

Shiyue Li

Research interest: Combinatorial algebraic geometry.

EMPLOYMENT

Institute for Advanced Study 2023–2024
Member. Mentor: June Huh.

EDUCATION

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

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

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

PUBLICATIONS

Equivariant log-concavity of graph matchings
Algebraic Combinatorics, to appear. arXiv: 2202.08828

Premutohedral complexes and rational curves with cyclic action
with Emily Clader, Chiara Damiolini, Daoji Huang, Rohini Ramadas.
manuscripta mathematica. DOI:10.1007/s00229-022-01419-6

Intersecting psi-classes on tropical Hassett spaces
with Marvin Anas Hahn.
Combinatorial Theory **2**(3), DOI:10.5070/C62359165

Topology of tropical moduli spaces of weighted stable curves in higher genus
with Siddarth Kannan, Stefano Serpente, Claudia Yun.
Advances in Geometry, to appear. arXiv: 2010.11767.

Chow ring of heavy/light Hassett spaces via tropical geometry
with Siddarth Kannan, Dagan Karp.
Journal of Combinatorial Theory, Series A. **178C** (2021) 105348

PREPRINTS

Equivariant log-concavity of independence sequences of claw-free graphs
Draft available at shiyue.li

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

Wonderful compactifications and rational curves with cyclic action

with Emily Clader, Chiara Damiolini, Rohini Ramadas.

arXiv: 2208.05463

Relative Bott-Samelson varieties

arXiv: 2011.04814

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 (all semesters) 2013
- China National Linguistics Olympiad Team 2nd Place 2013

INVITED TALKS AND TRAVELS

- BIRS Workshop – Curves: Algebraic, Tropical, and Logarithmic, Banff, Canada Aug 2023
- SIAM Conference on Applied Algebraic Geometry, Eindhoven University of Technology Jul 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
- 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 Apr 2022
- Canadian Math Society: Combinatorics and Geometry of Moduli Spaces Dec 2021
- Front Range Algebraic Geometry and Number Theory, Colorado State University Sep 2021
- SIAM Conference on Applied Algebraic Geometry Aug 2021
- Moduli Across the Pandemic, Boston College Apr 2021
- Tropical Geometry in Frankfurt (TGiF) Seminar Apr 2021
- AMS Spring Eastern Sectional Meeting on Moduli of Curves Mar 2021
- Algebra Seminar, Brown University Nov 2020
- American Graduate Student Algebraic Geometry Seminar Oct 2020
- AMS Spring Eastern Sectional on Moduli of Curves (cancelled) Mar 2020

SERVICE

- **Referee**
International Mathematics Research Notices, IMRN.
- **Organizational**
AMS Student Chapter at Brown University, Chair 2019–2021
Diversity and Inclusiveness Committee at Brown University, Member, 2019–2020
AMS Graduate Conferences at Brown University, Organizer 2020
Directed Reading Program at Brown University, Organizer 2019–2020
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
Caltech-Harvey Mudd Math Competition, Organizer 2015–2016

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
Math 100 Calculus Part II Spring 2019
- **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
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** Summer 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**
Alara Değirmenci.

Fall 2018

OUTREACH

- Growing up in Sciences Lecture Series, Bowdoin College Feb 2023
- Summer Undergraduate Math Research at Yale (SUMRY) Colloquium Jul 2020
- Johns Hopkins Center for Talented Youth Colloquium (canceled) Mar 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-Smithsonian Center for Astrophysics archived).