Shiyue Li

Research interests: Algebraic Geometry, Combinatorics.

Employment

Institute for Advanced Study, Member   2023–
Mentor: June Huh.

Education

Brown University, Ph.D. in Mathematics   2019–2023
Advisor: Melody Chan.

Yale University, M.Sc. in Mathematics   2017–2019
Lang Fellow.

Harvey Mudd College, B.Sc. in Mathematics with Honors and Distinction   2013–2017
Advisor: Dagan Karp.

Publications

Relative Bott–Samelson varieties
La Matematica **2**. (2023)

Equivariant log-concavity of independence sequences of claw-free graphs
Séminaire Lotharingien de Combinatoire **89**B. (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)

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 **178**C. (2021)

Preprints

Kapranov degrees
> with Joshua Brakensiek, Christopher Eur, Matt Larson.
> arXiv 2308.12285.

K-rings of wonderful varieties and matroids
> with Matt Larson, Sam Payne, Nicholas Proudfoot.
> arXiv 2210.03169.

Fellowships and Awards

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

BIRS Workshop – Combinatorics and Moduli Spaces of Curves, Banff, Canada	Jul 2024
Suzhou Workshop on Matroid Theory, Suzhou, China	Jul 2024
Oberwolfach Workshop – Arrangements, Matroids and Logarithmic Vector Fields, Oberwolfach, Germany	Jun 2024
JMM Special Session on "Combinatorial perspectives on algebraic curves and their moduli"	Jan 2024
F_1 World Seminar (online)	Nov 2023
Accompanying sessions for Chow Lectures by June Huh, Max Planck Institute, Leipzig, Germany	Oct 2023
BIRS Workshop – Curves: Algebraic, Tropical, and Logarithmic, Banff, Canada	Aug 2023
The 35th Formal Power Series and Algebraic Combinatorics (FPSAC 2023), UC Davis	Jul 2023
AIM Workshop – GEMS in Combinatorics	Mar 2023
BIRS Workshop – Algebraic Aspects of Matroids, Banff, Canada	Mar 2023
Growing up in Sciences, Bowdoin College	Feb 2023
AWM Student Seminar (online), University of Pittsburgh	Feb 2023
Combinatorics Seminar, University of Michigan	Feb 2023
Fields Institute Matroid Seminar (online)	Dec 2022
Algebra and Algebraic Geometry Seminar, University of Washington	Nov 2022
MIT-Harvard-MSR Combinatorics Seminar, Harvard University	Nov 2022
AMS Special Session on Combinatorial Algebraic Geometry, UMass Amherst	Oct 2022
AWM Research Symposium, University of Minnesota	Jun 2022
RATCOW, University of Oregon	Jun 2022
BATMOBILE, Brown University	Jun 2022

Combinatorial and Nonlinear Day, Brown University	Apr 2022
Joint Mathematics Meetings AWM Special Session (online)	Apr 2022
Canadian Math Society: Combinatorics and Geometry of Moduli Spaces (online)	Dec 2021
Front Range Algebraic Geometry and Number Theory, Colorado State University	Sep 2021
SIAM Conference on Applied Algebraic Geometry (online)	Aug 2021
Moduli Across the Pandemic, Boston College (online)	Apr 2021
Tropical Geometry in Frankfurt (TGiF) Seminar (online)	Apr 2021
AMS Spring Eastern Sectional Meeting on Moduli of Curves (online)	Mar 2021
Algebra Seminar, Brown University (online)	Nov 2020
American Graduate Student Algebraic Geometry Seminar (online)	Oct 2020

SERVICE

Referee for:
International Mathematics Research Notices.

Reviewer for:
Mathematical Reviews/MathSciNet.

Organizational:

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
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

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.
  Topological zeta functions of matroids.

Canada/USA Mathcamp Learning Projects   Summer 2019
  Ilaria Seigal.
  Alice Jenkins, Jeremy Zhou. *Schubert calculus.*
  Reed Jacobs. *Primes of the form $x^2 + ny^2$.*
  Simran Khunger, Rupert Li. *Enumerative Geometry and Young Tableaux*
  Serena An. *Group actions and Sylow' s theorems.*

Brown Mathematics Directed Reading Program   2019
  Deven Carmichael, Joseph Hlavinka. *Ideals, Varieties and Algorithms.*
  Dominick Joo, Elliott Lehrer, Joshua Lebo. *Foundations of Algebraic Geometry.*

Women in Sciences at Yale   2018
  Alara Değirmenci.

Outreach

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.   Summer 2016
  Research Intern. Mentors: Caroline Pantofaru, Malcolm Slaney

Howard Hughes Medical Institute. Pomona, CA.   Summer 2014
  Research Assistant. Mentor: Blerta Shtylla.

Summer Science Program. Socorro, NM.   Summer 2012
  Orbit determination of Asteroid 1998QS52 (Harvard–Smithonian Center for Astrophysics archived).