry and Physics, Yale	*May 2022*