

# Luke Peilen

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PERSONAL AND CONTACT INFORMATION	DOB: 05.04.1996 1805 N. Broad St. # 544 Philadelphia, PA 19122 USA	US Citizen Phone Number: (612) 412-8560 Email: <a href="mailto:luke.peilen@temple.edu">luke.peilen@temple.edu</a>
RESEARCH INTERESTS	Probability and Analysis, emphasis on problems from Statistical Physics	
EMPLOYMENT	<b>Temple University, Department of Mathematics</b> Research Assistant Professor	2023-
EDUCATION	<b>New York University, Courant Institute</b> Ph.D. in Mathematics, awarded May 2023 Thesis: <i>Statistical Mechanics of Log and Riesz Interactions</i> Advisor: Prof. Sylvia Serfaty	2018-2023
	<b>Yale University</b> M.S., B.S. Mathematics, cum laude Thesis: <i>Spherical Harmonics and Minimizers of Riesz-type Energies on <math>S^2</math></i> Advisor: Prof. Stefan Steinerberger	2014-2018
	<b>University of Minnesota - Twin Cities</b> PSEO Student, College of Continuing Education	2012-2014
HONORS AND AWARDS	2022-2023 2021-2022 2021-2022 2019-2022 2018 2017	Glenn Y. Louie Endowed Fellowship <i>awarded to a Ph.D. student for significant contributions to the mathematical sciences</i> Henning Biermann Prize <i>awarded to a Ph.D. student who has made outstanding contributions to education or service to the department.</i> Peter Lax Fellowship <i>awarded to an outstanding Ph.D. student</i> NSF Graduate Research Fellowship Deforest Senior Mathematical Prize <i>for proficiency in pure and applied mathematics.</i> Anthony D. Stanley Memorial Prize <i>awarded to a member of the junior class of Yale College for excellence in mathematics.</i>
PUBLICATIONS	D. Padilla-Garza, L. Peilen, E. Thoma. Emergence of a Poisson process in weakly interacting particle systems. <a href="https://arxiv.org/abs/2405.02625">arXiv: 2405.02625</a> , May 2024, submitted.  L. Peilen. On the Maximum of the Potential of a General Two-Dimensional Coulomb Gas. <a href="https://arxiv.org/abs/2403.00670">arXiv: 2403.00670</a> , March 2024, submitted.  L. Peilen. Local laws and a mesoscopic CLT for $\beta$ -ensembles. <i>Comm. Pure Appl. Math</i> , vol. 77, no. 4, 2024, pp. 2452-2567.  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. *Advances in Geometry*, 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. *Journal of Geometry*, vol. 108, no. 3, 2017, pp. 1013-1029.

INVITED  
TALKS

*Statistical Mechanics of Log and Riesz Gases*, Princeton Probability Seminar. (February 2024)

*Local Laws and Fluctuations for Log Gases*, 2023 Canadian Mathematical Society Winter Meeting, Montréal, Québec, CA. (December 2023)

*Statistical Mechanics of Log and Riesz Interactions*, Penn-Temple Probability Seminar. (September 2023)

CONTRIBUTED  
TALKS

*Local Laws and Fluctuations for Riesz Gases*, CRM-PIMS Summer School in Probability 2024, Université de Montréal. (July 2024)

*Statistical Mechanics of Log and Riesz Interactions*, SSMC 2024, Ohio State University. (July 2024, delivered virtually)

*Local Laws and Fluctuations for Log Gases*, QuMA 2024, Bilbao, Spain. (June 2024, delivered virtually)

*Local Laws and a Mesoscopic CLT for  $\beta$ -ensembles*, 22nd Northeast Probability Seminar, Courant Institute of Mathematical Sciences. (November 2023)

*Local Laws and a Mesoscopic CLT for beta-ensembles*, AMS Eastern Sectional Meeting Fall 2023, University at Buffalo. (September 2023)

*Topology of Moduli Spaces of Tropical Curves*, Young Mathematicians Conference 2017, Ohio State University. (August 2017; paper accepted, presented by coauthors)

*Pseudorandomness of a Markoff Automorphism over  $F_p$* , Young Mathematicians Conference 2016, Ohio State University. (August 2016)

*Counting 10-Arcs in the Projective Plane over Finite Fields*, Young Mathematicians Conference 2015, Ohio State University. (August 2015)

COURSE  
INSTRUCTOR  
EXPERIENCE

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  
*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*

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
PROFESSIONAL ACTIVITIES			Organizer, Penn/ Temple Probability seminar, AY 2024-2025
			Reviewer, <i>Mathematical Reviews</i> , 2024-present.
			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