

Sarah Peluse

- CONTACT INFORMATION Department of Mathematics
Stanford University
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- EMPLOYMENT **Stanford University**, Stanford, CA
Associate Professor, Sept. 2024–Present
- University of Michigan**, Ann Arbor, MI
Assistant Professor, July 2023–Sept. 2024
- Princeton University/Institute for Advanced Study**, Princeton, NJ
Veblen Research Instructor, Sept. 2020–July 2023
- University of Oxford**, Oxford, England
NSF Postdoctoral Fellow, Sept. 2019–Aug. 2020
- EDUCATION **Stanford University**, Stanford, CA
Ph.D. in Mathematics, Sept. 2014–Sept. 2019
- University of Chicago**, Chicago, IL
A.B. in Mathematics, Sept. 2011–June 2014
- Lake Forest College**, Lake Forest, IL
Undergraduate Coursework, Sept. 2009–June 2011
- RESEARCH PAPERS AND PREPRINTS D. Kosz, M. Mirek, S. Peluse, J. Wright, *The multilinear circle method and a question of Bergelson*. arXiv 2411.09478.
- S. Peluse, S. Prendiville, X. Shao, *Bounds in a popular multidimensional nonlinear Roth theorem*. J. Lond. Math. Soc. **110** (2024), no. 5, e70019.
- R. Greenfeld, M. Iliopoulou, S. Peluse, *On integer distance sets*. arXiv:2401.10821. Submitted.
- S. Peluse, A. Sah, M. Sawhney, *Effective bounds for Roth’s theorem with shifted square common difference*. arXiv:2309.08359. Submitted.
- S. Peluse, K. Soundararajan, *Divisibility of character values of the symmetric group by prime powers*. Accepted at Algebra Number Theory
- B. Krause, M. Mirek, S. Peluse, J. Wright, *Polynomial progressions in topological fields*. Accepted at Forum Math. Sigma.
- S. Peluse, *Subsets of $\mathbb{F}_p^n \times \mathbb{F}_p^n$ without L-shaped configurations*. Compos. Math. **160** (2024), no. 1, 176–236.
- S. Peluse, K. Soundararajan, *Almost all entries in the character table of the symmetric group are multiples of any given prime*. J. Reine Angew. Math. **786** (2022), 45–53.

S. Peluse, *On even entries in the character table of the symmetric group*. arXiv 2007.06652.

S. Peluse, *An asymptotic version of the prime power conjecture for perfect difference sets*. Math. Ann. **380** (2021), no. 3-4, 1387–1425.

S. Peluse, S. Prendiville, *A polylogarithmic bound in the non-linear Roth Theorem*. Int. Math. Res. Not. (2022), no. 8, 5658–5684.

S. Peluse, *Bounds for sets with no polynomial progressions*. Forum Math. Pi **8** (2020), e16, 55 pp.

S. Peluse, S. Prendiville, *Quantitative bounds in the non-linear Roth Theorem*. Invent. Math. **238** (2024), no. 3, 865–903.

S. Peluse, *On the polynomial Szemerédi theorem in finite fields*. Duke Math. J. **168** (2019), no. 5, 749–774.

S. Peluse, *Three-term polynomial progressions in subsets of finite fields*. Israel J. Math. **228** (2018), no. 1, 379–405.

S. Peluse, *Mixing for three-term progressions in finite simple groups*. Math. Proc. Cambridge Philos. Soc. **165** (2018), no. 2, 279–286.

EXPOSITORY
ARTICLES

S. Peluse, *Finite field models in arithmetic combinatorics—twenty years on*. London Math. Soc. Lecture Note Ser., 493, Cambridge University Press, Cambridge, 2024, 159–199.

S. Peluse, *Recent progress on bounds for sets with no three terms in arithmetic progression [after Bloom and Sisask, Croot, Lev, and Pach, and Ellenberg and Gijswijt]*. Astérisque (2022), no. 438, Exp. No. 1196, 547–581.

AWARDS AND
FELLOWSHIPS

2024	Frontiers of Science Award, ICBS Beijing
2024-2026	Sloan Research Fellowship
2023	Salem Prize
2022	Dénes Kőnig Prize, SIAM
2022	Maryam Mirzakhani New Frontiers Prize, Breakthrough Foundation
2019-2023	Mathematical Sciences Postdoctoral Research Fellowship, NSF
2017	Centennial Teaching Assistant Award, Stanford University
2014-2019	Mayfield Fellowship, Stanford University
2014-2016	EDGE-STEM Fellowship, Stanford University
2014-2019	Graduate Research Fellowship, NSF
2014	Alice T. Schafer Prize, AWM
2014	Paul R. Cohen Memorial Prize, University of Chicago
2014	Mary Jean Mulvaney Scholar-Athlete Award, University of Chicago

LECTURE SERIES
AND MINI COURSES

(July 2025)	Graduate Summer School in Extremal and Probabilistic Combinatorics, PCMI
June 2024	Current Trends in Mathematics: Beyond the Freshmen Horizons, DIMACS
October 2021	Frontiers in Mathematics, Duke University
June 2021	Summer School in Analytic Number Theory, Université de Paris

INVITED TALKS

(July 2025)	Journées Arithmétiques, University of Luxembourg
(June 2025)	Perspectives on Ergodic Theory and its Interactions—a conference celebrating Vitaly Bergelson’s work and impact, IMPAN

(March 2025)	Algebraic and Analytic Methods in Combinatorics, MSRI
(March 2025)	Hot Topics: Interactions between Harmonic Analysis, Homogeneous Dynamics, and Number Theory, MSRI
(February 2025)	Connections Workshop: Extremal Combinatorics, MSRI
(January 2025)	Arithmetic Geometry and Number Theory Seminar, UC Berkeley
(January 2025)	Colloquium, BYU
(January 2025)	Current Events Bulletin, JMM
October 2024	Swiss Number Theory Days
September 2024	Rothschild Prize Symposium in Honor of Tamar Ziegler, National Library of Israel
August 2024	NU Trends in Ergodic Theory, Northwestern University
July 2024	International Congress of Basic Science, BIMSA
July 2024	British Combinatorial Conference, QMUL
June 2024	Pointwise Ergodic Theory and Connections, University of Bristol
June 2024	Colloquium, University of Warwick
June 2024	Visions in Arithmetic and Beyond: Celebrating Peter Sarnak's work and impact, IAS
May 2024	Cohen Prize Lecture, University of Chicago
April 2024	Mini Symposium of the Roman Number Theory Association, Università Roma Tre
April 2024	Structure and Randomness: A celebration of the mathematics of Timothy Gowers, Cambridge University
February 2024	Number Theory Seminar, Duke University
January 2024	Dean's Distinguished Women in Mathematics, Statistics, and Computer Science Lecture Series, University of Waterloo
January 2024	Special Session on Multiplicative Number Theory and Additive Combinatorics, JMM
December 2023	Plenary talk, Annual Conference of the Australian Mathematical Society
November 2023	BC-MIT Number Theory Seminar
October 2023	Atlanta Discrete Analysis Seminar
September 2023	Plenary talk, Québec-Maine Number Theory Conference
July 2023	RHB70: Analytic Number Theory and its Interfaces, University of Oxford
June 2023	Nilpotent structures in topological dynamics, ergodic theory and combinatorics, IMPAN
May 2023	Women and Mathematics Colloquium, IAS
April 2023	Algebra and Number Theory Seminar, PSU
April 2023	Combinatorics Seminar, University of Rochester
April 2023	Morning speaker, British Mathematical Colloquium
March 2023	Virtual Brazilian Analytic Number Theory Seminar
March 2023	Special Session on Discrete Analysis, AMS Spring Southeastern Sectional Meeting
February 2023	Number Theory Web Seminar
February 2023	Discrete Maths and Probability Seminar, University of Oxford
January 2023	Colloquium, Stanford University
January 2023	Combinatorics Colloquium, UIUC
December 2022	Combinatorics Seminar, MIT
November 2022	Workshop in Analytic Number Theory, Oberwolfach
October 2022	Additive Combinatorics and Algebraic Connections, IAS
September 2022	Colloquium, Stony Brook University
September 2022	A celebration of analytic number theory: a conference in honor of Andrew Granville, CRM
July 2022	Additive Combinatorics Mini-Symposium, British Combinatorial Conference
June 2022	Fourier Analysis @200, ICMS
June 2022	Séminaire Bourbaki
June 2022	Dénes König Prize Lecture, SIAM Conference on Discrete Math
May 2022	Colloquium, Yale University

April 2022	Number Theory Seminar, University of Virginia
March 2022	goMATH mini-Symposium: Harmonic Analysis and Number Theory, ETH Zürich
March 2022	Number Theory Seminar, Kansas State University
March 2022	Algebraic Geometry and Number Theory Seminar, University of Gothenburg/Chalmers University
January 2022	Analysis and PDE Seminar, UCLA
December 2021	Colloquium, University of Michigan
December 2021	Number Theory Seminar, Northwestern University
October 2021	Members' Colloquium, IAS
September 2021	Discrete Math Seminar, Rutgers University
September 2021	Philadelphia Area Number Theory Seminar, Bryn Mawr College
July 2021	Program in Harmonic Analysis and Analytic Number Theory, HIM
June 2021	Additive & Combinatorial Number Theory, CMS Summer Meeting
June 2021	Combinatorics Seminar, Bar Ilan University
May 2021	Mini-Symposium on Arithmetic Combinatorics, CanaDAM
April 2021	Probability and Analysis Webinar
April 2021	Recent Progress in Analytic Number Theory, AMS Spring Central Sectional Meeting
April 2021	Copenhagen–Jerusalem Combinatorics Seminar
April 2021	Algebraic Geometry Seminar, UIC
April 2021	Nancy–Metz Number Theory Seminar
March 2021	Séminaire Betty B
March 2021	Number Theory Seminar, UIUC
March 2021	Program in Number Theory, Institut Mittag–Leffler
March 2021	Online Analysis Research Seminar
February 2021	Number Theory Seminar, Vanderbilt University
February 2021	Number Theory Seminar, Rutgers University
January 2021	Number Theory Seminar, Durham University
December 2020	London Analysis Seminar
December 2020	Discrete Analysis, CMS Winter Meeting
November 2020	Berkeley/Caltech/Stanford Joint Number Theory Seminar
November 2020	Computer Science/Discrete Math Seminar, IAS
October 2020	Analytic and Probabilistic Number Theory Web Seminar
October 2020	Midwest Model Theory Seminar
September 2020	Princeton/IAS Joint Number Theory Seminar
July 2020	Webinar in Additive Combinatorics
May 2020	Virtual Harmonic Analysis Seminar
April 2020	DIMAP Seminar, University of Warwick
March 2020	Number Theory Seminar, ETH Zürich
February 2020	London Number Theory Seminar, UCL
February 2020	Number Theory Seminar, Utrecht University
February 2020	Combinatorics Seminar, University of Bristol
February 2020	Combinatorial Theory Seminar, University of Oxford
January 2020	Combinatorics Seminar, Hebrew University
December 2019	Algebra Seminar, Lancaster University
November 2019	Workshop in Analytic Number Theory, Oberwolfach
October 2019	Number Theory Seminar, University of Warwick
September 2019	WOMBL 1-Day Meeting, University of Oxford
September 2019	PANTS invited postdoc speaker, UNC Charlotte
April 2019	Quebec–Vermont Number Theory Seminar, Concordia University
April 2019	Analysis and Arithmetic Combinatorics Seminar, UGA
January 2019	Special Session on Counting Methods in Number Theory, JMM
December 2018	Discrete Analysis Seminar, University of Cambridge
December 2018	Number Theory Seminar, University of Manchester
November 2018	Heilbronn Number Theory Seminar, University of Bristol
October 2018	Caltech/UCLA Joint Analysis Seminar, UCLA

September 2018	Arithmetic Ramsey Theory in Manchester, University of Manchester
May 2018	Special Session on Analytic Number Theory, ICOMAS 2018, University of Memphis
March 2018	Combinatorics Seminar, Stanford University
January 2018	Special Session on Mathematics Research from the SMALL Undergraduate Research Program, JMM
November 2017	Algorithms, Combinatorics, and Optimization Seminar, Carnegie Mellon University
November 2017	Number Theory Seminar, Stanford University
September 2017	BOWL 1-Day Meeting, University of Warwick

TEACHING

Fall 2024, Stanford	MATH 233A: Additive Combinatorics
Winter 2024, Michigan	Math 675: Analytic Theory of Numbers
Spring 2023, Princeton	MAT 175: Mathematics for Economics/Life Sciences
Fall 2022, Princeton	MAT 103: Calculus I
Spring 2022, Princeton	MAT 202: Linear Algebra with Applications
Fall 2021, Princeton	MAT 103: Calculus I
Winter 2019, Stanford	TA for MATH 62DM: Modern Mathematics: Discrete Methods
Winter 2018, Stanford	MATH 382: Algebra Qualifying Examination Seminar
Fall 2015, Stanford	TA for MATH 51H: Honors Multivariable Mathematics I