

Shiyue Li

Research interests: Algebraic Geometry, Combinatorics, Tropical Geometry.

EMPLOYMENT

University of Michigan , Ann Arbor, MI Donald J. Lewis Research Assistant Professor (Mentor: David Speyer)	2025–present
Institute for Advanced Study , Princeton, NJ Member (Mentor: June Huh)	2023–2025

EDUCATION

Brown University , Providence, RI Ph.D. and M.Sc. in Mathematics (Advisor: Melody Chan) Thesis: <i>K</i> -rings and Hodge structures in graphs, matroids, and moduli spaces of curves	2019–2023
Yale University , New Haven, CT M.Sc. in Mathematics, Lang Fellow	2017–2019
Harvey Mudd College , Claremont, CA B.Sc. in Mathematics with Honors and Distinction (Advisor: Dagan Karp) Thesis: Chow rings of heavy/light Hassett spaces via tropical geometry	2013–2017

PREPRINTS & PUBLICATIONS

Structural properties of nested set complexes

(with Basile Coron, Luis Ferroni)
arXiv:2601.05188

Chow polynomials of rank-uniform labeled posets

(with Basile Coron, Luis Ferroni)
arXiv:2511.13819

Kapranov degrees

(with Joshua Brakensiek, Christopher Eur, Matt Larson)
International Mathematics Research Notices. 2025 (20)

Multimatroids and rational curves with cyclic action

(with Emily Clader, Chiara Damiolini, Christopher Eur, Daoji Huang.)
International Mathematics Research Notices. 2024 (12)

K-rings of wonderful varieties and matroids

(with Matt Larson, Sam Payne, Nicholas Proudfoot.)
Advances in Mathematics 441. (2024)

Equivariant log-concavity of independence sequences of claw-free graphs

Séminaire Lotharingien de Combinatoire 89B, 6. (2023)

Equivariant log-concavity of graph matchings*Algebraic Combinatorics* **6**(3) (2023)**Relative Bott–Samelson varieties***La Matematica* **2** (2023)**Topology of tropical moduli spaces of weighted stable curves in higher genus**

(with Siddarth Kannan, Stefano Serpente, Claudia Yun)

Advances in Geometry, **23**(3) (2023)**Wonderful compactifications and rational curves with cyclic action**

(with Emily Clader, Chiara Damiolini, Rohini Ramadas)

Forum of Mathematics, Sigma **11** (2022)**Permutohedral complexes and rational curves with cyclic action**

(with Emily Clader, Chiara Damiolini, Daoji Huang, Rohini Ramadas)

manuscripta mathematica (2022)**Intersecting psi-classes on tropical Hassett spaces**

(with Marvin Anas Hahn)

Combinatorial Theory **2**(3) (2022)**Chow ring of heavy/light Hassett spaces via tropical geometry**

(with Siddarth Kannan, Dagan Karp)

Journal of Combinatorial Theory, Series A **178C** (2021)

FELLOWSHIPS, GRANTS & AWARDS

NSF Grant DMS-1926686, Institute for Advanced Study	2023–2025
Coline M. Makepeace Fellowship, Brown University	2021–2022
Robert Willets Carle Scholarship, Yale University	2018–2019
Kenneth and Mary Wang Fellowship, Yale University	2017–2018
Lang Fellowship, Department of Mathematics, Yale University	2017–2019
Harvey S. Mudd Merit Award (annually), Harvey Mudd College	2013–2017
Yu Yuen Kit So International Scholarship, Harvey Mudd College	2013–2017
Dean’s List, Harvey Mudd College (all semesters)	2013–2017
China National Linguistics Olympiad 3rd Place	2013
China National Linguistics Olympiad Team 2nd Place	2013

INVITED TALKS

Workshop on “ <i>Algebra and Geometry of Matroids</i> ” Banff International Research Station of Casa Matemática Oaxaca, Mexico	Sep 2026
Workshop on “ <i>Algebraic Combinatorics in Pisa</i> ” Università di Pisa	Jun 2026
Institut des Sciences Mini-courses on “ <i>Geometry and Combinatorics of Moduli Spaces</i> ” Université du Québec à Montréal	May 2026
AMS Special Session on “ <i>Geometry of Moduli Spaces</i> ” Boston College	Mar 2026

<i>Algebraic Geometry Seminar</i>	Apr 2025
University of Pennsylvania	
AMS Special Session on “ <i>Cohomology of Arithmetic Groups, Mapping Class Groups, and Moduli Spaces</i> ”	Jan 2025
Joint Mathematics Meetings, Seattle, USA	
Workshop on “ <i>Geometry of Matroids</i> ”	Oct 2024
Institute for Advanced Study	
“ <i>What is...?</i> ” Seminar	Oct 2024
Institute for Advanced Study	
Workshop on “ <i>Moduli spaces of curves, moduli spaces of graphs and graph complexes</i> ”	Sep 2024
ETH Zürich, Switzerland	
Workshop on “ <i>Matroid Theory</i> ”	Jul 2024
Suzhou University, Suzhou, China	
Workshop on “ <i>Arrangements, Matroids and Logarithmic Vector Fields</i> ”,	Jun 2024
Oberwolfach, Germany	
<i>Algebraic Geometry Seminar</i>	Apr 2024
Columbia University	
<i>Algebra Seminar</i>	Apr 2024
Tufts University	
“ <i>What is...?</i> ” Seminar	Mar 2024
Institute for Advanced Study	
<i>Mathematical Conversations</i>	Mar 2024
Institute for Advanced Study	
<i>Combinatorics Seminar</i> (online)	Feb 2024
University of Minnesota	
<i>F₁ World Seminar (online)</i>	Jan 2024
Special Session on “ <i>Combinatorial perspectives on algebraic curves and their moduli</i> ”	Jan 2024
Joint Mathematics Meetings, San Francisco, USA	
Preparatory Lectures for <i>Chow Lectures</i>	Oct 2023
Max Planck Institute, Leipzig, Germany	
Workshop on “ <i>Curves: Algebraic, Tropical, and Logarithmic</i> ”	Aug 2023
Banff International Research Station, Canada	
<i>The 35th Formal Power Series and Algebraic Combinatorics (FPSAC 2023)</i>	Jul 2023
University of California, Davis	
Workshop on “ <i>GEMS in Combinatorics</i> ”	Mar 2023
American Institute of Mathematics, USA	
Workshop on “ <i>Algebraic Aspects of Matroids</i> ”	Mar 2023
Banff, Canada	
Banff International Research Station, Canada	
Lecture series on “ <i>Growing up in Sciences</i> ”	Feb 2023
Bowdoin College	
Association of Women in Mathematics Student Seminar (online)	Feb 2023
University of Pittsburgh	
<i>Combinatorics Seminar</i>	Feb 2023
University of Michigan	
<i>Matroid Seminar (online)</i>	Dec 2022
Fields Institute	
<i>Algebra and Algebraic Geometry Seminar</i>	Nov 2022
University of Washington	

<i>MIT-Harvard-MSR Combinatorics Seminar</i>	Nov 2022
Harvard University	
<i>AMS Special Session on “Combinatorial Algebraic Geometry”</i>	Oct 2022
University of Massachusetts, Amherst	
<i>AWM Research Symposium</i>	Jun 2022
University of Minnesota	
<i>RATCOW Seminar</i>	Jun 2022
University of Oregon	
<i>BATMOBILE</i>	Jun 2022
Brown University	
<i>Combinatorial and Nonlinear Day</i>	Apr 2022
Brown University	
<i>Joint Mathematics Meetings AWM Special Session (online)</i>	Apr 2022
<i>Canadian Math Society: Combinatorics and Geometry of Moduli Spaces (online)</i>	Dec 2021
<i>Front Range Algebraic Geometry and Number Theory</i>	Sep 2021
Colorado State University	
<i>SIAM Conference on Applied Algebraic Geometry (online)</i>	Aug 2021
<i>Moduli Across the Pandemic (online)</i>	Apr 2021
<i>Tropical Geometry in Frankfurt (TGiF) Seminar (online)</i>	Apr 2021
<i>AMS Spring Eastern Sectional Meeting on “Moduli of Curves” (online)</i>	Mar 2021
<i>Algebra Seminar (online)</i>	Nov 2020
Brown University	
<i>American Graduate Student Algebraic Geometry Seminar (online)</i>	Oct 2020

SERVICE

Referee for

Algebraic Combinatorics
 Duke Mathematical Journal
 European Journal of Combinatorics
 Forum of Mathematics, Sigma ($\times 2$)
 International Mathematics Research Notices ($\times 3$)
 Journal of the London Mathematical Society ($\times 2$)
 Journal für die reine und angewandte Mathematik (Crelle’s Journal)*
 Mathematische Zeitschrift
 Proceedings of the American Mathematical Society ($\times 2$)
 Proceedings of the London Mathematical Society
 Séminaire Lotharingien de Combinatoire (Proceedings of FPSAC Conferences) ($\times 3$)

(* means quick opinions only.)

Organization

University of Michigan AWM Board	2025-
University of Michigan Combinatorics Lunch, co-organizer	2025-
IAS Graph Complexes Learning Seminar, Organizer	Fall 2024
IAS School of Mathematics Monthly Women’s Lunch, co-organizer	2023–2025
IAS “What is...?” Seminar, Co-organizer	2023–2025
AMS Student Chapter at Brown University, Chair	2019–2021
Diversity and Inclusiveness Committee at Brown University, Member	2019–2020
Directed Reading Program at Brown University, Organizer	2019–2021
Directed Reading Program at Yale University, Co-organizer with Fernando Al Assal	2017–2018
Intersection: Womxn in Mathematics at Yale University, Co-organizer	2018

TEACHING

University of Michigan, Instructor		
Math 566 Combinatorial Theory	Winter 2026	
Math 275 Introduction to Cryptography (Inquiry-Based Learning)	Fall 2025	
Brown University Sheridan Teaching Certificate I		Fall 2021
Brown University, Teaching Assistant		
Math 90 Introduction to Calculus	Spring 2023	
Math 100 Calculus Part II	Fall 2022	
Math 100 Calculus Part II	Spring 2022	
Math 100 Calculus Part II	Spring 2021	
Math 100 Calculus Part II	Fall 2020	
Canada/USA Mathcamp, Mentor		Summer 2019
Introduction to Group Theory		
Young tableaux and Representation Theory		
Young tableaux and Combinatorics		
Young tabelaux and Probability		
Canada/USA Mathcamp, Mentor		Summer 2018
Algebraic Number Theory		
Geometric Group Theory		
Introduction to Modular Forms		
Tropical Plane Curves		
Rational Points on Elliptic Curves		
Yale University, Teaching Assistant		
Math 225 Linear Algebra and Matrix Theory	Fall 2018	
Math 112 Single Variable Calculus	Spring 2018	

MENTORING

Summer Undergraduate Math Research at Yale	2020
Dawit Mengesha, Robert Miranda, Brian Sun. Co-mentor: Max Kutler. <i>Topological zeta functions of matroids.</i>	
Canada/USA Mathcamp Learning Projects	Summer 2019
Ilaria Seidel. Alice Jenkins, Jeremy Zhou. <i>Schubert calculus.</i> Reed Jacobs. <i>Primes of the form $x^2 + ny^2$.</i> Simran Khunger, Rupert Li. <i>Enumerative Geometry and Young Tableaux</i> Serena An. <i>Group actions and Sylow's theorems.</i>	
Brown Mathematics Directed Reading Program	2019
Deven Carmichael, Joseph Hlavinka. <i>Ideals, Varieties and Algorithms.</i> Dominick Joo, Elliott Lehrer, Joshua Lebo. <i>Foundations of Algebraic Geometry.</i>	
Women in Sciences at Yale	2018
Alara Değirmenci.	

OUTREACH

Princeton Noetherian Rings Seminar	Apr 2024
Brown Math Slam	Apr 2023

Growing up in Sciences Lecture Series, Bowdoin College	Feb 2023
Summer Undergraduate Math Research at Yale (SUMRY) Colloquium	Jul 2020
Yale Undergraduate Mathematics Society (YUMS) Colloquium	Nov 2019
Department Undergraduate Group (DUG) Colloquium at Brown	Oct 2019

OTHER SCIENTIFIC POSITIONS

Google Research. Mountain View, CA. Research Intern. Mentors: Caroline Pantofaru, Malcolm Slaney	Summer 2016
Howard Hughes Medical Institute. Pomona, CA. Research Assistant. Mentor: Blerta Shtylla.	Summer 2014
Summer Science Program. Socorro, NM. Asteroid 1998QS52 Orbit Determination (Harvard-Smithsonian Center archived).	Summer 2012