

# Curriculum Vitae

## JONATHON PETERSON

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### EDUCATION

**University of Minnesota** Minneapolis, MN 2003–2008  
M.Sc. and Ph.D. in Mathematics  
Thesis advisor: Ofer Zeitouni  
Thesis title: *Limiting Distributions and Large Deviations of Random Walks in Random Environments.*

**Northwestern College** St. Paul, MN 1999–2003  
Bachelor of Science in Mathematics

### EMPLOYMENT

**Purdue University**  
Full Professor 2024–  
Associate Professor 2017–2024  
Assistant Professor 2011–2017

**Cornell University** 2009–2011  
NSF Postdoctoral Fellow and H.C. Wang Assistant Professor

**University of Wisconsin - Madison** 2008–2009  
NSF Postdoctoral Fellow and Van Vleck Assistant Professor

### RESEARCH INTERESTS

**Probability** Random walks in random environments and dynamic random environments, reinforced/excited random walks, interacting particle systems, quantitative central limit theorems, stochastic homogenization

### GRANTS

**Purdue Research Foundation Summer Faculty Grant** 2020  
Award amount: \$8,000

**Purdue Research Foundation Summer Faculty Grant** 2019  
Award amount: \$8,000

**Simons Collaboration Grant** 2019–2024  
*Self-interacting random walks*  
Award amount: \$42,000

**NSA Young Investigators Grant** 2016–2018  
*Random walks in random environments*  
Award amount: \$40,000

<b>NSF Research Experiences for Undergraduates</b>	2016–2018
<i>REU Site: Purdue Research in Mathematics Experience (PRiME)</i>	
Co-PI (PI: Edray Goins)	
Award amount: \$230,982	
<b>NSF Conferences and Workshops in the Mathematical Sciences</b>	2015
<i>Conference in Stochastic Analysis and Related Topics</i>	
PI (Co-PI: Fabrice Baudoin)	
Award amount: \$20,000	
<b>NSA Young Investigators Grant</b>	2015–2017
<i>Self-interacting random walks and particle systems</i>	
Award amount: \$40,000	
<b>Purdue International Travel Grant</b>	2014
Award amount: \$1,000	
<b>NSA Young Investigators Grant</b>	2013–2015
<i>Random walks and particle systems in random environments</i>	
Award amount: \$36,957	

### AWARDS AND FELLOWSHIPS

<b>Undergraduate Advising Award</b>	2023
<i>Purdue University College of Science</i>	
<b>Exceptional Teaching and Instructional Support during the COVID-19 Pandemic</b>	2021
<i>Purdue Teaching Academy and the Office of the Provost.</i>	
<b>Ruth and Joel Spira Faculty Teaching Award</b> Purdue University	2018
<i>Excellence in Graduate Mathematics Teaching</i>	
<b>Teaching For Tomorrow Award</b> Purdue University	2014–2015
<b>NSF Postdoctoral Fellowship</b>	2008–2011
<b>Good Teaching Award</b> University of Minnesota	2008
<b>Doctoral Dissertation Fellowship</b> University of Minnesota	2007–2008
<b>Ordway Fellowship</b> University of Minnesota	2003–2004

### PUBLICATIONS

#### PROCEEDINGS

1. Fabrice Baudoin and Jonathon Peterson, eds. *Stochastic analysis and related topics*. Vol. 72. Progress in Probability. A Festschrift in honor of Rodrigo Bañuelos. Birkhäuser/Springer, Cham, 2017, pp. vii+221

#### REFEREED PUBLICATIONS

1. Jonathon Peterson and Ofer Zeitouni. “Quenched limits for transient, zero speed one-dimensional random walk in random environment”. In: *Ann. Probab.* 37.1 (2009), pp. 143–188. arXiv: 0704.1778
2. Jonathon Peterson. “Quenched limits for transient, ballistic, sub-Gaussian one-dimensional random walk in random environment”. In: *Ann. Inst. Henri Poincaré Probab. Stat.* 45.3 (2009), pp. 685–709. arXiv: 0708.0649
3. Jonathon Peterson and Ofer Zeitouni. “On the annealed large deviation rate function for a multi-dimensional random walk in random environment”. In: *ALEA Lat. Am. J. Probab. Math. Stat.* 6 (2009), pp. 349–368. arXiv: 0812.3619
4. Jonathon Peterson. “Systems of one-dimensional random walks in a common random environment”. In: *Electron. J. Probab.* 15 (2010), no. 32, 1024–1040. arXiv: 0907.3680
5. Jonathon Peterson and Timo Seppäläinen. “Current fluctuations of a system of one-dimensional random walks in random environment”. In: *Ann. Probab.* 38.6 (2010), pp. 2258–2294. arXiv: 0904.4768
6. Jonathon Peterson. “The contact process on the complete graph with random vertex-dependent infection rates”. In: *Stochastic Process. Appl.* 121.3 (2011), pp. 609–629. arXiv: 1005.0810
7. Nina Gantert and Jonathon Peterson. “Maximal displacement for bridges of random walks in a random environment”. In: *Ann. Inst. Henri Poincaré Probab. Stat.* 47.3 (2011), pp. 663–678. arXiv: 0910.4927
8. Jonathon Peterson and Gennady Samorodnitsky. “Weak weak quenched limits for the path-valued processes of hitting times and positions of a transient, one-dimensional random walk in a random environment”. In: *ALEA Lat. Am. J. Probab. Math. Stat.* 9.2 (2012), pp. 531–569. arXiv: 1112.3919
9. Jonathon Peterson. “Large deviations and slowdown asymptotics for one-dimensional excited random walks”. In: *Electron. J. Probab.* 17.48 (2012), pp. 1–24. arXiv: 1201.0318
10. Jonathon Peterson. “Strict monotonicity properties in one-dimensional excited random walks”. In: *Markov Process. Related Fields* 19.4 (2013), pp. 721–734. arXiv: 1210.4518
11. Jonathon Peterson. “A Probabilistic Proof of a Binomial Identity”. In: *Amer. Math. Monthly* 120.6 (2013), pp. 558–562. arXiv: 1606.03545
12. Jonathon Peterson and Gennady Samorodnitsky. “Weak quenched limiting distributions for transient one-dimensional random walk in a random environment”. In: *Ann. Inst. Henri Poincaré Probab. Stat.* 49.3 (2013), pp. 722–752. arXiv: 1011.6366
13. Jonathon Peterson. “Large deviations for random walks in a random environment on a strip”. In: *ALEA Lat. Am. J. Probab. Math. Stat.* 11.1 (2014), pp. 1–41. arXiv: 1302.0888
14. Jonathon Peterson. “Strong transience of one-dimensional random walk in a random environment”. In: *Electron. Commun. Probab.* 20 (2015), no. 67, 1–10. arXiv: 1506.03048
15. Jonathon Peterson. “Extreme slowdowns for one-dimensional excited random walks”. In: *Stochastic Process. Appl.* 125.2 (2015), pp. 458–481. arXiv: 1312.4983

16. Sung Won Ahn and Jonathon Peterson. “Oscillations of quenched slowdown asymptotics for ballistic one-dimensional random walk in a random environment”. In: *Electron. J. Probab.* 21 (2016), pp. 1–27. arXiv: 1509.00445
17. Elena Kosygina and Jonathon Peterson. “Functional limit laws for recurrent excited random walks with periodic cookie stacks”. In: *Electron. J. Probab.* 21 (2016), pp. 1–24. arXiv: 1604.03153
18. Elena Kosygina and Jonathon Peterson. “Excited random walks with Markovian cookie stacks”. In: *Ann. Inst. H. Poincaré Probab. Statist.* 53.3 (2017), pp. 1458–1497. arXiv: 1504.06280
19. Milton Jara and Jonathon Peterson. “Hydrodynamic limit for a system of independent, sub-ballistic random walks in a common random environment”. In: *Ann. Inst. Henri Poincaré Probab. Stat.* 53.4 (2017), pp. 1747–1792. arXiv: 1410.4832
20. Burgess Davis and Jonathon Peterson. “Excited random walks with non-nearest neighbor steps”. In: *J. Theoret. Probab.* 30.4 (2017), pp. 1255–1284. arXiv: 1504.05124
21. Erin Madden, Brian Kidd, Owen Levin, Jonathon Peterson, Jacob Smith, and Kevin M. Stangl. “Upper and lower bounds on the speed of a one-dimensional excited random walk”. In: *Involve* 12.1 (2019), pp. 97–115. arXiv: 1707.02969
22. Xiaoqin Guo and Jonathon Peterson. “Berry-Esseen estimates for regenerative processes under weak moment assumptions”. In: *Stochastic Processes and their Applications* 129.4 (2019), pp. 1379–1412. arXiv: 1708.07162
23. Sung Won Ahn and Jonathon Peterson. “Quenched central limit theorem rates of convergence for one-dimensional random walks in random environments”. In: *Bernoulli* 25.2 (2019), pp. 1386–1411. arXiv: 1704.03020
24. Elena Kosygina, Thomas Mountford, and Jonathon Peterson. “Convergence of random walks with Markovian cookie stacks to Brownian motion perturbed at extrema”. In: *Probab. Theory Related Fields* 182.1-2 (2022), pp. 189–275. arXiv: 2008.06766
25. Otávio Menezes, Jonathon Peterson, and Yongjia Xie. “Variable speed symmetric random walk driven by the simple symmetric exclusion process”. In: *Electron. J. Probab.* 27 (2022), Paper No. 6, 14. arXiv: 2107.08235
26. Sung Won Ahn and Jonathon Peterson. “Optimal rates of convergence for quenched central limit theorem rates of one-dimensional random walks in random environments”. In: *Markov Process. Related Fields* 28.2 (Jan. 2022), pp. 215–244. arXiv: 2001.11522
27. Xiaoqin Guo, Jonathon Peterson, and Hung V. Tran. “Quantitative homogenization in a balanced random environment”. In: *Electron. J. Probab.* 27 (2022), Paper No. 132, 31. arXiv: 1903.12151
28. Elena Kosygina, Thomas Mountford, and Jonathon Peterson. “Convergence and nonconvergence of scaled self-interacting random walks to Brownian motion perturbed at extrema”. In: *Ann. Probab.* 51.5 (2023), pp. 1684–1728. arXiv: 2208.02589

29. Conrado da Costa, Jonathon Peterson, and Yongjia Xie. “Limiting distributions for RWCRE in the sub-ballistic regime and in the critical Gaussian regime”. In: *Electron. J. Probab.* 29 (2024), Paper No. 159, 38
30. Vickie Chen, Charles T. Drucker, Claire Love, Jonathon Peterson, and Joseph D. Peterson. “Analytic solution for the linear rheology of living polymers”. In: *J. Non-Newton. Fluid Mech.* 334 (2024), Paper No. 105343, 6

## IN PRESS

31. Luca Avena, Conrado da Costa, and Jonathon Peterson. *Gaussian, stable, tempered stable and mixed limit laws for random walks in cooling random environments*. To appear in *Ann. Inst. Henri Poincaré Probab. Stat.* Aug. 2021. arXiv: 2108.08396v1 [math.PR]

## SUBMITTED

32. Elena Kosygina and Jonathon Peterson. *Convergence of rescaled “true” self-avoiding walks to the Tóth-Werner “true” self-repelling motion*. 2025. arXiv: 2502.10960 [math.PR]

ADVISING AND RESEARCH SUPERVISION

## GRADUATE STUDENTS

**Current Students**

1. Julia Garner (expected PhD, 2026)
2. Patrick Carper (expected PhD, 2027)

**Previous Students**

1. Daniel Slonim Purdue University, May 2022  
Thesis: *Random walks in Dirichlet environments with bounded jumps*.  
Position after graduating: University of Virginia, Whyburn Research Associate and Lecturer
2. Yongjia Xie Purdue University, May 2022  
Thesis: *Limiting distributions and deviation estimates of random walks in dynamic random environments*.  
Position after graduating: Huawei (industry)
3. Zachary Letterhos Purdue University, August 2021  
Thesis: *Self-Interacting Random Walks and Related Branching-Like Processes*.  
Position after graduating: Wake Forest University, Visiting Assistant Professor
4. Sung Won Ahn Purdue University, August 2016  
Thesis: *Oscillation of quenched slowdown asymptotics of random walks in random environments in  $\mathbb{Z}$* .  
Position after graduating: Roosevelt University, Assistant Professor

## UNDERGRADUATE RESEARCH SUPERVISION

**Xiaoyu Liu** Purdue Univ. 2024–2025

*Speed of the maximal particle of a branching random walk in a random environment*

Presented at the 2025 Purdue Undergraduate Research Symposium

**Xiaoyu Liu** Purdue Univ. 2023–2024

*Scaling Limit of Asymptotically-free Self-interacting Random Walks to Brownian Motion Perturbed at Extrema*

Written jointly with Zhe Wang who was a postdoc at EPFL.

Preprint available at <https://arxiv.org/abs/2402.11828>

Presented at the 2024 Purdue Undergraduate Research Symposium

Presented poster at the 2025 Seminar on Stochastic Processes (Indiana University)

**Lei Fu, Xiaoyu Liu** Purdue Univ. 2022–2023

*Testing convergence in distribution for polynomially self-repelling random walks*

**Zijie Zhou** Purdue Univ. 2018–2020

*Best strategy for each team in the regular season to win championship in the knockout tournament.*

SIAM Undergraduate Research Online, Vol 13, pp. 231-257, 2020.

Presented research at the Spring 2019 MAA Indiana Section Meeting, and the 2019 Purdue Undergraduate Research Poster Symposium

**Purdue Research in Mathematics Experience (PRIME)** NSF funded REU

Summer 2017 (Project 1)

Mike Cinkoske (Purdue), Joe Jackson (Swarthmore College), Claire Plunkett (Case Western Reserve)

*On the speed of an excited asymmetric random walk.*

Rose Hulman Undergraduate Mathematics Journal, Vol 19, no. 1, 2018.

Presented at 2017 Indiana Undergraduate Math Research Conference, 2017 Mathfest, and 2018 Joint Mathematics Meetings.

Summer 2017 (Project 2)

Jacob Menix (Western Kentucky), Paige Schoonover (Tennessee)

*Statistical tests for convergence of some random walks to perturbed Brownian motion*

Presented at 2017 Indiana Undergraduate Math Research Conference and 2017 Mathfest.

Summer 2016

Erin Bossen (Eastern Illinois), Brian Kidd (Purdue), Owen Levin (Minnesota), Jacob Smith (Franklin College), Kevin Stangl (UCLA)

*Upper and lower bounds on the speed of a one-dimensional excited random walk.*

(joint paper with Jonathon Peterson), Involve, Vol 12, no. 1, 2019.

Presented at the 2016 Indiana Undergraduate Math Research Conference and the 2016 Emory University STEM Research and Career Symposium.

Poster presentation at 2107 Joint Mathematics Meetings – “Outstanding Presentation” award.

**Peter Boyd, Brian Kidd, Weston Phillips, Christopher Vincent** Purdue Univ. 2015–2016

*Reaching the NFL playoffs based on week one results: a statistical and probabilistic analysis.*

Rose-Hulman Undergraduate Mathematics Journal, Vol 20, no. 1, 2019.

- Presented at the Purdue Undergraduate Research Poster Symposium (2016)
- Cole Manschot** Purdue University 2015–2016  
*Modifications of the Colley Matrix ranking method* (honors thesis)
- Jingdan Liu** Purdue University 2012  
*The joint density of the determinant and trace of a random  $2 \times 2$  matrix.*  
 Presented at the Purdue Undergraduate Research Poster Symposium (2013)
- Lirong Yuan** Purdue University 2012  
*Roots of polynomials with random integer coefficients.*  
 Presented at an Indiana MAA Section meeting  
 Presented at the Rose-Hulman Undergraduate Math Conference  
 (best presentation award finalist)
- João Machado** Cornell University 2009–2010  
*Non-transitivity in probabilistic models for ranking sports teams.*  
 Presented at a Seaway Section MAA meeting.

## PROFESSIONAL ACTIVITIES

### Math Department Service

- Math Department Calculus Committee (chair) 2024–  
 Math Department Hiring Committee 2024–2025  
 Math Department Personnel Committee 2023–2024  
 Professor of Practice Hiring Search Committee 2022–2023  
 Undergraduate Research Committee 2020–2024  
*Committee chair - 2020–2023*  
 Math Scholarship Committee 2020–2024  
 Undergraduate Math Club Co-advisor 2018–  
 Math Department Computer Committee 2013–2019, 2020–2024  
*Committee chair - Spring 2015, Fall 2017–Spring 2019*  
 Professor of Practice Hiring Search Committee 2019–2020

### College/University Service

- Data Science Cluster Hire Search Committee 2018–2019  
 Statistics Department Search Committee 2015–2016  
*Search committee member for tenure track position in Probability*  
 IT Operational Oversight Committee 2015–2017

### Non-university Service

- AMS-Simons Travel Grants Committee 2024–2027

### Minicourses

- IMPA (Rio de Janeiro) Summer School January 15–25, 2013  
*Random Walks in Random Environment* (5 lectures)

**Conferences**

Invited Session - IMS Annual Meeting (London)	June 2022
<i>Organizer:</i> Random walks in static and dynamic random environments	
Special Session - AMS Central Section Meeting (Purdue)	April 2020
<i>Co-organizer:</i> Stochastic Processes in Random Environments	
Meeting was cancelled due to COVID-19	
Midwest Probability Colloquium	October 2019
<i>Scientific committee</i>	
Special Session - AMS Central Section Meeting (North Dakota State)	April 2016
<i>Co-organizer:</i> Discrete Probability	
MAA Contributed Papers Session - Joint Math Meetings	January 2016
<i>Co-organizer:</i> Experiences and Innovations in Teaching Probability Theory	
Stochastic Analysis and Related Topics (Purdue University)	May 2015
<i>Co-organizer</i>	
Midwest Probability Colloquium	October 2014
<i>Scientific committee</i>	
Special Session - AMS Central Section Meeting (Iowa State University)	April 2013
<i>Co-organizer:</i> Stochastic Processes with Applications to Physics and Control	
Random environments conference (Cornell University)	May 2011
<i>Co-organizer</i>	

**Seminars organized**

Purdue Probability Seminar	Fall 2012 – Fall 2015
Cornell Probability Seminar	Fall 2010 – Spring 2011
University of Minnesota Jr. Colloquium	Fall 2006 – Spring 2007

**Editorial board**

Involve	2018–
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**Journals refereed for**

ALEA - Latin American Journal of Probability and Mathematical Statistics  
 American Mathematical Monthly  
 Annales de l'Institut Henri Poincaré, Probabilités et Statistiques  
 Annals of Applied Probability  
 Annals of Probability  
 Ars Combinatoria  
 Bernoulli  
 Electronic Communications in Probability  
 Electronic Journal of Probability  
 The Fibonacci Quarterly  
 Indian Journal of Mathematics  
 Journal of Applied Probability  
 Journal of Statistical Physics  
 Journal of Theoretical Probability  
 La Matematica  
 Nonlinearity

Neurocomputing  
 Physica A: Statistical Mechanics and its Applications  
 Probability Theory and Related Fields  
 Proceedings of the American Mathematical Society  
 Stochastic Processes and their Applications

**External reviewing activities**

UK EPSRC Open Postdoc Fellowship	2023
European Research Council “ERC Starting Grant - 2015”	2015
PhD thesis of Thomas Kochler, Technische Universität München	2012
CUNY faculty research grants	2010

**Community Outreach**

Judge for Lafayette Science Fair	2018
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PRESENTATIONS

## PROBABILITY/DEPARTMENT SEMINAR PRESENTATIONS

<b>University of Cincinnati</b>	November 2024
<i>Generalized Ray-Knight theorems, and convergence and non-convergence of self-interacting random walks</i>	
<b>Purdue University</b>	September 2024
<i>Scaling limit for the path of the one-dimensional “true” self-avoiding random walk</i>	
<b>CUNY</b>	March 2023
<i>Gaussian, stable, and tempered stable limiting distributions for random walks in cooling random environments</i>	
<b>Purdue University</b>	January 2023
<i>Limiting distributions for random walks in cooling random environments in the borderline CLT regime</i>	
<b>Durham University</b> (Zoom seminar)	February 2022
<i>Generalized Ray-Knight Theorems and scaling limits of self-interacting random walks</i>	
<b>University of Cincinnati</b>	November 2021
<i>Gaussian, stable, and tempered stable limiting distributions for random walks in cooling random environments</i>	
<b>Temple University</b>	October 2021
<i>Gaussian, stable, and tempered stable limiting distributions for random walks in cooling random environments</i>	
<b>Purdue University</b>	February 2021
<i>Limiting distributions for random walks in cooling random environments - the ballistic, stable regime</i>	
<b>University of Illinois</b>	October 2020
<i>Quantitative quenched CLTs for one-dimensional random walks in random environments</i>	

- Purdue University** January 2020  
*Convergence of excited random walks on Markovian cookie stacks to Brownian motion perturbed at extrema*
- University of Bristol** November 2019  
*Convergence of excited random walks on Markovian cookie stacks to Brownian motion perturbed at extrema*
- University of Bath** November 2019  
*Quantitative CLT for random walks in balanced random environments*
- University of Sussex** October 2019  
*Quantitative stochastic homogenization for difference equations in balanced random environments*
- Leiden University** September 2019  
*Quantitative CLTs for random walks in random environments*
- University of Wisconsin** February 2019  
*Functional Limit Laws for Recurrent Excited Random Walks*
- Duke University** February 2018  
*Quantitative CLTs for random walks in random environments*
- University of Wisconsin** February 2018  
*Quantitative CLTs for random walks in random environments*
- Purdue** November 2017  
*Quantitative CLTs for random walks in random environments*
- Iowa State University** February 2017  
*Oscillations of quenched slowdown asymptotics for ballistic one-dimensional random walk in a random environment*
- CUNY** November 2016  
*Oscillations of quenched slowdown asymptotics for ballistic one-dimensional random walk in a random environment*
- University of Virginia** November 2015  
*Oscillations of quenched slowdown asymptotics for ballistic one-dimensional random walk in a random environment*
- University of North Carolina** October 2014  
*Hydrodynamic limits for directed traps and systems of independent RWRE*
- University of Wisconsin** September 2014  
*Hydrodynamic limits for directed traps and systems of independent RWRE*
- Technical University of Munich** May 2014  
*Extreme slowdowns for excited random walks*

- NYU - Courant Institute** May 2014  
*Excited random walks with bounded jumps*
- Ohio State University** March 2014  
*Extreme slowdowns for excited random walks*
- Indiana University** February 2014  
*Extreme slowdowns for excited random walks*
- CUNY** February 2014  
*Extreme slowdowns for excited random walks*
- Purdue** January 2014  
*Extreme slowdowns for excited random walks*
- Purdue** August 2013  
*Hydrodynamic limits for directed traps and systems of independent RWRE*
- University of Maryland, College Park** March 2013  
*Large deviations for random walks in a random environment on a strip*
- Purdue** February 2013  
*Large deviations for random walks in a random environment on a strip*
- IMPA (Rio de Janeiro)** January 2013  
*Large deviations for random walks in a random environment on a strip*
- University of Connecticut** November 2012  
*Large deviations for random walks in a random environment on a strip*
- University of Virginia** September 2012  
*Large deviations for random walks in a random environment on a strip*
- Purdue University** September 2012  
*Large deviations and slowdown asymptotics of excited random walks*
- Iowa State University** Department Colloquium March 2012  
*Traps, slowdowns, and bridges of one-dimensional random walks in a random environment*
- Iowa State University** March 2012  
*Large deviations and slowdown asymptotics of excited random walks*
- University of Illinois** March 2012  
*Large deviations and slowdown asymptotics of excited random walks*
- University of Chicago** December 2011  
*The contact process on the complete graph with random, vertex-dependent, infection rates*
- Columbia University** October 2011  
*Weak quenched limiting distributions for one-dimensional random walks in random environments.*

- Purdue University** August 2011  
*The contact process on the complete graph with random, vertex-dependent, infection rates*
- Purdue University** January 2011  
*Limiting distributions for a one-dimensional RWRE*
- Lehigh University** Department Colloquium January 2011  
*Limiting distributions for a one-dimensional RWRE*
- University of Oregon** Department Colloquium January 2011  
*Limiting distributions for a one-dimensional RWRE*
- Wayne State university** Department Colloquium January 2011  
*Limiting distributions for a one-dimensional RWRE*
- University of Illinois at Chicago** Department Colloquium January 2011  
*Limiting distributions for a one-dimensional RWRE*
- University of Virginia** September 2010  
*Weak quenched limiting distributions for one-dimensional RWRE*
- Cornell University** September 2010  
*Weak quenched limiting distributions for one-dimensional RWRE*
- Johns Hopkins** Department of Applied Mathematics Colloquium April 2010  
*Traps, slowdowns, and bridges of RWRE*
- University of Rochester** March 2010  
*Bridges of RWRE*
- Cornell University** March 2010  
*Current fluctuations for a system of RWRE.*
- University of Wisconsin - Madison** February 2010  
*Bridges of RWRE.*
- Cornell University** September 2009  
*Bridges of RWRE.*
- University of Wisconsin - Madison** April 2009  
*Current fluctuations for a system of RWRE.*
- University of Minnesota** October 2008  
*Properties of the averaged large deviation rate function for multidimensional RWRE.*
- University of Wisconsin - Madison** September 2008  
*Properties of the averaged large deviation rate function for multidimensional RWRE.*
- Hebrew University - Jerusalem, Israel** April 2008  
*Quenched limiting distributions of a one-dimensional RWRE.*
- Weizmann Institute of Science - Rehovot, Israel** April 2008  
*Quenched limiting distributions of a one-dimensional RWRE.*

- Cornell University** February 2008  
*Quenched limiting distributions of a one-dimensional RWRE.*
- University of Utah** January 2008  
*Quenched limiting distributions of a one-dimensional RWRE.*
- Iowa State University** November 2007  
*Quenched limiting distributions of a one-dimensional RWRE.*
- Technion University - Haifa, Israel** June 2007  
*Quenched limiting distributions of a one-dimensional RWRE.*
- University of Minnesota** February 2007  
*Quenched limiting distributions of a zero-speed one-dimensional RWRE.*

## CONFERENCE PRESENTATIONS - INVITED

- Centre de Recherches Mathématiques** April 2024  
 Random Walks: Interacting, Branching, and more  
*Generalized Ray-Knight Theorems and convergence and non-convergence of self-interacting random walks*
- Southeast Probability Conference** August 2023  
 University of Virginia  
*Generalized Ray-Knight theorems and scaling limits of self-interacting random walks*
- Random Walks in Bath** June 2023  
 University of Bath  
*Generalized Ray-Knight theorems and scaling limits of self-interacting random walks*
- AMS Central Section Meeting** Special Session: Growth Models, April 2023  
 Random Media, and Limit Theorems  
*Gaussian, stable, and tempered stable limiting distributions for random walks in cooling random environments*
- Lorentz Center, Leiden University** December 2023  
 The Lorentz Gas  
*Gaussian, stable, and tempered stable limiting distributions for random walks in cooling random environments*
- Courant Institute** October 2023  
 Random Media and Large Deviations (conference in honor of Ofer Zeitouni's 60th birthday)  
*Generalized Ray-Knight theorems and scaling limits of self-interacting random walks*
- Texas A&M University** August 2018  
 Random Walks in Correlated and Dynamic Environments  
*Quantitative CLTs for random walks in random environments*
- Joint AMS-CMS Meeting - Shanghai** Special Session: Probability June 2018  
*Quantitative CLTs for random walks in random environments*

- AMS Central Section Meeting** Special Session: Self-similarity and Long-range Dependence in Stochastic Processes April 2017  
*Functional limit laws for recurrent excited random walks*
- Northwestern University** May 2016  
Workshop on percolation, spin glasses, and random media  
*Oscillations of quenched slowdown asymptotics for ballistic one-dimensional random walk in a random environment*
- Canadian Mathematical Society Winter Meeting** December 2015  
Special Session: Probability and Statistical Mechanics  
*Excited random walks in cookie environments with Markovian cookie stacks*
- EURANDOM - TU Eindhoven** April 2015  
Workshop on Random Motion in Random Media  
*Hydrodynamic limits for directed traps and systems of independent RWRE*
- AMS Central Section Meeting** Special Session: Discrete Stochastic Models March 2015  
*Hydrodynamic limits for directed traps and systems of independent RWRE*
- AMS Central Section Meeting** April 2013  
Special Session: Stochastic Processes with Applications to Physics and Control  
*Large deviations for random walks in a random environment on a strip*
- MSRI** Random Walks and Random Media May 2012  
*Large deviations and slowdown asymptotics of excited random walks*
- Fields Institute** Interacting Processes in Random Environments February 2011  
*Weak quenched limiting distributions for one-dimensional RWRE.*
- University of British Columbia** Random Walks in Random Environments June 2009  
*Current fluctuations for a system of RWRE.*
- Centre de Recherches Mathématiques** Interacting Particle Systems May 2009  
*Current fluctuations for a system of RWRE.*
- Mittag Leffler Institute** Program on Discrete Probability January 2009  
*Quenched limiting distributions of a one-dimensional RWRE.*
- MFO - Oberwolfach, Germany** Non-classical Interacting Random Walks May 2007  
*Quenched limiting distributions of a zero-speed one-dimensional RWRE.*

## CONFERENCE PRESENTATIONS - CONTRIBUTED TALKS

- Seminar on Stochastic Processes** Indiana University March 2025  
Lightning Talk: *Generalized Ray-Knight Theorems and Scaling Limits of Self-interacting Random Walks*
- Joint Mathematics Meetings** January 2016  
Contributed paper session: *Experiences and innovations in teaching probability theory*  
*Developing an undergraduate stochastic processes course.*

- Stochastic Processes and their Applications** July 2015  
*Excited random walks in cookie environments with Markovian cookie stacks*
- Stochastic Processes and their Applications** July 2014  
*Extreme slowdowns for excited random walks*
- Stochastic Processes and their Applications** July 2013  
*Large deviations for random walks in a random environment on a strip*
- Joint Mathematics Meetings** January 2011  
*Bridges of random walks in a random environment.*
- Northeast Probability Seminar** Columbia University November 2010  
*Bridges of RWRE.*
- Graduate Student Probability Conference** University of Wisconsin May 2008  
*Properties of the averaged large deviation rate function for multidimensional RWRE.*
- Joint Mathematics Meetings** January 2008  
*Quenched limiting distributions of a one-dimensional RWRE.*
- Stochastic Processes and their Applications** August 2007  
*Quenched limiting distributions of a one-dimensional RWRE.*
- Graduate Student Probability Conference** University of Wisconsin April 2007  
*Quenched limiting distributions of a zero-speed one-dimensional RWRE.*

## OTHER PRESENTATIONS – UNDERGRADUATE / HIGH SCHOOL STUDENTS OR GENERAL PUBLIC

- Purdue University** Math Club March 2025  
*Non-classical Random Walks: Simple models, surprising results, and (embarrassing) open problems*
- Purdue University** Math Club March 2022  
*Linear Algebra and the Ranking of Sports Teams*
- Purdue University** Math Club October 2018  
*Linear Algebra and the Ranking of Sports Teams*
- MA 10800: Mathematics as a Profession and Discipline** Guest lecture  
*Probability theory: Fun with randomness*
- Science on Tap** General public lecture at the Lafayette Brewing Company August 2016  
*Non-classical interacting drunkard walks*
- Huntington University** Gerald D Smith Lecture Series in the Natural and Mathematical Sciences May 2015  
*My life as a “professional mathematician”*
- Purdue University** Math Club April 2015  
*Non-classical random walks - simple models, surprising results and (embarrassing) open problems.*

- Purdue University** Math Club March 2014  
*The mathematics of ranking sports teams*
- St. John Fisher College** Math Awareness Month Presentation April 2010  
*Linear algebra and the BCS*
- University of Wisconsin - La Crosse** MAA Wisconsin Section Meeting April 2009  
*Nonclassical random walks: Simple models, surprising results, and (embarrassing) open problems.*
- Central Wisconsin Math League** Awards banquet guest speaker May 2009  
*What is a professional mathematician?*
- University of Minnesota** Jr. Colloquium October 2005  
*A Random Walk Through Electrical Engineering.*

## TEACHING PRESENTATIONS

- Cornell University** Teaching Seminar March 2010  
*Teaching with Tablet PCs and Video Lecture Capture Technology.*

TEACHING EXPERIENCE

- Assistant/Associate Professor** Purdue University 2011–

**Undergraduate courses**

- Calculus I (MA 161)  
*Course coordinator: Fall 2020, Spring 2021*
- Calculus I (MA 165)
- Calculus III (MA 261)
- Linear Algebra (MA 265)
- An Introduction to Proof Through Real Analysis (MA 301)
- Elementary Linear Algebra I (MA 351)
- Linear Algebra II with Applications (MA 353)
- Probability (MA 416)
- Elementary Stochastic Processes (MA 490/432)

**Graduate courses**

- Elements of Stochastic Processes (MA 532)
- Introduction to Probability (MA 519)
- Probability Theory I & II (MA 538 and 539)
- Real Analysis and Measure Theory (MA 544)
- Random Walks in Random Environments (MA 598 - topics course)
- Large Deviations (MA 598 - topics course)

- Visiting Assistant Professor** Cornell University 2009–2010
- Calculus III
- Basic Probability
- Random Walks in Random Environments (graduate level)

**Visiting Assistant Professor** University of Wisconsin - Madison  
Introduction to Probability Theory

2008

PROFESSIONAL SOCIETIES

American Mathematical Society (AMS)

Institute of Mathematical Statistics (IMS)