Alan Zhao

Salt Lake City, Utah | +1 (801)-970-1078 | asz2115@columbia.edu

HIGHER EDUCATION

Ph.D. Candidate, Mathematics, Columbia University, New York, NY **Expected 2028**

Co-Advised by Dorian Goldfeld & Ivan Corwin

Columbia College, Columbia University **2019-2023**

B.A. in Mathematics and Computer Science

PUBLICATIONS AND WRITINGS

- *Asymptotics for Third Moments of Modular Forms*, submitted
- *Oscillations in the Kuznetsov Trace Formula*, submitted (semi-expository)
- *The ρ-Fourier Transform* (with J. Getz, A.G. Terradillos, F. Hosseinijafari, A. Slipper, G. Xi, H. Yao), submitted.
- *Modulation Groups* (with J. Getz, A.G. Terradillos, F. Hosseinijafari, A. Slipper, G. Xi, H. Yao), submitted.
- *Heights of rational points on Mordell curves.* ***Journal of Number Theory****, 272, pp.18-33.*
- *The Frequency of Elliptic Curves Over $\mathbb {Q}[i]$ with Fixed Torsion.* ***Rose-Hulman Undergraduate Mathematics Journal***, 25(2), p.5.

CONFERENCES, WORKSHOPS, AND TALKS

(*) = contributed talk; (**) = invited talk

- Rutgers Number Theory Seminar: New Brunswick, NJ, USA, 12/2026 (**)
- AIM Workshop: Probabilistic Methods, Random Matrices, L-Functions; Pasadena, CA, USA, 12/2026 (*)
- Palmetto Number Theory Series (PANTS) XLI; Atlanta, GA, USA, 10/2026 (*)
- AIM Workshop: Gibbsian Line Ensembles; Pasadena, CA, USA, 08/2026 (*)
- Fourth JNT Biennial Conference; Cetraro, Italy, 07/2026
- 4th Simons Math Workshop: Algebraic Methods in Probability; Long Island, NY, 07/2026 (*)
- Aarhus Automorphic Forms conference; Aarhus, Denmark, 08/2025 (*)
- 37th Automorphic Forms Workshop; Texas, USA (*)
- Building Bridges: 6th EU/US Summer School and Conference; Marseille, France, 08/2024
- SLMath Summer Schools
  - Koszul Duality in the Local Langlands Program; Moraga, CA, USA, 07/2024
  - Geometry and Dynamics in Higher Rank Lie Groups; Berkeley, CA, USA, 07/2025
  - Percolation and Lattice Models of Statistical Physics; New York, NY, USA, 06/2026

AWARDS

Honorable Mention, NSF Graduate Research Fellowship Program **2023**

Rabi Scholar, Columbia University **2019-2023**

ACTIVITIES

Activity Director, Sonya Kovalevsky Day @ Columbia **2026–**
Organizer & Instructor, Directed Reading Program in Mathematics **2023–**
Editor, Columbia Undergraduate Journal of Mathematics **2023–**
The Reading Team, Harlem **2023–**

EMPLOYMENT

Instructor, Calculus III, Columbia University **2026**
Teaching Assistant in Mathematics, Columbia University **2021–**
Teaching Assistant in Computer Engineering, Columbia University **2021-2023**

- Computer science theory, computer networks, operating systems

Systems Security Intern, NVIDIA, Santa Clara, CA **2022**

MISC. SKILLS

- Linux kernel hacking (general and ARM architectures)
- Coding and information theory
- Fluent in English (reading, writing, speaking) and Chinese (reading, speaking)