

Luke Peilen

PERSONAL AND CONTACT INFORMATION	DOB: 05.04.1996 1805 N. Broad St. # 544 Philadelphia, PA 19122 USA	Pronouns: they/them Phone Number: (612) 412-8560 Email: luke.peilen@temple.edu
RESEARCH INTERESTS	Probability and Analysis, emphasis on problems from Statistical Physics	
EMPLOYMENT	Temple University, Department of Mathematics Research Assistant Professor	2023-present
EDUCATION	New York University, Courant Institute Ph.D. in Mathematics, awarded May 2023 Thesis: <i>Statistical Mechanics of Log and Riesz Interactions</i> Advisor: Prof. Sylvia Serfaty	2018-2023
	Yale University M.S., B.S. Mathematics, cum laude Thesis: <i>Spherical Harmonics and Minimizers of Riesz-type Energies on S^2</i> Advisor: Prof. Stefan Steinerberger	2014-2018
PUBLICATIONS	L. Peilen, S. Serfaty. Local laws and fluctuations for super-Coulombic Riesz gases, with an appendix by X. Ros-Oton. <i>In preparation</i>, 2025. D. Padilla-Garza, L. Peilen, E. Thoma. Poisson Statistics for Coulomb Gases at Intermediate Temperature Regimes. arXiv: 2507.08198, July 2025, submitted. K. Isham, N. Kaplan, S. Kimport, R. Lawrence, L. Peilen, M. Weinreich. Configurations of 10 points and their incidence varieties. arXiv: 2507.09829, July 2025, submitted. L. Peilen. On the Maximum of the Potential of a General Two-Dimensional Coulomb Gas. <i>Electronic Communications in Probability</i>, vol. 30, 2025, pp. 1-17. L. Peilen. Local laws and a mesoscopic CLT for β-ensembles. <i>Comm. Pure Appl. Math</i>, vol. 77, no. 4, 2024, pp. 2452-2567. D. Padilla-Garza, L. Peilen, E. Thoma. Emergence of a Poisson process in weakly interacting particle systems. arXiv: 2405.02625, May 2024, submitted. A. Cerbu, E. Gunther, M. Magee, L. Peilen. The cycle structure of a Markoff automorphism over finite fields. <i>Journal of Number Theory</i>, vol. 211, 2020, pp. 1-27. A. Cerbu, S. Marcus, L. Peilen, D. Ranganathan, A. Salmon. Topology of tropical moduli of weighted stable curves. <i>Advances in Geometry</i>, vol. 20, no. 4, 2020, pp. 445-462. N. Kaplan, S. Kimport, R. Lawrence, L. Peilen, M. Weinreich. Counting arcs in projective planes via Glynn's algorithm. <i>Journal of Geometry</i>, vol. 108, no. 3, 2017, pp. 1013-1029.	

COURSE INSTRUCTOR EXPERIENCE	Fall	2025	Temple MATH 3131/5041: Real Analysis
	Spring	2025	Temple MATH 2101: Linear Algebra
	Fall	2024	Temple MATH 4033: Probability Theory II
	Spring	2024	Temple MATH 3031: Probability Theory I
	Fall	2023	Temple MATH 1041: Calculus I
	Summer	2022	NYU MATH-UA.132: Mathematics for Economics II
	Summer	2021	Thinking and Problem Solving: Math in the Real World
	Summer	2020	Thinking and Problem Solving: Math in the Real World
	Summer	2019	Thinking and Problem Solving: Math in the Real World
			<i>Designed and taught a three week summer course for high school students in probability, graph theory, and game theory as part of the Columbia University Summer Program for High School students</i>
GRADUATE TEACHING ASSISTANT EXPERIENCE	Fall	2022	Graduate Teaching Assistant, NYU MATH-UA.0325 Analysis
	Spring	2022	Graduate Teaching Assistant, NYU MATH-UA.0325: Analysis
	Fall	2021	Graduate Teaching Assistant, NYU MATH-UA.0262: Ordinary Differential Equations
	Spring	2021	Graduate Teaching Assistant, NYU MATH-UA.0121: Calculus I
	Fall	2020	Graduate Teaching Assistant, NYU MATH-UA.0325: Analysis
	Fall	2019	Teaching Assistant, NYU Putnam Exam seminar
MENTORSHIP		2025	Diamond Peer Teachers Program at Temple University Student: Tommy Pham Provided mentorship in Linear Algebra course, overseeing recitation sections and aiding pedagogical development
		2024-2025	Research Mentor, Science Scholars Program at Temple University Student: Sarah Lampreich <i>starting a Ph.D. in physics at Michigan State University this fall</i> Project: The log determinant of a novel nonHermitian random matrix ensemble.
HONORS AND AWARDS		2025-2026	Project NExT Fellow
		2022-2023	Glenn Y. Louie Endowed Fellowship <i>awarded to a Ph.D. student for significant contributions to the mathematical sciences</i>
		2021-2022	Henning Biernmann Prize <i>awarded to a Ph.D. student who has made outstanding contributions to education or service to the department.</i>
		2021-2022	Peter Lax Fellowship <i>awarded to an outstanding Ph.D. student</i>
		2019-2022	NSF Graduate Research Fellowship
INVITED TALKS			<i>A Transport Method for Riesz Gases</i> , SIAM Conference on Analysis of Partial Differential Equations, Pittsburgh. (November 2025)
			<i>Poisson behavior for Coulomb Gases</i> , Constructive Functions 2025, Vanderbilt University. (May 2025)
			<i>Poisson behavior for Coulomb Gases</i> , University of Delaware Probability Seminar. (April 2025)
			<i>Local Laws and Fluctuations for Log and Riesz Gases</i> , Institut Mittag-Leffler, Stockholm, Sweden. (October 2024)

	<i>Local Laws and Fluctuations for Riesz Gases</i>, AMS Southeastern Sectional Meeting Fall 2024, Georgia Southern University. (October 2024; <i>cancelled due to Hurricane Helene</i>) <i>Statistical Mechanics of Log and Riesz Gases</i>, Princeton Probability Seminar. (February 2024) <i>Local Laws and Fluctuations for Log Gases</i>, 2023 Canadian Mathematical Society Winter Meeting, Montréal, Québec, CA. (December 2023) <i>Statistical Mechanics of Log and Riesz Interactions</i>, Penn-Temple Probability Seminar. (September 2023)
CONTRIBUTED TALKS	<i>Local Laws and Fluctuations for Riesz Gases</i>, School on Stochastic Interacting Particle Systems and Random Matrices 2025, Erdős Center - HUN-REN Rényi Institute. (June 2025) <i>Local Laws and Fluctuations for Riesz Gases</i>, CRM-PIMS Summer School in Probability 2024, Université de Montréal. (July 2024) <i>Statistical Mechanics of Log and Riesz Interactions</i>, SSMC 2024, Ohio State University. (July 2024, delivered virtually) <i>Local Laws and Fluctuations for Log Gases</i>, QuMA 2024, Bilbao, Spain. (June 2024, delivered virtually) <i>Local Laws and a Mesoscopic CLT for β-ensembles</i>, 22nd Northeast Probability Seminar, Courant Institute of Mathematical Sciences. (November 2023) <i>Local Laws and a Mesoscopic CLT for beta-ensembles</i>, AMS Eastern Sectional Meeting Fall 2023, University at Buffalo. (September 2023)
PROFESSIONAL ACTIVITIES	Organizer, Penn/Temple Probability seminar, 2024-present Reviewer for <i>Journal of Mathematical Physics</i> and <i>Mathematical Reviews</i> Member, Spectra Outreach and Communications committee, AY 2024-2025 Organizer, Courant Graduate Student and Postdoc Seminar, AY 2022-2023 Courant DEI Reading Group Member, AY 2021-2022 and 2022-2023 Courant Student Organization President, AY 2020-2021 Courant Student Organization Vice President, AY 2019-2020
RELEVANT SKILLS	Languages: Reading knowledge of French, Ancient Greek and Latin