

Curriculum Vitae

Yu Zhao

Office Address: Massachusetts Institute of Technology
Mathematics Department
182 Memorial Dr, Cambridge, MA 02142
Email Address: zy199402@mit.edu

Education

2015 – 2021 Ph.D. Massachusetts Institute of Technology, Massachusetts, U.S.
2011 – 2015 B.A. Peking University, Beijing, China

Research Interests

I am interested in algebraic geometry, representation theory and mathematical physics. More specifically, I am interested about the Cohomological/K-theoretical Hall algebra and its applications in the quantum cohomology, the Donaldson-Thomas theory and the hyperkahler geometry.

Publications

Peer-reviewed research articles

2020 2. *A Categorical Quantum Toroidal Action on the Hilbert Schemes* 29-pages, submitted. [arxiv.org:2009.11267](https://arxiv.org/abs/2009.11267)
2019 1. *The Feigin-Odesskii Wheel Conditions and Sheaves on Surfaces*, 22 pages, submitted. [arXiv:1909.07870](https://arxiv.org/abs/1909.07870)
2019 0. *On the K-theoretic Hall algebra of a surface*, 26 pages, International Mathematics Research Notices, rnaa123, <https://doi.org/10.1093/imrn/rnaa123> [arXiv:1901.00831](https://arxiv.org/abs/1901.00831)

Invited Talks

2019 Oct. 2nd Massachusetts Institute of Technology: Geometric Representation Theory Seminar
2019 Oct. 14th UC Davis: Algebra and Discrete Mathematics seminar
2019 Oct. 24th Rutgers University: Geometry and Physics seminar
2019 Oct. 26th Boston College: Shanghai-Boston Mathematics Conference
2019 Nov. 18th Yale University: Geometry, Symmetry and Physics

Conferences Attended

2016 July BICMR: Stable Rationality and Diagonal Decomposition Beijing, China
2017 August University of Chicago: Interactions between Representation Theory and Algebraic Geometry
2018 June CIME: Geometric Representation Theory and Gauge Theory Cetraro, Italy
2018 July IST Austria: IST Austria Summer School on Geometric Representation Theory Vienna, Austria
2018 October Algebraic Geometry Northeastern Series in Brown Rhode Islands, US
2019 March Algebraic Geometry Northeastern Series in Amherst Massachusetts, US
2019 June MRC: Geometric Representation Theory and Equivariant Elliptic Cohomology Rhode Islands, US

Teaching Experience

Recitations led at MIT

2018 Spring Multivariable Calculus (18.02)

Mentoring activities

I am mentoring math research section for high school juniors in the MIT PRIMES program.

2019– Frank Wang: Integral Shuffle Algebras and the Hilbert Schemes of Points on Planes
2018 Stanley Wang: Connectedness of the Moduli Space of Genus 1 Planar Tropical Curves
Selected as the Regeneron STS scholar in 2019