

Analisa Faulkner Valiente

afv2182@mit.edu ◇ (646) 597-0538

EDUCATION

Massachusetts Institute of Technology	Cambridge, MA
PhD in Mathematics	Expected May 2031
Presidential Fellow, 2026-2027 Academic Year	
Barnard College at Columbia University	New York, NY
B.A. in Mathematics, <i>summa cum laude</i> with departmental honors	May 2026
4.05/4.00 GPA	

FELLOWSHIPS, AWARDS, AND HONORS

Phi Beta Kappa	Inducted 05/2026
National Science Foundation Graduate Research Fellowship	04/2026
Grace Potter Rice Fellowship	04/2026
Kohn Mathematical Prize	04/2026
Goldwater Scholarship	05/2024
Margaret Kenney Jensen Prize for Mathematics at Barnard College	04/2024
Dr. Barnett and Jean Hollander Rich Fund for the Study of Mathematics at Barnard College	11/2023

RESEARCH EXPERIENCE

Mathematics Department, Columbia University	New York, NY
Researcher	05/2025 - 09/2026
• Research with Professor Andrew Blumberg on the homotopy type of Sobolev spaces, leading to a senior thesis.	
Department of Mathematics and Statistics, University of Vermont	Burlington, VT
Researcher	05/2024 - 08/2024
• Collaborating with Professor Michael Miller Eismeier in studying monopole Floer homology and developing a Lefschetz decomposition over $\mathbb{Z}$ to be used in computing $\overline{HM}(S^1 \times \Sigma_g)$.	

TEACHING

Mathematics Department, Columbia University	New York, NY
Teaching Assistant	09/2023 - 05/2026

SERVICE

Columbia Journal of Undergraduate Mathematics	New York, NY
Co-Founder and Editor-In-Chief	07/2023 - 05/2026
Undergraduate Mathematics Society, Columbia University	New York, NY
President	06/2024 - 05/2025
Teaching Assistant	07/2023 - 05/2025
Programming Coordinator	01/2023 - 05/2024

CONFERENCES AND WORKSHOPS

Low-Dimensional and Floer theory	Workshop
Centre de Recherches Mathematiques	08/2025
Simons Collaboration Satellite Conference	Conference
Princeton	03/2025
Joint Mathematics Meeting	Conference
Seattle	01/2025
AWM Women+ and Mathematics	Workshop
Princeton	05/2024
Joint Mathematics Meeting	Conference
San Francisco	01/2024

PAPERS

"A Lefschetz decomposition over $\mathbb{Z}$ and an application to Heegaard Floer homology"	arxiv:2507.00844
with Mike Miller Eismeier; preprint, submitted for publication	

TALKS & PRESENTATIONS

"Homotopy Type of Sobolev Spaces"	Talk
Columbia University Young Researchers Are Talking Seminar	05/2026
"Madsen-Weiss Theorem"	Talk
Columbia University Graduate Manifolds and Homotopy Theory Seminar	02/2026
"Reshetikin-Turaev Invariants"	Talk
Columbia University Graduate Quantum Link Invariants Seminar	09/2025
"Quantitative Homotopy Theory and the Homotopy Type of Sobolev Spaces"	Poster
Barnard College Summer Research Institute Linda Orzeck '68 Poster Session	08/2025
"Zeta Functions"	Talk
Columbia University Graduate Abelian Varieties Seminar	03/2025
"Joyal Equivalences"	Talk
Columbia University Graduate ∞ -Categories Seminar	02/2025
"Heegaard Floer homology over the integers"	Talk
Joint Mathematics Meeting	01/2025
"Extended Cup Homology of $S^1 \times \Sigma_g$"	Talk
Undergraduate Mathematics Society Weekly Lecture Series	10/2024
"The Drinfeld Curve"	Talk
Columbia University Graduate Deligne-Lusztig Theory Seminar	10/2024
"Introduction to Representation Theory"	Talk
Undergraduate Mathematics Society Summer Learning Seminar	07/2024
"Sphere Packing in 8 Dimensions"	Talk
Undergraduate Mathematics Society Weekly Lecture Series	09/2023
"Modular Forms and Sphere Packings"	Poster
Barnard College Summer Research Institute Linda Orzeck '68 Poster Session	08/2023
"Exterior Products and Area"	Talk
Undergraduate Mathematics Society Summer Learning Seminar	08/2023
"Rational Points on Elliptic Curves"	Talk
Columbia Mathematics Department Directed Reading Program Final Presentations	04/2023