

Ajmain Yamin

CUNY, The Graduate Center
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EDUCATION

PhD in Mathematics, CUNY Graduate Center
Advisor: Gautam Chinta

Expected June 2026

Bachelor of Science in Mathematics, Stony Brook University
Minor in Computer Science

May 2021

PUBLICATIONS

1. *Avoiding 3-Term Geometric Progressions in Hurwitz Quaternions* (with M. Asada, B. Fang, E. Fourakis, S. Manski, N. McNew, S. J. Miller, G. Moreland, S. X. Zhang), *J. Integer Seq.* 27 (2024).
2. *Maximally Complete Maps on Orientable Surfaces* (with Y. Gu and C. Stewart), *Proceedings of Bridges 2024*, 289-296 (2024).
3. *The Accelerated Zeckendorf Game* (with D. Garcia-Fernandezsesma, S. J. Miller, T. Rascon, R. Vandergrift), *Fibonacci Quart.* 62(1):3-14 (2024).
4. *Filtering Cohomology of Ordinary and Lagrangian Grassmannians* (with V. Reiner, G. Dorpalen-Barry, 2020 Polymath Jr. REU “q-binomials, the Grassmannian group”: H. Ahmed, et al.), *Involve* 15(2):271-288 (2022).
5. *Smocked Metric Spaces and their Tangent Cones* (with C. Sormani, D. Kazaras, D. Afrifa, V. Antonetti, Dinowitz, H. Drillick, M. Farahzad, S. George, A. L. Hepburn, L. T. Huynh, et al.), *Missouri J. Math. Sci.* 33(1):27-99 (2021).

PREPRINTS

1. *Hilbert modular forms and Galois representations* (with A. Nair), to appear in “Modularity and Generalised Fermat’s Equation” volume of AMS Contemporary Mathematics. [arXiv:2401.02382](https://arxiv.org/abs/2401.02382)

TALKS

Joint Mathematics Meetings, American Mathematical Society Jan. 2026
Talk Title: Quaternionic analogues of Zagier’s sums of binary quadratic forms

AMS Fall Southeastern Sectional Meeting, Tulane University Oct. 2025
Talk Title: Quaternionic analogues of Zagier’s sums of binary quadratic forms

NSF-CBMS Conference, St. John’s University June 2025
Talk Title: Quaternionic analogues of Zagier’s sums of binary quadratic forms

LuCaNT, ICERM June 2025
Talk Title: Quaternionic analogues of Zagier’s sums of binary quadratic forms

Automorphic Forms Workshop, University of North Texas May. 2025
Talk Title: Quaternionic analogues of Zagier’s sums of binary quadratic forms

Bridges Richmond 2024, Virginia Commonwealth University Aug. 2024
Talk Title: Maximally Complete Maps on Orientable Surfaces

LuCaNT, ICERM July 2023
Talk Title: Belyi Pairs of Complete Regular Dessins

Hunter College Mathematics Colloquium, CUNY Hunter College Mar. 2023
Talk Title: The Accelerated Zeckendorf Game

Dartmouth Algebraic Number Theory Seminar, Dartmouth College May 2022
Talk Title: Complete Regular Dessins of Genus One

IMSc Algebraic Combinatorics Seminar , Virtual Talk Title: Filtering Grassmannian Cohomology via k -Schur Functions	Oct. 2020
SUMS 2020: Math and Thinking Systems , Brown University Talk Title: Map Coloring on Surfaces	Mar. 2020
Geometry and Topology Workshop , University of Notre Dame Talk Title: Smocked Metric Spaces and their Tangent Cones	Aug. 2019

TEACHING

Recitation Instructor , CUNY, Hunter College Class: MATH 12550 - Precalculus with Workshop	Spring 2024
Course Instructor , CUNY, Hunter College	Fall 2022 - Spring 2023
<ul style="list-style-type: none"> • MATH 255 - Vector Analysis • MATH 725 - Advanced Linear Algebra • MATH 454/722 - Modern Algebra II • MATH 454/750 - Calculus on Manifolds • MATH 331/634 - Geometries 	Fall 2024 Spring 2024 Fall 2023 Spring 2023 Fall 2022
Recitation Instructor , Stony Brook University Classes: MAT 123 - Precalculus, MAT 125 - Calculus A, MAT 132 - Calculus II	Fall 2019 - Spring 2021
Grader , Stony Brook University Class: MAT 311 - Number Theory	Fall 2020

AWARDS

Graduate Center Fellowship , CUNY, The Graduate Center	2021-2026
Black and Schwartz Science Conference Travel Award , CUNY, The Graduate Center	Jan. 2025
Bridges 2024 Student Travel Scholarship , The Bridges Organization	June 2024
Nagarkatte Travel Award , CUNY Graduate Center	2022-2023
Provost's Award for Academic Excellence , Stony Brook University	May 2021
Kuga-Sah Memorial Award: Senior , Stony Brook University Math Department	May 2021
Fulbright Research Award Hungary - Alternate , Fulbright U.S. Student Program	Jan. 2021
Kuga-Sah Memorial Award: Junior , Stony Brook University Math Department	May 2020
JMM 2020 Student Poster Session - Honorable Mention , Joint Mathematics Meetings	Jan. 2020
Summer Math REU Fellowship , Stony Brook University Math Department	Summer 2019
Kuga-Sah Memorial Award: Sophomore - Honorable Mention , SBU Math Department	May 2019
Kuga-Sah Memorial Award: Freshman - Honorable Mention , SBU Math Department	May 2018
Presidential Scholarship , Stony Brook University	2017-2021

CONFERENCES & WORKSHOPS

Joint Mathematics Meetings , Washington, D.C.	Jan. 2026
Rethinking Number Theory , Online	June 2025
Automorphic Forms Workshop , University of North Texas	May 2025
TORA XIV , Oklahoma State University	Apr. 2025
Bridges Richmond 2024 , Virginia Commonwealth University	Aug. 2024
Combinatorial and Additive Number Theory Conference , CUNY Graduate Center	May 2024
Southern Regional Number Theory Conference , Louisiana State University	Mar. 2024
Arizona Winter School 2023: Unlikely Intersections , University of Arizona	Mar. 2023
A Pair of Automorphic Workshops , University of Oregon	July 2022
Connecticut Summer School in Number Theory , University of Connecticut	June 2022
PCMI Undergraduate and Graduate Summer Schools , Virtual	July 2021
Arizona Winter Semester 2021: Virtual School in Number Theory , Virtual	Spring 2021

SEMINARS

- CUNY Number Theory Student Seminar**, Organizer Fall 2024 - Fall 2025
Website: <https://sites.google.com/view/cunyntss>
- CUNY Class Field Theory Student Learning Seminar**, Organizer Summer 2021 - Spring 2024
Text: *A Gentle Introduction to Local Class Field Theory* by P. Guillot
- Automorphic Forms and Representations Reading Group**, Co-organizer Fall 2021 - Spring 2024
Text: *Automorphic Forms and Representations* by D. Bump
- CUNY Graduate Student Colloquium**, Organizer Spring 2022 - Spring 2023
- Algebraic Number Theory Reading Group**, Co-organizer Spring 2020 - Fall 2020
Text: *Number Fields* by D. A. Marcus

SERVICE

Preliminary Arizona Winter School, Problem Session Leader Fall 2024
Together with Devjani Basu, Marcella Manivel and Mishty Ray, I wrote biweekly problem sets and held weekly problem sessions for advanced undergraduate and junior graduate students participating in Melissa Emory's "Symmetries of root systems" lecture series in the Preliminary Arizona Winter School.

Polymath Jr. Program, Mentor Summer 2024
Together with Lisa Berger (Stony Brook) and Connor Stewart (CUNY) I ran a virtual research experience for undergraduates on the topic of "dessins d'enfants and complete regular maps" through the Polymath Jr. program.

CUNY Directed Reading Program, Co-founder and Co-organizer Fall 2021 - Spring 2026
I co-founded and organized the CUNY Directed Reading Program (DRP), which connects graduate students with undergraduate mentees for semester-long reading projects. The CUNY DRP serves ~ 30 individual mentor-mentee pairs in each iteration of the program, providing free books, community events and professional development services.
Website: <https://sites.google.com/view/cunydrp>

CUNY Directed Reading Program, Mentor Spring 2022 - Spring 2026
I mentored several undergraduate students in semester-long reading projects on topics in number theory.

- Jessica Huang, *Hockey Stick Identity in Pascal's Triangle* Spring 2025
- Yuan Xin Zhang, *Complete Reducibility Theorem* Spring 2025
- Samyah Ahmed & Nicole Froitzheim, *Can You See the Values of a Quadratic Form?* Spring 2024
- Raasikh Shahid, *Measuring Rational Approximation Algorithms* Spring 2023
- Nicole Froitzhem, *Rational Parametrization of the Unit Circle* Spring 2023
- Rezwan Hoque, *Decimal Equations: How Can we Skip Long Division?* Spring 2023
- Jakub Goclon, *Euclidean Domains and Unique Factorization* Spring 2022

Polymath Jr., Mentor for Steven Miller's "Ramsey Theory" and "Zeckendorf Games" groups Summer 2022

Stony Brook Math Club, President (1 year), Vice President (1 year) Fall 2019 - Spring 2021

SKILLS

Technical Skills Atlas, Python, SageMath, Macaulay2, Magma, Mathematica, MATLAB
Languages English, Bengali

REFERENCES

- Gautam Chinta, City College of New York, CUNY, gchinta@ccny.cuny.edu
- Vincent R. Martinez, Hunter College, CUNY, vmartinez@hunter.cuny.edu (teaching)
- Lisa Berger, Stony Brook University, lisa.berger@stonybrook.edu
- Anantharam Raghuram, Fordham University at Lincoln Center, araghuram@fordham.edu
- Mathilde Gerbelli-Gauthier, University of Toronto, m.gerbelli@utoronto.ca