

# 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  $\alpha$ -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](#).

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## 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

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## 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

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## Personal

Citizenship United States

Other Skills Java · Python · Sage · L<sup>A</sup>T<sub>E</sub>X · TikZ · French (proficient) · Hebrew (proficient) · German (elementary)