

Trajan Hammonds

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Research Interests Analysis of automorphic forms, asymptotics of spherical functions, harmonic analysis

Employment	Aarhus University , Aarhus, Denmark Postdoctoral Researcher	2025-2026
Education	Princeton University , Princeton, NJ PhD in Mathematics Advisor: Akshay Venkatesh	2020-2025
	Carnegie Mellon University , Pittsburgh, PA M.S. in Mathematics Advisor : Steven J. Miller B.S. in Mathematics	2016-2020
	Independent University of Moscow , Moscow, Russia Study Abroad	2018
Publications and Preprints	<ul style="list-style-type: none">• Trajan Hammonds Non-archimedean Relative Characters and the Orbit Method. PhD thesis• Anshul Adve, and Trajan Hammonds. Optimal L^4 Estimates via Fourier Analysis. preliminary draft. (2025)• Trajan Hammonds, Seoyoung Kim, Steven J. Miller, Arjun Nigam, Kyle Onghai, Dishant Saikia, and Lalit Sharma. k-Diophantine m-tuples in Finite Fields. Int. J. Number Theory 19 (2023) No. 4, 891-912• Fatma Cicek, Giuliana Davidoff, Sarah Dijols, Trajan Hammonds, Aaron Pollack, and Manami Roy. The completed standard L-function of modular forms on G2. Math. Z., 302, (2022), 483-517• Trajan Hammonds, Casimir Kothari, Noah Luntzlara, Steven J. Miller, Jesse Thorner, and Hunter Wieman. Explicit Sato-Tate conjecture for primes in arithmetic progressions. Int. J. Number Theory 17 (2021) No. 8, 1905-1923• Trajan Hammonds, Seoyoung Kim, Benjamin Logsdon, Álvaro Lozano-Robledo and Steven J. Miller. Rank and bias in families of hyperelliptic curves via Nagao's conjecture. Journal of Number Theory, Volume 215, (2020), 339–361.• Trajan Hammonds, Jeremy Johnson, Angela Patini, and Robert Walker. Counting roots of polynomials over $(\mathbb{Z}/p\mathbb{Z})^2$. Houston Journal of Mathematics, Volume 44, Number 4 (2018), 1111–1119	
Awards	<ul style="list-style-type: none">• NSF US Junior Oberwolfach Fellow (2023)• Princeton University President's Fellowship (2020)• AMS Math in Moscow Scholarship (2018)	
Invited Talks	<ul style="list-style-type: none">• MIT PDE/Analysis Seminar, Cambridge, MA• Johns Hopkins Junior Number Theory Days, Baltimore, MD• Princeton/IAS Joint Number Theory Seminar, Princeton, NJ	<p>May 2025 Feb 2025 Dec 2024</p>

Conferences and Workshops	<ul style="list-style-type: none"> • Pittsburgh Links..Analysis and Number Theory, Pittsburgh, PA • AIM Workshop : ..Automorphic Forms, Pasadena, CA • CMI Workshop : ..Automorphic Forms, Oxford, UK • ArStAFANT Workshop, EPFL, Switzerland • Oberwolfach Seminar : ...L-functions.. Oberwolfach, Germany • Arizona Winter School : Unlikely Intersections, Tucson, AZ • Automorphic Forms Summer School, Erdos Center, Hungary • Masterclass on Relative Trace Formula, Copenhagen, Denmark • Summer School on the Langlands Program, IHES, France • Arizona Winter School : Automorphic Forms Beyond GL2, Tucson, AZ • ICTS Elliptic Curves and Special Values of L-functions, Virtual • Hausdorff Summer School : Circle Method, Virtual • Research in Number Theory, Virtual workshop • UConn Number Theory Summer School, Virtual conference • Bhargavology Learning Seminar, Stanford, Virtual seminar series • Joint Mathematics Meetings, Denver, CO • Duluth REU, University of Minnesota Duluth, Duluth, MN <p>Advisor : Joe Gallian</p> <ul style="list-style-type: none"> • CBMS Conference on L-functions and Multiplicative Number Theory, University of Mississippi, Oxford, MS • Automorphic Forms Workshop, Duquesne, Pittsburgh, PA • Joint Mathematics Meetings, Baltimore, MD • Quebec-Maine Number Theory Conference, Université Laval, Quebec City, Quebec, Canada • SMALL REU, Williams College, Williamstown, MA <p>Advisors: Seoyoung Kim, Steven J. Miller, and Jesse Thorner</p> <ul style="list-style-type: none"> • UConn Number Theory Summer School, University of Connecticut, Sorrs, CT • Joint Mathematics Meetings, San Diego, CA • MSRI Undergraduate Program, MSRI, Berkeley, CA <p>Advisors: J. Maurice Rojas and Federico Ardila</p>	<p>March 2024</p> <p>February 2024</p> <p>September, 2023</p> <p>June 2023</p> <p>May 2023</p> <p>March 2023</p> <p>September 2022</p> <p>August 2022</p> <p>July 2022</p> <p>March 2022</p> <p>August 2021</p> <p>May-June 2021</p> <p>October 2020</p> <p>June 2020</p> <p>April–May 2020</p> <p>January 2020</p> <p>June–August 2019</p> <p>May 2019</p> <p>March 2019</p> <p>January 2019</p> <p>October 2018</p> <p>June–August 2018</p> <p>January 2018</p> <p>June–August 2017</p>
Teaching Experience	<p>Assistant Academic Coordinator, MathROOTS, MIT</p> <ul style="list-style-type: none"> • Gave lectures, wrote problem sets and solutions, wrote and graded exams, oversaw problem sessions, assisted in day-to-day operations, engaged in vertical mentoring. <p>Academic Mentor, MathROOTS, MIT</p> <ul style="list-style-type: none"> • Gave lectures, oversaw problem sessions, assisted in day-to-day operations, engaged in vertical mentoring. <p>Academic Mentor, MathROOTS, MIT</p> <ul style="list-style-type: none"> • Gave lectures, oversaw problem sessions, assisted in day-to-day operations, engaged in vertical mentoring. <p>Teaching Assistant, BEAM (Bridge to Enter Advanced Mathematics) Discovery Program, Virtual</p> <ul style="list-style-type: none"> • Led activities, oversaw problem sessions, assisted in day-to-day operations, and co-TA'd the course <i>Count Without Counting</i>. Interacted with over fifty 6th graders daily. <p>Teaching Assistant and Grader, Carnegie Mellon University</p> <ul style="list-style-type: none"> • Gave recitations for Concepts of Mathematics (21-128, 4.66/5 Rating), Matrices and Linear Transformations (21-241, 4.52/5 Rating), Graded for Principles of Real Analysis I (21-355) <p>Course Assistant/Grader, Art of Problem Solving</p> <ul style="list-style-type: none"> • Online course assistant for Stretch Algebra, Intro to Number Theory, Precalculus and WOOT (Worldwide Online Olympiad Training) 	<p>July 2025</p> <p>June–July 2024</p> <p>June–July 2023</p> <p>July–August 2020</p> <p>August 2018–May 2020</p> <p>August 2017–March 2019</p>

Activities and Service	<ul style="list-style-type: none">• Member of Climate and Inclusion Committee• Group leader for Mentoring Möbius, Princeton University• Referee for <i>Journal of Number Theory</i>, <i>Essential Number Theory</i>	(2023-Present) (2020–2022)
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