

Vivian Kuperberg

Curriculum Vitae

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Education

2017–2022 **Ph.D.**, *Stanford University*, Mathematics
advised by K. Soundararajan

2013–2017 **B.A.**, *Cornell University*, Mathematics
Summa Cum Laude

Employment

2026– **Assistant Professor**, *ISTA*
2023–2026 **Hermann Weyl Instructor**, *ETH Zürich*
2023–2024 **NSF Postdoctoral Research Fellow**, *ETH Zürich*
2022–2023 **NSF Postdoctoral Research Fellow**, *Tel Aviv University*

Preprints

E. Kowalski and V. Kuperberg, Mind the (multiplicative) gaps, 2025. [arXiv:2405.02651](https://arxiv.org/abs/2405.02651).

Publications

M. Afifurrahman, V. Kuperberg, A. Ostafe, and I. Shparlinski, Statistics of ranks, determinants and characteristic polynomials of rational matrices, *Forum Mathematicum* **37** (2025), 1259–1289.

T. F. Bloom and V. Kuperberg, Odd moments and adding fractions, *Proc. Lond. Math. Soc. (3)* **131** (2025), Paper No. e70068, 38.

R. de la Bretèche and V. Kuperberg, Lower bounds on weighted moments of primes in short intervals in number fields, *Isr. J. Math.* (2025),.

N. Kimmel and V. Kuperberg, Positive density for consecutive runs of sums of two squares, *J. Inst. Math. Jussieu* (2025), 1–52.

V. Kuperberg, Odd moments in the distribution of primes, *Algebra Number Theory* **19** (2025), 617–666.

V. Kuperberg and M. Lalín, Arithmetic constants for symplectic variances of the divisor function, *Mathematika* **71** (2025), Paper No. e70029, 26.

V. Kuperberg and M. Lalín, Symplectic conjectures for sums of divisor functions and explorations of an orthogonal regime, *Trans. Amer. Math. Soc. Ser. B* **12** (2025), 323–370.

N. Kimmel and V. Kuperberg, Consecutive runs of sums of two squares, *Journal of Number Theory* **264** (2024), 135–147.

- V. Kuperberg, Sums of singular series along arithmetic progressions and with smooth weights, *International Journal of Number Theory* **0** (2024), 1–22.
- V. Kuperberg, Sums of singular series with large sets and the tail of the distribution of primes, *The Quarterly Journal of Mathematics* **74** (2023), 1457–1479. [arXiv:2210.09775](#).
- V. Kuperberg, On pseudo-polynomials divisible only by a sparse set of primes and α -primary pseudo-polynomials, *Journal of Number Theory* (2022),. [arXiv:2006.02527](#).
- V. Kuperberg and M. Lalín, Sums of divisor functions and von Mangoldt convolutions in $\mathbb{F}_q[T]$ leading to symplectic distributions, *Forum Mathematicum* **34** (2022), 711–747. [arXiv:2107.01437](#).
- V. Kuperberg, B. Rodgers, and E. Roditty-Gershon, Sums of singular series and primes in short intervals in algebraic number fields, *Ramanujan Journal* **58** (2022), 291–317. [arXiv:2001.09513](#).
- S. Kailasa, V. Kuperberg, and N. Wawrykow, Chip-firing on trees of loops, *Electronic Journal of Combinatorics* **25** (2018),. [arXiv:1706.04164](#).
- M. Kassabov, V. Kuperberg, and T. Riley, Soficity and variations on Higman’s group, *Journal of Combinatorial Algebra* (2018),. [arXiv:1712.017191](#).
- R. Connelly, M. Funkhouser, V. Kuperberg, and E. Solomonides, Packings of equal disks in a square torus, *Discrete & Computational Geometry* **58** (2017), 614–642. [arXiv:1512.08762](#).
- V. Kuperberg, Hadamard matrices modulo p and small modular Hadamard matrices, *Journal of Combinatorial Designs* **24** (2016), 393–405. [arXiv:1409.0148](#).

Awards

- 2022–2024 **NSF Mathematical Sciences Postdoctoral Research Fellow**
 2022 **Pólya Teaching Fellow**, *Stanford Mathematics Department*
- 2017–2022 **NSF Graduate Research Fellowship in Mathematics**
 2017 **Kieval Prize**, *Cornell University Department of Mathematics*
 2017 **Merrill Presidential Scholar**, *Cornell University*
 2017 **Arts and Sciences Exceptional Senior**, *Cornell University*
 2016 **Phi Beta Kappa Honor Society**, *Cornell University*
- 2015–2017 **Rawlings College Presidential Research Scholar**, *Cornell University*

Teaching and Mentoring

- 2025 **Instructor**, *ETH Zürich*
 The distribution of prime numbers
- 2025 **Bachelor’s thesis supervisor**, *ETH Zürich*
 Bar Holzapfel–Martin
- 2025 **Master’s thesis supervisor**, *ETH Zürich*
 Golo Wolff
- 2024 **Teaching Assistant**, *ETH Zürich*
 Number Theory I

- 2023 **Instructor**, *Tel Aviv University*
Sieve Theory Student Reading Seminar
- 2019–2021 **Teaching Assistant**, *Stanford University*
Math 51 (Winter 2019); Math 62 (Winter 2021)
- 2018–2020 **Course Assistant**, *Stanford University*, Stanford University
Math 171 (Fall 2018); Algebra Qual Prep Seminar (Winter 2020); Math 210 (Fall 2020)
- 2016–2022 **Staff member**, *Canada/USA Mathcamp*
Academic coordinator (2022), instructor (2018, 2021), undergraduate counselor (2016, 2017).
- 2014–2017 **Tutor**, *Cornell University Math Support Center*
Tutor (Fall 2014–Spring 2017), Head Tutor (Spring 2015–Spring 2017)
- 2015 **Undergraduate Researcher**, *Cornell SPUR Program*
- 2014 **Undergraduate Researcher**, *University of Minnesota, Duluth REU*

Other professional experience

- 2022–present **MathSciNet Reviewer**
Referee, including for Journal d'Analyse Mathématique, Communications of the AMS, Mathematische Annalen, The Ramanujan Journal

Service and Community Engagement

- 2019–2022 **Stanford Graduate Math Outreach Organization**, Directed Reading Program
President and Mentor
- 2019–2022 **Stanford Department of Mathematics**, Wellness Representative
- 2018–2022 **Canada/USA Mathcamp**, Hiring committee member
- 2017–2022 **Stanford Women in Math Mentoring Program**, Mentor
- 2015–2017 **Cornell Undergraduate Math Club**, Vice President (Fall 2015–Spring 2016),
President (Fall 2016–Spring 2017)

Talks and Presentations

- 2025 **CIRM Prime numbers and arithmetic randomness**, TBA
- 2025 **Number theory web seminar**, Consecutive sums of two squares in arithmetic progressions
- 2025 **UC Berkeley Commutative Algebra and Algebraic geometry Seminar**, Sums of odd-ly many fractions
- 2024 **Arithmétique en Plat Pays**, Sums of odd-ly many fractions
- 2024 **Developments in Modern Mathematics at the University of Göttingen**, *Plenary talk*, Consecutive primes
- 2024 **Developments in Modern Mathematics at the University of Göttingen**, *Research talk*, Sums of odd-ly many fractions and the distribution of primes
- 2024 **Heilbronn Number Theory Seminar**, Consecutive sums of two squares in arithmetic progressions
- 2024 **AIM FRG graduate student seminar**, Sums of odd-ly many fractions
- 2024 **CRG: L-functions in Analytic Number Theory Seminar**, Consecutive sums of two squares in arithmetic progressions

- 2024 **University of Gothenburg Algebraic Geometry and Number Theory Seminar**, Sums of odd-ly many fractions and the distribution of primes
- 2024 **Institut Mittag-Leffler Analytic Number Theory Workshop**, Sums of odd-ly many fractions and the distribution of primes
- 2024 **Rencontres de théorie analytique des nombres**, Les sommes de deux nombres carrés consécutives dans les progressions arithmétiques
(in French)
- 2023 **Georgia Tech Number Theory Seminar**, Sums of odd-ly many fractions and the distribution of primes
- 2023 **Virtual Brazilian Analytic Number Theory Seminar**, Consecutive sums of two squares in arithmetic progressions
- 2023 **IST Austria Algebraic Geometry and Number Theory Seminar**, Sums of odd-ly many fractions and the distribution of primes
- 2023 **ETH Zürich Number Theory Seminar**, Consecutive sums of two squares in arithmetic progressions
- 2023 **Tel Aviv University Number Theory Seminar**, Consecutive sums of two squares mod q
- 2023 **Oxford University Number Theory Seminar**, Sums of arithmetic functions over $\mathbb{F}_q[T]$ and non-unitary distributions
- 2023 **Göttingen Oberseminar Zahlentheorie**, Sums of singular series and the distribution of primes
- 2022 **Tel Aviv University Number Theory Seminar**, Sums of arithmetic functions over $\mathbb{F}_q[T]$ and non-unitary distributions
- 2022 **Andrew Granville's 60th birthday conference**, Sums of singular series and the distribution of primes
- 2022 **Canadian Math Society Summer Meeting**, Sums of singular series and the distribution of primes
- 2022 **University of Illinois at Urbana-Champaign Number Theory Seminar**, Odd moments in the distribution of primes
- 2022 **AIM FRG graduate student seminar**, The Hardy–Littlewood k -tuple conjecture and intervals with many primes
- 2021 **Junior Number Theory Days 2021**, Odd moments in the distribution of primes
- 2021 **Carnegie Mellon Undergraduate Math Club**, On pseudopolynomials
- 2021 **UC Irvine number theory seminar**, Odd moments in the distribution of primes
- 2021 **University of Montréal number theory seminar**, Odd moments in the distribution of primes
- 2021 **Ole Miss number theory seminar**, Odd moments in the distribution of primes
- 2021 **Boston university number theory seminar**, Odd moments in the distribution of primes
- 2021 **AIM graduate student seminar**, The second moment of quadratic twists of modular L -functions
- 2021 **Stanford/Caltech Analytic Number Theory student seminar**, Supercuspidal representations of $\mathrm{GL}_2(\mathbb{F}_q)$

- 2020 **Stanford Analytic Number Theory student seminar**, Entries of the character table of S_N that are multiples of a given prime
- 2020 **Stanford Analytic Number Theory student seminar**, Primes with restricted digits
- 2020 **Stanford Analytic Number Theory student seminar**, Reduced residues and primes in short intervals
- 2020 **Stanford Analytic Number Theory student seminar**, Roth's Theorem via almost-periodicity
- 2020 **Stanford Area Exam**, The distribution of prime numbers and sums of singular series
- 2020 **Stanford Kiddie Colloquium**, Dirichlet's Class Number Formula, Dirichlet Style
- 2019 **Stanford Student L-functions Reading Seminar**, Maass Waveforms
- 2019 **Stanford Student Elliptic Curves Seminar**, Siegel's Theorem
- 2019 **Stanford Student Arizona Winter School Preparatory Seminar**, Hochschild Homology
- 2018 **Stanford Kiddie Colloquium**, How To Juggle
- 2017 **Cornell Topology and Geometric Group Theory Seminar**, Soficity and variations on Higman's group
- 2015, 2016 **Splash! at Cornell**, n -dimensional doodles (2015), Soda cans, donuts, hanging pictures, and the fundamental group (2016)
- 2016 **AMS Sectional Meeting**, Packings of equal disks in a square torus
With R. Connelly, M. Funkhouser, E. Solomonides.
- 2016 **Cornell Undergraduate Math Club**, On defeating hydras
- 2015 **Cornell Undergraduate Math Club**, Fun facts about free groups
- 2015 **Joint Math Meetings**, Hadamard matrices modulo p and small modular Hadamard matrices

Personal

Citizenship United States

Other Skills Java · Python · Sage · \LaTeX · $\text{\textit{TikZ}}$ · French (proficient) · Hebrew (proficient) · German (elementary)