

Yaolong Shen

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Research Interests

Representation theory; quantum groups and quantum symmetric pairs; Yangians and twisted Yangians; diagrammatic categories and categorification; canonical bases and Schur dualities; Coulomb branches and KLR-type algebras

Experience

Research Fellow (tenure track), East China Normal University 2026 - present

Postdoctoral Researcher, University of Ottawa 2024 - 2026

Mentors: [Alistair Savage](#) and [Hadi Salmasian](#)

Education

Ph.D. in Mathematics, University of Virginia 2019 - 2024

Advisor: [Weiqiang Wang](#)

B.S. in Mathematics, Peking University 2015 - 2019

Publications

Y. Shen, C. Su and R. Xiong, *Quivers with involutions and shifted twisted Yangians via Coulomb branches*, accepted by Commun. Math. Phys., 2026. [arXiv:2510.12118](#)

H. Salmasian, A. Savage and **Y. Shen**, *The disoriented skein and iquantum Brauer categories*, Forum. Math. Sigma **14** (2026), Paper No. e11. [doi:10.1017/fms.2025.10148](#). [arXiv:2507.12328](#)

Y. Shen, *Canonical bases of the oriented skein category*, Commun. Algebra **54** (2026), no. 8, 3075–3089. [doi:10.1080/00927872.2025.2592838](#). [arXiv:2305.04164](#).

Y. Shen and W. Wang, *Quantum supersymmetric pairs of basic types*, Commun. Math. Phys. **406** (2025), Paper No. 187. [doi:10.1007/s00220-025-05339-w](#). [arXiv:2408.02874](#).

Y. Shen, *Quantum supersymmetric pairs and iSchur dualities of type AIII*, J. Algebra **661** (2025), 853–903. [doi:10.1016/j.jalgebra.2024.07.035](#). [arXiv:2210.01233](#).

Z. Carlini and **Y. Shen**, *Quasi-parabolic Kazhdan-Lusztig bases and reflection subgroups*, 12 pages, Journal of Pure and Applied Algebra (2024), Paper No. 107777. [doi:10.1016/j.jpaa.2024.107777](#). [arXiv:2305.12290](#).

W. Cui, and **Y. Shen**, *Canonical bases of q -Brauer algebras and iSchur dualities*, Math. Res. Lett. **31** (2024), 91–126. [doi:10.4310/mrl.240904211718](#). [arXiv:2203.02082](#).

Y. Shen and W. Wang, *iSchur dualities and Kazhdan-Lusztig bases expanded*, Adv. Math. **427** (2023), Paper No. 109131. [doi:10.1016/j.aim.2023.109131](#). [arXiv:2108.00630](#).

Preprints

W. Cui and **Y. Shen**, *A Serre-type presentation for iquantum supergroups of type A*, submitted, 2026. [arXiv:2609.02176](#)

X. Huang, P. Li and **Y. Shen**, *Big categorification on towers of classical groups and wreath product groups*, submitted, 2026. [arXiv:2608.17709](#)

Y. Shen, C. Su and R. Xiong, *Quantized Coulomb branches of separated cotangent type and orthosymplectic quivers*, submitted, 2026. [arXiv:2608.16091](#)

Y. Shen, L. Song and R. Xiong, *On weight modules over truncated shifted $\mathfrak{t}$ Yangians*, submitted, 2026. [arXiv:2607.27596](#)

Y. Shen and W. Zhang, *Relative braid group symmetries on quantum supersymmetric pairs of type $sAIII$* , submitted, 2026. [arXiv:2605.01696](#)

H. Salmasian, A. Savage and **Y. Shen**, *Classifying submodules over monoidal categories*, submitted, 2026. [arXiv:2603.18264](#)

Y. Shen, L. Song and W. Wang, *Affine and cyclotomic q -Schur categories via webs*, submitted, 2025. [arXiv:2504.10270](#)

Conferences organized

Modern Methods in Representation Theory, with H. Salmasian and A. Savage,	July 2026
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Invited Talks

Algebra and Representation Theory, Southern University of Science and Technology (SUSTech),	Sept 2026
Xiamen University Nanqiang Young Scholars Forum, Xiamen University,	Dec 2025
SUSTech Global Young Mathematicians Forum, Southern University of Science and Technology,	Nov 2025
Canada-Mexico-USA Conference on Representation Theory, Noncommutative Algebra, and Categorification, University of Southern California,	July 2025
Workshop on Lie theory, East China Normal University,	July 2024
International Conference "Dualities in Quantum Groups", Osaka Metropolitan University,	Feb 2024
Workshop on Lie Theory and Representation Theory VI, East China Normal University	July 2023

Seminar Talks

Algebra Seminar, University of Virginia	May 2026
Algebra Seminar, University of Ottawa	March 2026
Representation Theory Seminar, Chinese Academy of Sciences	May 2025
Algebra Seminar, Tsinghua University	May 2025
Algebra Seminar, University at Albany	April 2025
Algebra Seminar, Queen's University	Mar 2025

Algebra Seminar, University of Ottawa	Sep 2024
Algebra Seminar, Virginia Tech	Jan 2024
Algebraic Combinatorics Seminar, University of Wisconsin-Madison	April 2023
Physical Algebra and Combinatorics Seminar, Osaka City University	March 2022
Algebra Seminar, University of Virginia	February 2022

Contributed Talks

AMS Sectional Meeting, special session "Recent Progress on Categorification and Quantum Groups", University of Connecticut	April 2025
AMS Sectional Meeting, special session "Cluster Algebras, Hall Algebras and Representation Theory", University of Wisconsin-Milwaukee	April 2024
The 13th Southeastern Lie Theory Workshop "Combinatorial Representation Theory of Algebras and Applications", North Carolina State University	May 2023
AMS Sectional Meeting, "Representation Theory of Algebraic Groups and Quantum Groups: A Tribute to the Work of Cline, Parshall and Scott (CPS)", Georgia Institute of Technology	March 2023
AMS Sectional Meeting, special session "Geometry and Representation Theory of Quantum Algebras and Related Topics", University of Utah	October 2022
Canada-Mexico-USA Conference in Representation Theory, Noncommutative Algebra, and Categorification, Poster Session, Northeastern University	June 2022
Categorical Methods in Representation Theory and Quantum Topology, University of Virginia	April 2022
Southeastern Lie Theory Workshop XII, College of Charleston	October 2021

Teaching

University of Ottawa:	
MAT 1322 C Introduction to Calculus II	Spring 2026
MAT 1341 E Introduction to Linear Algebra	Fall 2025
MAT 1341 D Introduction to Linear Algebra	Spring 2025
MAT 1339 C Introduction to Calculus and Vectors	Fall 2024
University of Virginia:	
Math 1210 Calculus I	Fall 2021

Math 1210 Calculus I Fall 2020
As an instructor, I taught weekly 1.5-hour lectures and hold weekly office hours; I participated in the writing and the grading of midterm and final exams.

Math 2310 Calculus III–Teaching Assistant Summer 2020

Math 2310 Calculus III–Teaching Assistant Spring 2020

Math 1320 Calculus III–Teaching Assistant Fall 2019
As a teaching assistant, I led a weekly 50-minute discussion session and hold weekly office hours.

Awards

[Jefferson Fellowship](#) at University of Virginia Fall 2023–Spring 2024
I am honored to be a Dissertation Year Fellow, awarded through a rigorous University-wide competition by the Jefferson Scholars Foundation.

Activities and Services

Co-supervisor for [2026 Fields Undergraduate Summer Research Program](#) on Laurent symmetric functions Fall 2026

Member of AMS graduate chapter, University of Virginia Fall 2023

Mentor for [Directed Reading Program](#), University of Virginia Spring 2023
Served as mentor for undergraduate students reading higher level mathematics, developing skills in reading and presenting higher level mathematics.

Tutor at Math Collaborative Learning Center (MCLC), University of Virginia Fall 2022