

# Shiyue Li

Research interests: Algebraic Geometry, Combinatorics, Tropical Geometry.

## EMPLOYMENT

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

## EDUCATION

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<b>Brown University</b> , 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
<b>Yale University</b> , New Haven, CT M.Sc. in Mathematics, Lang Fellow	2017–2019
<b>Harvey Mudd College</b> , 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

## PUBLICATIONS & PREPRINTS

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**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)

**Wonderful compactifications and rational curves with cyclic action**  
(with Emily Clader, Chiara Damiolini, Rohini Ramadas)  
Forum of Mathematics, Sigma 11 (2022)

**Equivariant log-concavity of graph matchings**(Algebraic Combinatorics **6**(3) (2023))**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)**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)**Chow ring of heavy/light Hassett spaces via tropical geometry**(with Siddarth Kannan, Dagan Karp)  
Journal of Combinatorial Theory, Series A **178C** (2021)

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**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

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**INVITED TALKS**

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> University of Pennsylvania	Apr 2025
AMS Special Session on “ <i>Cohomology of Arithmetic Groups, Mapping Class Groups, and Moduli Spaces</i> ” Joint Mathematics Meetings, Seattle, USA	Jan 2025
Workshop on “ <i>Geometry of Matroids</i> ” Institute for Advanced Study	Oct 2024

“What is...?” Seminar	Oct 2024
Institute for Advanced Study	
Workshop on “Moduli spaces of curves, moduli spaces of graphs and graph complexes”	Sep 2024
ETH Zürich, Switzerland	
Workshop on “Matroid Theory”	Jul 2024
Suzhou University, Suzhou, China	
Workshop on “Arrangements, Matroids and Logarithmic Vector Fields”,	Jun 2024
Oberwolfach, Germany	
<i>Algebraic Geometry Seminar</i>	Apr 2024
Columbia University	
<i>Algebra Seminar</i>	Apr 2024
Tufts University	
“What is...?” Seminar	Mar 2024
Institute for Advanced Study	
<i>Mathematical Conversations</i>	Mar 2024
Institute for Advanced Study	
<i>Combinatorics Seminar (online)</i>	Feb 2024
University of Minnesota	
<i>F<sub>1</sub> World Seminar (online)</i>	Jan 2024
Special Session on “Combinatorial perspectives on algebraic curves and their moduli”	Jan 2024
Joint Mathematics Meetings, San Francisco, USA	
Preparatory Lectures for <i>Chow Lectures</i>	Oct 2023
Max Planck Institute, Leipzig, Germany	
Workshop on “Curves: Algebraic, Tropical, and Logarithmic”	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 “GEMS in Combinatorics”	Mar 2023
American Institute of Mathematics, USA	
Workshop on “Algebraic Aspects of Matroids”	Mar 2023
Banff International Research Station, Canada	
Lecture series on “Growing up in Sciences”	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	
AMS Special Session on “Combinatorial Algebraic Geometry”	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
AMS Spring Eastern Sectional Meeting on “Moduli of Curves” (online)	Mar 2021
<i>Algebra Seminar (online)</i>	Nov 2020
Brown University	
<i>American Graduate Student Algebraic Geometry Seminar (online)</i>	Oct 2020

## SERVICE

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### 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  
 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

(\* 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
Yale Graduate and Professional Student Senate, Senator	2017–2018
Harvey Mudd College Math Club, President	2016–2017

## TEACHING

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### University of Michigan, Instructor

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

## MENTORING

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

## OUTREACH

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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

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