

Employment

IDA/Center for Communications Research, Princeton

Research Staff Member, 2026–present

Lodha Mathematical Sciences Institute

Researcher, 2025–2026

Princeton University

Postdoctoral Research Associate, 2024–2025

Princeton University

NSF Postdoctoral Research Fellow, 2021–2024

University of Michigan, Ann Arbor

Lecturer, 2020

Education

University of Michigan

Ph.D. in Mathematics (2014–2020)

Dissertation: *The Orbit Intersection Problem and Polynomial Functions*

Case Western Reserve University

Bachelor of Science in Mathematics and Physics (2010–2014), magna cum laude

Research Interests

Number theory: rational and integral points on varieties, arithmetic statistics, automorphic forms, arithmetic geometry. Machine learning: transformer architectures and interpretability of large language models.

Publications

1. **Super vertex algebras, meromorphic Jacobi forms and Umbral Moonshine**

with John F. R. Duncan

Journal of Algebra **515** (2018), 389–407. <https://arxiv.org/abs/1705.09333>

2. **Minimal flag triangulations of lower-dimensional manifolds**

with Christin Bibby, Mengmeng Wang, Shuyang Wang, Ziyi Zhang, Hailun Zheng

Involve **13-4** (2020), 683–703. <https://arxiv.org/abs/1909.03303>

3. **Functions with integer-valued divided differences**

Journal of Number Theory **234** (2022), 179–199. <https://arxiv.org/abs/2005.08833>

4. **Derangements and the p -adic incomplete gamma function**

with Harry Richman

Transactions of the AMS **376** (2023), 1065–1087. <https://arxiv.org/abs/2012.04615>

5. **The moduli space of G -algebras**

with Julian Rosen

Advances in Mathematics **431** (2023), 109240. <https://arxiv.org/abs/2011.07716>

Preprints

6. **Polysymmetric functions and motivic measures of configuration spaces**

with Asvin Gothandaraman

Submitted. <https://arxiv.org/abs/2207.04529>

7. **On monic abelian trace-one cubic polynomials**

with Shubhrajit Bhattacharya

Preprint. <https://arxiv.org/abs/2310.17831>

8. **On trace-one generators of abelian cubic fields**

Preprint. <https://arxiv.org/abs/2407.10343>

9. **A residue formula for integrals with hyperplane singularities**

Preprint. <https://arxiv.org/abs/2408.12586>

Lean formalization: aodesky.github.io/residue-formalization

10. **Integral points on singular toric varieties and cyclic normal polynomials**

Preprint. <https://arxiv.org/abs/2410.00762>

11. **On attention heads and bilinear forms**

Preprint. <https://andrewodesky.com/res/attention.pdf>

Lean formalization: aodesky.github.io/attention-bilinear-forms

Special Session on Prehomogeneous Vector Spaces and Their Arithmetic Properties

Joint Mathematics Meetings, Chicago, January 2027 (declined)

Generic polynomials from root systems

Recent Developments in Arithmetic Statistics, Lodha Mathematical Sciences Institute, December 2025

Algebraic integers of bounded height and given Galois group

Plenary talk, Mid-Atlantic Seminar On Numbers (MASON VII), University of Maryland, March 2025

Algebraic integers of bounded height and given Galois group

Joint Princeton University/IAS Number Theory Seminar, March 2025

Counting irreducible polynomials over finite fields and the integers

Colloquium, IDA Center for Communications Research, Princeton, January 2025

Polynomials with abelian Galois group and integral points on singular toric varieties

Plenary talk, Graz-ISTA Number Theory Days, TU Wien, June 2023

Polynomials with abelian Galois group

Number Theory Seminar, Rutgers University, April 2023

Counting points on varieties and Malle's conjecture

Number Theory Seminar, University of Minnesota, November 2019

Characterizing polynomial sequences in p -adic interpolation

Combinatorial and Additive Number Theory (CANT), CUNY Graduate Center, May 2019

Generalized prime counting functions and p -adic interpolation

Group, Lie and Number Theory Seminar, University of Michigan, January 2019