

CATHERINE CANNIZZO

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Columbia University
Department of Mathematics

Areas of study: symplectic geometry, homological mirror symmetry (HMS), Fukaya categories of Landau-Ginzburg models

POSITIONS

- **NSF Ascend Postdoc**, DMS-2316538, 2023–present
 - **Columbia University**, 2025–2026, under Prof. Chiu-Chu Melissa Liu
 - **Goethe Universität-Frankfurt**, Summer ‘25, visitor hosted by Prof. Martin Möller
 - **University of California-Berkeley**, 2023–2025, under Prof. David Nadler
- **University of California-Riverside**, Visiting Assistant Professor, 2022–2023
- **Simons Center for Geometry and Physics**, Research Assistant Professor, 2019–2022

EDUCATION

- **PhD**, University of California-Berkeley, 2013–2019
Dissertation: “[Homological mirror symmetry for the genus 2 curve in an abelian variety and its generalized Strominger-Yau-Zaslow mirror](#)”
Advisor: Professor Denis Auroux
- **MMath**, University of Cambridge, 2011–2012
Thesis: “[Kähler-Einstein Metrics on Fano Manifolds](#)”
Advisor: Professor Julius Ross
Graduated Part III with Merit
- **BA in Mathematics**, University of Cambridge, 2008–2011

PAPERS

Publications & Preprints

1. *Semi-orthogonal decompositions in Fukaya-Seidel mirrors to blowups of abelian varieties*, [arXiv:2508.06379](#) with Sara Venkatesh, (2025), 43 pages, submitted
2. *Global SYZ mirror symmetry and homological mirror symmetry for principally polarized abelian varieties*, [arXiv:2503.20948](#) with Haniya Azam, Heather Lee, Chiu-Chu Melissa Liu, (2025), 52 pages, submitted
3. *On fiber and base decompositions in the Fukaya category of a symplectic Landau-Ginzburg model*, [arXiv:2312.00973](#). With Haniya Azam, Heather Lee, Chiu-Chu Melissa Liu, (2023), 16 pages, submitted
4. *Fukaya category on a symplectic manifold with a B-field*, [arXiv:2311.04143](#). Haniya Azam, Catherine Cannizzo, Heather Lee, Chiu-Chu Melissa Liu, (2023), 19 pages, under revision for *Mathematical Research Letters*

5. [*A mirror into the higher dimensional world*](#), SCGP newsletter, C. Cannizzo, Volume XVII (2022), pp 12-16
6. *Historical context as an inclusive practice*. Contribution to Dr. Pamela E. Harris and Dr. Aris Winger's book 2 in their series, [*Practices and Policies: Advocating for Students of Color in Mathematics*](#) (2021), pp 28-55
7. [*Action-angle and complex coordinates on toric manifolds*](#), Haniya Azam, C. Cannizzo, and Heather Lee. In [*Research Directions in Symplectic and Contact Geometry and Topology*](#), AWM Series, vol. 27, Springer International Publishing (2021), pp 159–216
8. [*Categorical mirror symmetry on cohomology for a complex genus 2 curve*](#), C. Cannizzo, *Advances in Mathematics*, 375 (2020), pp 107392.
9. [*Carmichael's Totient Conjecture and Fermat Primes*](#), [*UMBC Review*](#), vol 9, pp 160-173 (2008) under mentorship of Prof. Robert Campbell

In preparation

10. [*Homological mirror symmetry for theta divisors*](#) with Haniya Azam, Heather Lee, Chiu-Chu Melissa Liu, 70 pages
11. [*Global SYZ mirror symmetry for genus two curves and Voronoi decompositions*](#) with Haniya Azam, Heather Lee, Chiu-Chu Melissa Liu, 24 pages

Other

12. [*Kähler-Einstein Metrics on Fano Manifolds*](#), Cambridge University Part III essay, Master of Mathematics (2012)
13. [*\$Z^2\$ -actions by Symplectic Automorphisms of a Torus*](#) with Alexander Leaf and Nina Sakharova. Project in Penn State REU (2011)
14. [*X-Ray Variability: Quasi-periodic Oscillations*](#), NASA internship (2010)

AWARDS

- *MPS Scholars Outstanding Mentor Award*, UC Berkeley, 2025
- *Outstanding Visiting Assistant Professor Award*, UC Riverside, 2022-2023
Math Department [award](#) to visiting assistant professors
- *Nikki Kose Memorial Teaching Prize*, UC Berkeley, 2019
Math Department award to a math graduate student instructor
- *Outstanding Graduate Student Instructor Award*, UC Berkeley, 2016–2017
Award to ~9% of GSIs across campus
- *M.T. Meyer Scholarship and Gertrude Mather Jackson Prize*, June 2012
Awarded by Girton College, Cambridge University for Part III performance
- *Cambridge Overseas Trust, Girton College Overseas Bursary*, 2008–2012

TEACHING

- **University of California-Riverside**, July 2022–June 2023
 - MATH 31, Applied Linear Algebra, Spring 2023 (~100 students)
 - MATH 9B, First-Year Calculus, Spring 2023 (~75 students)

- MATH 9C, First-Year Calculus, Winter 2023 (~135 students)
- [MATH 6A](#), Intro to Functions (precalculus), Fall 2022 (2 sections), Winter 2023 (~120 students)
- **Stony Brook University/Simons Center**, Stony Brook, NY, Sept 2019 – June 2022
 - [MAT 541](#), Algebraic Topology, Fall 2020 (~10 students)
 - MAT 125, Calculus A, [Spring 2020](#), [Spring 2022](#) (~100–180 students)
- **University of California-Berkeley**, Fall 2013 – Spring 2019
 - Berkeley Connect Graduate Fellowship, 2 weekly sections mentoring ~40 STEM majors, UC Berkeley, Fall 2016–Spring 2017
 - Math 53, TA for [Multivariable Calculus](#)
 - Math Honors 110, TA for Linear Algebra

ADVISING

- Lauren Aycott and Adán Javier Ortiz, *A Quantitative Approach to Disseminating Impacts of Dismantling Affirmative Action*, MPS Scholars undergraduate research project, UC Berkeley, Summer 2024
- Ofelia Flores Rodriguez, *Respiratory Diseases Among Residents Living Near Dairy Farms*, MPS Scholars undergraduate research project, UC Berkeley, Summer 2024
- Blythe Davis, *Open book decompositions and surgery on contact 3-manifolds*, master's thesis, Stony Brook University, May 2021

INVITED PRESENTATIONS

Topic: *Introduction to Mirror Symmetry*

- Online Undergraduate Resource Fair for the Advancement and Alliance of Marginalized Mathematicians ([OURFA²M²](#)) Feb 8, 2026
- JMM AMS Special Session on Women & Gender Minorities in Symplectic & Contact Geometry & Low Dimensional Topology, DC Jan 7, 2026
- Mathematics Colloquium, Chico State University April 18, 2025
- Causeway, Northwestern University May 3, 2024
- [Workshop on Enumerative Geometry and related topics](#) University of Oregon, Eugene April 13-14, 2024
- Gender Equity in Math (GEM) talk, UC Berkeley Feb 26, 2024
- Mathematics Undergraduate Student Association (MUSA) Math Monday talk, UC Berkeley Jan 29, 2024
- [Latam-ICTP Physics Without Frontiers](#), [Math & HEP Seminars](#) [Sept 22, 2023](#)
- HMS & Symplectomorphisms, *Beyond Calabi-Yau/Fano*, [Kylerec](#) June 21, 2023
- [Floer Homotopy Summer School](#) on *Floer homology*, UBC/PIMS July 2022
- The Math/Stats Colloquium, San José State University Feb 25, 2022
- Mathematics Seminar, Hofstra University Dec 1, 2021
- Homological Algebra of Mirror Symmetry, Fields Institute, Long Term Visitor
 - [Floer Homology Bootcamp](#) Dec 3, 2019
 - [Geometry and Algebra of LG Models workshop](#) Sept 17, 2019
- Popping the Science Bubble, Berkeley Public Library August 27, 2018

Topic: *Wrapping in Fukaya categories of LG model mirrors to blow-ups* [[CV](#)]

- Lehigh Geometry Seminar, Lehigh University April 6, 2026
- Symplectic Geometry Seminar, Rutgers University Feb 20, 2026
- Informal Mathematical Physics Seminar, Columbia University Dec 8, 2025
- Columbia Symplectic Geometry, Gauge Theory, Categorification Nov 21, 2025
- Michael Zhao Memorial Student Colloquium, Columbia Univ. Nov 13, 2025
- MIT Symplectic Seminar, [slides](#) Oct 9, 2025
- Syzygies and Mirror Symmetry Seminar, [virtual](#) March 6, 2025
- 2024 Fall Western Sectional AMS Meeting, Special Session on Geometry and Topology of Contact and Symplectic Manifolds Oct 26-27, 2024
- UC Davis Geometry/Topology seminar March 12, 2024
- AWM Special Session on Women and Gender Minorities in Symplectic and Contact Geometry and Topology, JMM 2024, SF, [slides](#) Jan 3, 2024
- AWM Special Session on Women and Gender Minorities in Symplectic and Contact Geometry and Topology, JMM 2022, virtual April 8, 2022
- Enumerative Geometry Seminar, Columbia University Nov 8, 2021
- Algebraic Geometry Seminar, Stony Brook University Sept 8, 2021

Topic: *HMS for tori & hypersurfaces/mirror LG model category* [[ACL](#), [ACLLI](#), [2](#), [3](#), [4](#)]

- IDA-CCR, Princeton, NJ April 29, 2026
- 2025 Summer Research Institute in Algebraic Geometry: [Enumerative Geometry Special Session](#), Fort Collins, CO July 24, 2025
- Spin structures in enumerative geometry, Leiden Universiteit June 16, 2025
- Berkeley String-Math seminar, UC Berkeley Dec 2, 2024
- Commutative Algebra & Algebraic Geometry Seminar, UC Berkeley Oct 29, '24
- [2023 AWM Research Symposium](#): Geometric and Categorical Aspects of Representation Theory and Mathematical Physics, Clark-Atlanta University Oct 1, 2023
- Combinatorial Number Theory Seminar, UC Riverside May 10, 2023
- Geometry and Topology Seminar, UC Irvine April 11, 2023
- Geometry and Topology Seminar, UC Riverside March 10, 2023
- Geometry and Topology Seminar, Louisiana State University March 8, 2023
- [2023 Midwest Geometry Conference](#), Kansas State Univ March 3-5, 2023
- Algebraic Geometry Seminar, UC Riverside Feb 28, 2023
- Number Theory and Algebraic Geometry Seminar, SFU Nov 3, 2022
- [Connections Workshop: Floer Homotopy Theory](#) & [slides](#) Sept 9, 2022
- [Spec\(Qbar\)](#), Fields Institute, [slides](#) July 6-8, 2022
- AMS Special Session on Quantum Categorical Structures in Mirror Symmetry, JMM 2022, virtual April 6, 2022

Topic: *Global SYZ mirror symmetry for genus 2 curves & Voronoi decompositions*

- Physics & Geometry Seminar, Northwestern University May 2, 2024
- Lie Theory Seminar, UC Riverside Nov 8, 2022
- Recent developments in Lagrangian Floer theory, SCGP March 17, 2022
- Geometry, Physics, & Rep Theory Seminar, Northeastern March 10, 2022

Topic: *Homological Mirror Symmetry for the complex genus 2 curve*

- Spring Eastern Sectional Meeting, Mirror Symmetry and Enumerative Geometry March 20, 2021
- Geometry and Analysis Seminar, Oxford University March 1, 2021
- Online Algebraic Geometry Seminar, Nottingham Univ Oct 29, 2020
- Geometry/Topology Seminar at Duke Oct 12, 2020
- Freemath, online geometry seminar July 28, 2020
- Rio's symplectic geometry seminar July 21, 2020
- Northwestern Geometry & Physics (Virtual) Seminar May 7, 2020
- Mirror Symmetry Seminar, Rutgers University Dec 5, 2019
- Enumerative Geometry Seminar, Columbia University Nov 12, 2019
- Valley Geometry Seminar, Univ of Massachusetts Amherst Nov 8, 2019
- IAS/Princeton Symplectic Geometry & Dynamics Seminar Nov 4, 2019
- Symplectic Geometry Seminar at Stanford University Oct 21, 2019
- Thesis talk in Mirror Symmetry seminar at MSRI program: Enumerative Geometry Beyond Numbers May 11, 2018
- AMS-AWM Women in Symplectic and Contact Geometry/Topology I, invited talk and poster at Joint Math Meeting Jan 10–13, 2018
- Log Calabi-Yau surfaces and Lagrangian torus fibrations, BIGW II Singularities and Symplectic Topology July 14–20, 2018
- Women in Science and Engineering (WiSE), UC Berkeley, homological mirror symmetry and impostor syndrome April 17, 2017
- [USTARS](#), poster on HMS, Amherst College April 1–2, 2017
- Women in Science & Engineering, poster on HMS, UC Berkeley March 4, 2017
- Cylindrical contact homology of \mathbf{T}^3 , Student Symplectic Field Theory Seminar co-organizer, UC Berkeley Oct 31, 2016

PROFESSIONAL TRAINING

- [2025 CIME Workshop 1147: K-12 Mathematics Literacy for 21st-Century Citizenship](#), SLMath Berkeley, April 2–4, 2025.
- [SC2 Mentorship Community of Practice](#), Strategies for Inclusive Recommendation Letter Writing and Reading. Virtual, October 29, 2024.
- *Being Seen: Counter Stories for People of Color in Mathematics Doctoral Programs*, Virtual, October 28, 2024
Participant in sequel to AMS *Advocating for Students of Color* from [NSF grant](#)
- *ASCEND Fellowship Conference*, Iowa State [2023](#), Vanderbilt [2024](#)
Attended the mentor network conference for recipients of the [NSF MPS-Ascend](#).
- *Techbridge Girls (TBG) Training*
 - [TBG Facilitating Equitable Programming and Practices in STEM](#), May 2024
 - [TBG Ignite Youth Inventors & Programming Through an Equity Lens](#), Sep 2023
Equity training in supporting BIPOC girls* in STEM by promoting access, belonging, and persistence through out-of-school time (OST) programs.

- [Broadening Participation: 2021 MPS Workshop](#), Virtual, October 7–8, 2021
Participant in workshop for future PIs, by the University of Florida with NSF MPS.
- [\[Online\] Workshop on Mathematics and Racial Justice](#), MSRI, June 9–18, 2021
Participant in workshop on the role of math in today’s movement for racial justice.
- *Online Science Communication*, Alda Center, Stony Brook, March 19, 2021
Workshop using acting tools to enhance science communication.
- *College Teaching Seminars*, CELT, Stony Brook University, Fall 2020
Focused on best practices for postdocs and graduate teaching assistants.
- *Advocating for Students of Color: There's More You Can Do*, virtual, Fall 2020
A four-part AMS webinar series on equity, diversity, and inclusion in math.
- [Online Teaching Certification](#), Stony Brook University's CELT, Summer 2020
Completed a 2-week virtual bootcamp on online teaching methods.
- *Deep Dive 2017: Communicating Science*, Asilomar, CA, April 21-22, 2017
UC Berkeley retreat to discuss science communication, policy, and diversity issues.

PROFESSIONAL SERVICE

- **Book Co-Editor**
 - [Research Directions in Symplectic and Contact Geometry and Topology](#), AWM-Springer, Dec 2021
- **Seminar/Reading Group Co-Organizer**
 - Math 198/290 Seminar: [Rao-Blackwell Theorem](#), UC Berkeley, Spring 2025
 - MATH 198/290/[Math Alliance Mentored Reading Program](#) on Hodge Theory, UC Berkeley/Boston College/Math Alliance, Fall 2024
 - [Fukaya Categories Reading Group](#), UC Riverside, Spring 2023
 - [Western Hemisphere Virtual Symplectic Seminar](#), virtual, April 2020–June 2023
 - [Math Postdoc Seminar](#), SCGP/Stony Brook Math Dept/IMS, Spring 2022
 - [Kuranishi Strs & Virtual Fund Chains Reading Group](#), virtual/SBU, May-Dec ‘21
 - [Mirror Symmetry Reading Seminar](#), Stony Brook, Spring 2020
 - Independent Study with Yutong Zhang in derived algebraic geometry, MAT 487, Stony Brook University, Fall 2020
 - [Topology & Symplectic Geometry Seminar](#), Stony Brook, Fall 2019–Spring 2020
 - [Student Symplectic Field Theory Seminar](#), UC Berkeley, Fall 2016
- **Conference/Session Co-Organizer**
 - JMM AMS Special Session on The Impact of the ASCEND Program: Research and Reflection, Washington DC, Jan 7, 2026
 - Women & Gender Minorities in Symplectic & Contact Geometry & Topology (WiSCons) in Madison, AWM Symposium, UW-Madison, May 16–18, 2025
 - [Floer-theoretic and algebro-geometric aspects of SYZ mirror symmetry](#), virtual, Sept 29–Oct 2, 2020
 - JMM AMS-AWM [Women in Symplectic and Contact Geometry/Topology II](#), Denver, CO, Jan 15, 2020
 - [Research Collaboration Conference for Women in Symplectic Geometry and Contact Topology](#) (WiSCon), ICERM, July 22–26, 2019

- [Kylerec workshop: Cotangent bundles and the nearby Lagrangian conjecture](#), Leavenworth, WA, May 25–31, 2018
- **Mentorship**
 - [Math Alliance](#), guidance on grad school applications, Dec 2020–present
 - MPS Scholars Mentor, tiered mentoring program with weekly meetings with math majors and monthly activities for STEM majors, Fall 2024–Spring 2025
 - Mentor at [Kylerec 2023](#): Homological Mirror Symmetry, student symplectic geometry workshop, June 19-23, 2023
 - [Polyfold Summer School](#), Tutor for Deligne-Mumford spaces, UC Berkeley, June 12–16, 2017
- **Peer-Reviewer**
 - Journal of Mathematical Physics
- **Served on NSF panel**: 2022, 2024
- **Diversity, Equity, Inclusion, and Outreach**
 - *Columbia University Science Honors Program (SHP)*, plenary talk, Jan 24, 2026
 - *UC Berkeley Math*, 2023–2025
 - Consultant to [Equity and Inclusion Committee](#) (EIC)
 - Collaborated with EIC and Graduate Student EIC Coordinator to secure \$20k in microgrants and cross-departmental funding for DEI initiatives
 - Organized events [here](#) & [here](#). Deliverables:
 - *Resources and advice for quantitative sciences*
 - Developed guide for EOP office hours & workshop, MPS Scholars
 - *UC Berkeley Math Department Action Items from 2024 workshop*
 - Collated qualitative action items into quantitative groupings
 - *Outreach*
 - *Reading Team Math*: math literacy outreach through Columbia University with games and activities, volunteer, Spring 2026
 - *Probability & Statistics: Choosing Wisely*: math activity created from [Rao-Blackwell seminar](#) based on Prof. David Blackwell
 - Berkeley Math Circle, May 7, 2025
 - *Equitable Voting*: created math activity based on ranked choice voting, *Mathematics for Social Justice* by Karaali and Khadjavi, Chp 16: *What Does Fair Mean?* by Hamman.
 - Berkeley Math Circle, May 7, 2025
 - [MPS Scholars Retreat](#), March 8, 2024
 - *Diné Dimensions*: co-created 2-session math activity on set theory and 3D modeling in Tinkercad with Navajo Nation Math Camp and social emotional learning content from Techbridge Girls
 - [Navajo Nation Math Camp](#), Page Arizona, June 24-28, 2024
 - [Techbridge Girls](#)
 - [Ignite](#) after-school 8 sessions hosted by [Higher Ground](#), Fall 2023
 - Assisted 1 session with [NCBW](#), Sp 2024
 - [Towards a Vision of STEM community for all](#), UC Berkeley, MLK Day Jan 15 2024
Co-organized 1-day grad/faculty success workshop w/ math leadership experts.

- *UCB Math Dept Peer Advisors Podcast* [S1 Ep#2](#), Nov 27 2023, Guest speaker
- [Rehumanizing Math Reading Group](#) from [SGA](#), UCB, Fa 2023–Sp '24, Organizer
- [Mathematics Plus Equity Panel Discussion](#), CELT, March 3, 2022, Panelist
- [LGBTQ+Math Day](#), Virtual, November 18, 2021, Panelist
- [Graduates Achieving Inclusion Now](#), Virtual, Sep 26-Oct 3 2021, Moderator
- [Seawolves Diversity Workshop: This is Us](#), Stony Brook, Aug 19, 2021, Facilitator
- [Symplectic Group Action \(SGA\)](#), Virtual, July 2020–Nov 2021
Co-facilitated reading group for math academics focused on *Black Lives Matter*.
- *Harvard Gender Inclusivity in Math*, April 7, 2018, [Panelist](#)
- *Expanding Your Horizons (TBG) Conference*, UCB, March 17, 2018, Volunteer
- *Dean's MPS Taskforce*, address sexual harassment, UCB, Summer 2016, Member
- *Noetherian Ring*, women & non-binary in math at UC Berkeley, 2015–2018
Revamped [webpage](#), coordinated and participated in events.

LANGUAGES

English: Native Language, Spanish: Novice

COMPUTER SKILLS

- *Python*: Coursera: [Programming for Everybody](#) / [Python Data Structures](#), Summer 2023; Lesbians Who Tech: Intro to Python & Exploratory Data Analysis, Apr 15 2020
- *R Studio*: Intro to R Studio workshop, DoIT, Stony Brook, April 24 2021; STEMInist 3 Day Data Science & Coding Bootcamp, Cal NERDS UC Berkeley, Aug 16–18, 2017
- *MATLAB*: CATAM projects, Cambridge University, 2009-'11: Diffraction Pattern Due to a Current Strip, Galois Group of a Polynomial, Positive Definite Binary Quadratic Forms, Continued Fraction Method for Factorisation, Matrices Over Finite Fields, ODEs, Schrödinger's Equation, Public Key Cryptography.
- *Pedagogy technology*: HW management systems: iMathAS, WeBWorK, MyMathLab, LumenOHM. Other tools: Poll Everywhere, exam LaTeX class, Gradescope AI-grouping, auto-personalized mail merge for student check-ins.

OTHER INTERESTS

Ballet and other forms of dance, Piano