Zachary Porat

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🌐 U.S. Citizen
📅 Last Updated October 18, 2024

EDUCATION

Wesleyan University | MIDDLETOWN, CT   2020 – Present

- Ph.D. Candidate in Mathematics (Expected 2026)
- Advisor: David Pollack

Union College | SCHENECTADY, NY   2016 – 2020

- Bachelor of Science in Mathematics with Honors, *summa cum laude*
  - Honors Thesis: Classification of Torsion Subgroups for Mordell Curves ↗
- Physics Minor, Phi Beta Kappa, Scholars Program

TEACHING EXPERIENCE

Instructor of Record | WESLEYAN UNIVERSITY   Fall 2022 – Present

- MATH 121 - Calculus I (Fall 2024)
- MATH 132 - Elementary Statistics (Fall 2022)

Teaching Assistant | WESLEYAN UNIVERSITY   Fall 2021 – Present

- MATH 262 - Advanced Topics in Abstract Algebra (Spring 2024)
- MATH 261 - Introduction to Abstract Algebra (Fall 2023)
- MATH 225 - Introduction to Real Analysis (Spring 2022, Spring 2023)
- MATH 228 - Discrete Mathematics (Fall 2021)

Math Workshop Tutor | WESLEYAN UNIVERSITY   Fall 2020 – Spring 2021

- Covers the entire selection of undergraduate math courses at Wesleyan ↗

Course Assistant | UNION COLLEGE   Fall 2017 – Winter 2020

- MTH 340 - Linear Algebra (Winter 2020)
- MTH 110 - Calculus I (Fall 2017, Fall 2018, Fall 2019)
- MTH 112 - Calculus II (Winter 2018, Winter 2019)
- MTH 115 - Differential Vector Calculus and Matrix Theory (Spring 2018)

Calculus Help Center Tutor | Union College Fall 2019 – Winter 2020
- Covers Calculus I, Calculus II, and Multivariable Calculus with Linear Algebra

Mentorship

Directed Reading Program Mentor | Wesleyan University Spring 2023 – Present
- William Dollhopf, Mathematical Cryptography (Fall 2023)
  - Talk Title: "Introduction to Cryptography and the ElGamal Key Cryptosystem"
- Emily Bennett, Mathematical Cryptography (Spring 2023)
  - Talk Title: "Understanding Public Key Cryptography: The Diffie-Hellman Key Exchange"
- Stefan Hesseling, Mathematical Cryptography (Spring 2023)
  - Talk Title: "RSA and Integer Factorization"

Publications

[3] **Computations Directly on the Cuspidal Cohomology of Congruence Subgroups of** $SL(3, \mathbb{Z})$, preprint. [Code]

   🔗 arXiv:2410.02734

[2] **Family Sizes for Complete Multipartite Graphs** (with Danielle Gregg, Thomas Mattman, and George Todd), *Involve, a Journal of Mathematics*, Vol. 15, No. 4 (2022), 669-686.

   🔗 MR4536581, DOI: 10.2140/involve.2022.15.669

[1] **PIXE Analysis of Synthetic Turf** (with Sajju Chalise, Morgan Clark, Skye Conlan, Scott LaBrake, and Michael Vineyard), *Environment and Ecology Research*, Vol. 6, No. 1 (2018), 60-65.

   🔗 DOI: 10.13189/eer.2018.060105

Invited Talks

- **How Computers are Shaping Math**, Manhattan College Math Seminar, November 15, 2023.

- **The Search for Large Prime Numbers**, Union College Math Seminar, January 12, 2023.

Contributed Talks

These are talks for which my submitted abstract was selected by the event organizers.

- **Computations Directly on the Cuspidal Cohomology of Congruence Subgroups of** $SL(3, \mathbb{Z})$, Conférence de Théorie des Nombres Québec-Maine (Université Laval), October 6, 2024.

- **Additional Computations of the Hecke Action on the Cuspidal Cohomology of Congruence Subgroups of** $SL(3, \mathbb{Z})$, 36th Automorphic Forms Workshop (Oklahoma State University), May 24, 2024.

- **Death at 20: The Story of Évariste Galois**, Graduate Student Seminar (Wesleyan University), March 9, 2023.

- **An Introduction to Cryptography**, Graduate Student Seminar (Wesleyan University), February 10, 2022.

- **An Introduction to Elliptic Curves**, Graduate Student Seminar (Wesleyan University), October 14, 2021.

Workshops

36$^{\text{th}}$ Automorphic Forms Workshop   May 20-24, 2024
   📍 Oklahoma State University

Arizona Winter School: Abelian Varieties   March 2-6, 2024
   📍 University of Arizona

Connecticut Summer School in Number Theory   June 6-12, 2022
   📍 University of Connecticut

Connecticut Summer School in Number Theory   June 8-14, 2020
   📍 Online due to COVID-19

Service

- Co-organizer of the Directed Reading Program 🔗   Spring 2023 – Present
- President of the Wesleyan AMS Graduate Student Chapter 🔗   Fall 2023 – Present
- Creator and editor of the departmental graduate student website   Fall 2021 – Present
- Co-organizer of the departmental Graduate Student Seminar 🔗   Spring 2022 – Fall 2023
- Vice President of the Wesleyan AMS Graduate Student Chapter   Fall 2021 – Spring 2023

Honors and Awards

- Martin Terry Resch Prize 🔗   May 2020
- Phi Beta Kappa Membership   May 2020
- Pi Mu Epsilon Membership   April 2019

References

- David Pollack, dpollack@wesleyan.edu