

Hao Shen

Mathematics Department, University of Wisconsin-Madison
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ACADEMIC POSITIONS

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|-----------------|--|
| 2018.8 - Now | Assistant Professor, University of Wisconsin - Madison |
| 2015.8 - 2018.7 | Ritt Assistant Professor and Minerva Fellow,
Columbia University, Mentor: Ivan Corwin |
| 2014.8 - 2015.7 | Research Associate, University of Warwick, Mentor: Martin Hairer |
| 2013.8 - 2014.7 | Research Associate, Princeton University, Mentor: Weinan E |

EDUCATION

- May 2013 PhD. Princeton University.
- June 2008 BSc. and MSc. Peking University.

RESEARCH INTERESTS

Stochastic PDE, probability, stochastic analysis, mathematical physics, quantum field theory, statistical mechanics, interacting particle systems.

PUBLICATIONS AND PREPRINTS

1. H. Shen, R. Zhu and X. Zhu, Large N limit and $1/N$ expansion of invariant observables in $O(N)$ linear σ -model via SPDE. *arXiv:2306.05166*
2. I. Chevyrev and H. Shen, Invariant measure and universality of the 2D Yang–Mills Langevin dynamic. *arXiv:2302.12160* (193 pages)
3. H. Shen, R. Zhu and X. Zhu, A stochastic analysis approach to lattice Yang–Mills at strong coupling. *Comm. Math. Phys.* 400, 805–851 (2023).
4. A stochastic PDE approach to large N problems in quantum field theory: a survey. *J. Math. Phys.* 2022, 63(8): 081103.
5. H. Shen, S. Smith and R. Zhu, A new derivation of the finite N master loop equation for lattice Yang–Mills, *arXiv:2202.00880*, submitted.
6. A. Chandra, I. Chevyrev, M. Hairer and H. Shen, Stochastic quantisation of Yang–Mills–Higgs in 3D, *arXiv:2201.03487*, submitted. (151 pages)
7. H. Shen, R. Zhu and X. Zhu, An SPDE approach to perturbation theory of Φ_2^4 : asymptoticity and short distance behavior, *Ann. App. Probab.* 2022.
8. H. Shen, R. Zhu and X. Zhu, Large N limit of the $O(N)$ linear sigma model in 3D, *Comm. Math. Phys.* **394**, 953–1009 (2022)
9. A. Chandra, I. Chevyrev, M. Hairer and H. Shen, Langevin dynamic for the 2D Yang–Mills measure, *Publ. Math. IHÉS.* 2022, 1–147.
10. H. Shen, S. Smith, R. Zhu and X. Zhu, Large N limit of the linear sigma model via stochastic quantization, *Ann. Probab.* 2022, 50(1): 131–202.
11. H. Shen, J. Song, R. Sun and L. Xu, Scaling limit of a directed polymer among a Poisson field of independent walks, *J. Funct. Anal.* 2021, 281(5): 109066.
12. Julien Dubédat and H. Shen, Stochastic Ricci flow on compact surfaces, *Int. Math. Res. Not.* 2022, 63(8): 081103.
13. I. Corwin and H. Shen, Some recent progress in singular stochastic partial differential equations, *Bulletin of the American Mathematical Society* 57.3 (2020): 409–454.

14. A. Chandra, D. Erhard and H. Shen, Local solution to the multi-layer KPZ equation, *J. Stat. Phys.* **175** (2019), no. 6, 1080-1106.
15. A. Chandra, M. Hairer and H. Shen, The dynamical sine-Gordon model in the full subcritical regime, arXiv:1808.02594.
16. H. Shen and L.-C. Tsai, Stochastic Telegraph equation limit for the stochastic six vertex model, *Proc. Amer. Math. Soc.* 147 (2019), 2685-2705
17. I. Corwin, P. Ghosal, H. Shen and L.-C. Tsai, Stochastic PDE limit of the six vertex model, *Comm. Math. Phys.* (2020): 1-94.
18. H. Shen, Stochastic quantization of an Abelian gauge theory, *Comm. Math. Phys.* (2021) 384(3), 1445-1512
19. I. Corwin and H. Shen, Open ASEP in the weakly asymmetric regime, *Comm. Pure Appl. Math.* 71, no. 10 (2018): 2065-2128.
20. H. Shen and H. Weber, Glauber dynamics of 2D Kac-Blume-Capel model and their stochastic PDE limits, *J. Funct. Anal. Vol 275, Issue 6, (2018), 1321-1367*
21. A. Chandra and H. Shen, Moment bounds for SPDEs with non-Gaussian fields and application to the Wong-Zakai problem, *Electron. J. Probab. Vol 22 (2017), paper no. 68.*
22. I. Corwin, H. Shen and L.-C. Tsai, ASEP(q,j) converges to the KPZ equation, *Ann. Inst. Henri Poincaré (B) Probab. Stat. (2018), 54, No. 2, 995-1012.*
23. H. Shen and W. Xu, Weak universality of dynamical Φ_3^4 : non-Gaussian noise, *Stoch PDE: Anal Comp (2017).*
24. M. Hairer and H. Shen, A central limit theorem for the KPZ equation, *Ann. Probab.* **45** (2017), no. 6B, 4167-4221.
25. M. Hairer and H. Shen, The dynamical sine-Gordon model, *Comm. Math. Phys.* **341** (2016), no. 3, 933-989
26. I. Corwin, T. Seppäläinen and H. Shen, The strict-weak lattice polymer, *J. Stat. Phys.* **160** (2015), no. 4, 1027-1053
27. W. E and H. Shen, Exact renormalization group analysis of turbulent transport by the shear flow, *J. Stat. Phys.* **153** (2013), no. 4, 553-571
28. W. E and H. Shen, Mean field limit of a dynamical model of polymer systems, *Sci. China Math.* **56** (2013), no. 12, 2591-2598
29. H. Shen, A renormalization group method by harmonic extensions and the classical dipole gas, *Ann. Henri Poincaré* **17** (2016), no. 4, 861-911
30. W. E, A. Jentzen and H. Shen, Renormalized powers of Ornstein-Uhlenbeck processes and well-posedness of stochastic Ginzburg-Landau equations, *Nonlinear Anal.* **142** (2016), 152-193

GRANTS, AWARDS, HONORS

- NSF CAREER, DMS-2044415 (2021-2026);
- NSF DMS-1954091 (2020-2023);
- UW-Madison Fall competition award (2019; withdrawn upon receiving NSF)
- “Editors’ pick from the Annals of Probability”, 2018 IMS Annual Meeting at Vilnius;
- NSF DMS-1804339 (Conference Grant, Co-PI, 2018-2019);
- NSF DMS-1712684 (2017-2020, changed to DMS-1909525 when PI moved to Madison);
- Axioms Travel Awards (2017);
- AMS Simons Travel Grant (2016 - 2018);
- Columbia University Minerva Foundation Fellowship (2015 - 2019);

- Princeton University Centennial Fellowship (2008 - 2012).

LECTURE NOTES, WORKSHOP REPORTS

1. H. Shen, Lecture notes for course “Topics in Stochastic PDE” taught at Columbia University and University of Wisconsin-Madison (in progress)
2. H. Shen, *SPDEs with three types of multiplicative noises*, Oberwolfach workshop report “Rough Paths, Regularity Structures and Related Topics” (2016), no. 24, 65-66.
3. H. Shen, *A dynamical approach to lattice Yang-Mills*, Oberwolfach workshop report “Universality: Random Matrices, Random Geometry and SPDEs” (2022),

THESES

- *PhD Thesis: Renormalization Theory in Statistical Physics and Stochastic Analysis*

Committee: Michael Aizenman & Weinan E (Supervisor) & Thomas Spencer

Description: This thesis consists of: (1) a rigorous renormalization group method based on harmonic extensions; (2) well-posedness of a class of stochastic Ginzburg-Landau equations; (3) rigorous renormalization group study of turbulent transport by the shear flow.

TEACHING EXPERIENCE (INCLUDING UPCOMING COURSES)

Wisconsin - Madison:

Spring	2023	Topics on SPDE (Math 833),
Fall	2022	Stochastic Analysis (Math 735),
Spring	2022	An Introduction to Brownian Motion and Stochastic Calculus (Math 635)
Fall	2021	Calculus and Analytic Geometry II (Math 222, two sections)
Spring	2021	Introduction to the Theory of Probability (Math 431),
Fall	2020	Stochastic Analysis (Math 735),
Spring	2020	Topics on SPDE (Math 833),
Spring	2020	An Introduction to Brownian Motion and Stochastic Calculus (Math 635),
Spring	2019	Introduction to the Theory of Probability (Math 431),
Fall	2018	Stochastic Analysis (Math 735),

Math 990 Reading and Research (Independent Study) Fall 2019-2020, Fall 2020-2021

Math 699 Directed Study (Independent Study) Summer 2020

Columbia University:

Spring	2018	Calculus IV (Two sections),
Fall	2017	Calculus IV,
Spring	2017	Topics in Stochastic PDE,
Fall	2016	Calculus IV (Two sections),
Summer	2016	Ordinary Differential Equations (temporary instructor),
Spring	2016	Calculus IV,
Fall	2015	Calculus I (Two sections),

LECTURES AND MINI-COURSES

- 2016: 7/25-8/05, Peking University, 2-week summer course on stochastic PDEs and regularity structures
- 2017: Spring term, Columbia University, One semester topics course on Stochastic PDE

- 2018: 7/16-7/20, Chinese Academy of Sciences, Supplementary lectures for Martin Hairer’s course on the theory of regularity structures.
- 2018: 7/30-8/03, Chinese Academy of Sciences, Mini-lectures on Stochastic PDE in “The International Program on Regularity Structures and Stochastic Systems”
- 2020: Spring term, University of Wisconsin-Madison, One semester topics course on SPDE
- 2020 Aug, Chinese Academy of Sciences - Beijing Institute of Technology joint SPDE summer school, One-week summer course “*Quantum field theory and stochastic PDE*”
- 2020: 11/5-11/6, Two mini-lectures on “*Stochastic Quantization*” for “Quantization Days” organized by E.Peltola and Y.Wang
- 2020 Dec, Shandong University, Online lectures on “*Quantum field theory and stochastic PDE*”
- 2022: 6/21-6/23, Imperial College London, three lectures on “*A dynamical approach to lattice Yang–Mills*”
- 2024 Summer, MSRI summer graduate school lectures on “Stochastic Quantisation”.

CONFERENCE AND WORKSHOP TALKS

1. Oberwolfach Workshop “Statistical Physics and Random Surfaces”, Germany. 5/12-5/17/2024
2. Conference “Frontiers of Stochastic Analysis”, Chicago. *Tutorial talk (2 lectures)*. 8/9–8/11/2023
3. PKU Mathematics Forum, Beijing. 8/2–8/5/2023
4. 43rd Conference on Stochastic Processes and their Applications (SPA), Lisbon, Portugal.
Title: Stochastic quantization of gauge theories. 7/24–7/28/2023
5. “Stochastic analysis meets QFT - critical theory”, Muenster, Germany. 6/12–6/14/2023
6. 13th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Session “Stochastic modeling in biological, physical and social sciences: theory and applications”,
Title: “Lattice Yang–Mills and SPDE limit in 2D”. North Carolina Wilmington. 5/31-6/4/2023
7. BIRS Workshop “Random Growth Models and KPZ Universality”, Banff, Canada 5/28-6/2/2023
8. BIRS Conference “New Trends in Stochastic Analysis”, Casa Matematica, Oaxaca, Mexico
Title: TBA. 5/21-5/26/2023
9. Stochastic PDEs and Related Topics, Brin Center, Maryland,
Title: Stochastic Yang-Mills process in 2D and 3D. 11/14-11/16/2022
10. Oberwolfach Workshop “Universality: Random Matrices, Random Geometry and SPDEs”, Germany, Title: A dynamical approach to lattice Yang–Mills 5/29-6/4/2022
11. Random Matrix EurAsia, Singapore, Title: Lattice Yang–Mills and a dynamical approach 4/18-5/13/2022
12. International Conference for Chinese Young Probability Scholars, Xiangtan
Title: “Stochastic quantization of Yang-Mills in 3D” 10/2021
13. 10th International Conference on Stochastic Analysis and its Applications (ICSAA), Kyoto,
Title: “Stochastic Yang-Mills process in 3D” 9.6–9.10/2021
14. Bath Mathematical Symposium on “PDE and Randomness”, UK
Title: “Large N via stochastic quantization” 9.1–9.10/2021
15. 20th International Congress on Mathematical Physics (ICMP), Geneva, session “Nonequilibrium Statistical Mechanics”, Title: “Large N limit of stochastic PDEs” 8.2-8.7/2021
16. 10th World Congress in Probability and Statistics, Seoul, Session “Stochastic Partial Differential Equations” organized by L.Mytnik, Title: “Stochastic quantization, Large N, and mean field limit” 7.19-23/2021
17. Webinar on Analysis and PDEs (4), organized by Yu Deng,
Title: “Stochastic quantization of Yang-Mills” 4/30/2021

18. AIM Workshop “Criticality and stochasticity in quasilinear fluid systems”, San Jose,
Title: “Stochastic quantization of Yang-Mills” 4/5-4/9/2021
19. Online talk for Integrable Probability FRG meeting
Title: “SPDE limit of a directed polymer in Poisson random walks” 4/3/2020
20. Symposium on Probability and Statistics, Chinese Academy of Sciences,
Title: “Stochastic quantization of gauge theories” 12/15/2019
21. Workshop “SPDE day – recent progress on quasilinear equations”, Hausdorff Institute, Bonn,
Title: “Stochastic Ricci flow on surfaces”. 10/18/2019
22. AMS Sectional Meeting, Session “Stochastic Partial Differential Equations and Related Fields”,
Madison, organized by Igor Cialenco, Yu Gu, and Hyun-Jung Kim,
Title: Stochastic quantization of gauge theories. 9/15/2019
23. IMS-China 2019, Dalian, Invited session “KPZ equations and related models”,
Title: “Local solution to the multilayer KPZ equation”; 7/9/2019
24. IMS-China 2019, Dalian, Invited session “Rough path and SPDE” organized by Weijun Xu,
Title: Stochastic quantization of gauge theories; 7/8/2019
25. Conference “Paths between Probability, PDEs, and Physics”, Imperial College London, organized
by Chandra, Hairer, Xu, Title: Stochastic Ricci flow on compact surfaces, 7/5/2019
26. Conference “Probability and quantum field theory: discrete models, CFT, SLE and constructive
aspects”, Porquerolles (France), June 10th - 21st, organized by C.Garban, R.Rhodes, V.Vargas.
Title: Stochastic Ricci Flow on Compact Surfaces 6/13/2019
27. AMS Sectional Meeting, Special session “Advances in Mathematical Fluid Mechanics”, University
of Hawaii, Title: Stochastic Burgers equation from six vertex model; 3/23/2019
28. Workshop “Scaling limits & SPDEs: recent developments and future directions”, Isaac Newton
Institute, Cambridge, Title: SPDE limits of six vertex model. 12/13/2018
29. AMS Sectional Meeting “Special Session on Probability, Combinatorics, and Statistical Mechanics”,
University of Delaware, Title: Stochastic quantization of gauge theories. 9/29/2018
30. Workshop on Statistical Physics and Probability, Beijing International Center for Mathematical
Research, Title: Scaling limit results in SPDE. 7/22/2018
31. Workshop in International Program on Regularity Structures and Stochastic Systems, Chinese
Academy of Sciences, Beijing, Title: Liouville QFT and Stochastic Ricci Flow. 7/13/2018
32. 2018 IMS Annual Meeting / 12th International Vilnius Conference on Probability Theory and Math-
ematical Statistics, Lithuania, invited session “Editors’ pick from the Annals of Probability”,
Title: A central limit theorem for the KPZ equation. 7/5/2018
33. Integrable Probability FRG Conference at MIT, Boston,
Title: Open ASEP and KPZ equation. 5/18/2018
34. Recent developments in Constructive Field Theory Workshop, New York, organized by J.Dubedat,
F.Viklund, Title: Stochastic quantization of gauge theories. 3/14/2018
35. UBC Summer School in Probability, Vancouver, Title: Lattice gauge theory and stochastic PDE. 6/13/2017
36. Warwick EPSRC Symposium “Stochastic PDEs: Analysis and Computation”, UK, organized by
I.Gyongy, M.Hairer, A.Stuart, Title: Lattice gauge theory and stochastic PDE. 3/29/2017
37. 9th World Congress on Probability and Statistics, Toronto, Invited session talk in session “SPDEs
and the work of Martin Hairer” organized by I.Corwin,
Title: Stochastic quantization equations and the theory of regularity structures. 7/13/2016
38. Random Structures in High Dimensions, Oaxaca, Mexico, organized by David Brydges and Frank
den Hollander, Title: “A stochastic PDE with $U(1)$ gauge symmetry”. 6/28/2016
39. Workshop on Stochastic Partial Differential Equations, Simons Center for Geometry and Physics,
Stony Brook, organized by M.Hairer, Title: Some convergence results of discrete dynamics. 5/20/2016

40. Oberwolfach workshop: rough paths, regularity structures and related topics, Germany, organized by Thomas Cass, Peter Friz and Massimiliano Gubinelli,
Title: SPDEs with three types of multiplicative noises; 5/5/2016
41. Columbia-Princeton Probability Day, New York,
Title: Regularity structure theory and its applications; 4/8/2016
42. “Paths to, from and in renormalization: At the confluence of rough paths, algebra, analysis and geometry”, Potsdam (Germany),
Title: Renormalization for stochastic PDEs with non-Gaussian noises; 2/10/2016
43. Current Topics in Mathematical Physics and Probability, Sanya (China), organized by Paul Bourgade, Horng-Tzer Yau and Jun Yin,
Title: Stochastic PDEs as scaling limits of some microscopic models; 12/28/2015
44. Pittsburgh workshop on Stochastic PDEs, organized by Dehua Wang,
Title: Regularity structure theory and its applications; 12/4/2015
45. International Congress on Industrial and Applied Mathematics (ICIAM), Beijing, mini-symposium organized by A.Jentzen, Title: Renormalization and Stochastic PDEs, 8/11/2015
46. 38th Conference on Stochastic Processes and their Applications (SPA), Oxford, UK,
Title: A central limit theorem for the KPZ equation (Contributed talk); 7/14/2015
47. Peking University Youth Probability Forum, Beijing,
Title: Singular stochastic PDEs and the theory of regularity structures 7/7/2015
48. Random Polymers and Algebraic Combinatorics, Oxford, UK, Clay Mathematics Institute workshop organized by Ivan Corwin and Nikos Zygouras, Title: The Strict-Weak Lattice Polymer; 5/25/2015
49. MASDOC summer school “Topics in renormalisation group and regularity structures”, University of Warwick, organized by S.Adams, Title: *Dynamical sine-Gordon equation*; 5/11/2015
50. 3rd Annual ERC Berlin-Oxford Young Researchers Meeting on Applied Stochastic Analysis, Weierstrass Institute, Berlin, Title: *Dynamical sine-Gordon model*; 1/27/2015
51. 13th Northeast Probability Seminar, Columbia University,
Title: *Strict-Weak Polymers and KPZ Universality* 11/21/2014
52. Special Seminar on KPZ, Berkeley, Title: *Strict-weak polymers and KPZ universality*, organized by Ivan Corwin and Fraydoun Rezakhanlou 7/10/2014
53. Workshop on Harmonic Analysis and the Renormalization Group, U. of Virginia, Title: *Renormalization group by harmonic extensions*, organized by A. Abdesselam; 4/21/2014
54. Workshop on Stochastic Analysis and Related Topics, Chinese Academy of Sciences, *Renormalization and well-posedness of stochastic PDEs*, organized by Xiangdong Li; 8/6/2013

SEMINAR TALKS

1. MIT Probability Seminar, *Stochastic Yang–Mills dynamic in 2D and 3D*, (10/24/2022)
2. Texas Tech “Probability, Differential Geometry, and Math Physics” Seminar, *Stochastic Yang–Mills dynamic in 2D and 3D*, (10/19/2022)
3. Utah Stochastics Seminar, *Stochastic Yang–Mills process in 2D and 3D*, (10/7/2022)
4. Cambridge Seminar, *A dynamical approach to lattice Yang–Mills* (6/7/2022)
5. University of Illinois Chicago Analysis Seminar, *Dynamical approach to lattice Yang–Mills* (3/14/2022)
6. Purdue Probability Seminar, *Stochastic quantization of Yang–Mills* (3/2/2022)
7. University of Chicago Probability Seminar, *Stochastic quantization of Yang–Mills* (10/29/2021)
8. Wuhan University Stochastic analysis lecture series, *Stochastic Ricci flow* (6/7/2021)
9. Random Geometry and Statistical Physics seminar, *Stochastic Ricci flow* (4/20/2021)
10. University of Kansas Probability Seminar, *Stochastic Ricci flow* (4/14/2021)

11. Stochastic Webinar, organized by Beijing Institute of Technology / Chinese Academy of Sciences *SPDE limit of a directed polymer in Poisson random walks* (3/9/2021)
12. UCSD Probability Seminar, *Stochastic quantization and Yang-Mills* (2/25/2021)
13. Probability and the City Seminar, organized jointly by Columbia and Courant, *Stochastic quantization, large N , and mean field limit* (2/12/2021)
14. Berkeley Probability Seminar, *Stochastic quantization and Yang-Mills* (10/14/2020)
15. Beijing Institute of Technology, *Stochastic quantization of gauge theories* (12/23/2019)
16. University of Bonn Oberseminar Stochastik, *Stochastic quantization of gauge theories* (11/21/2019)
17. Warwick Probability Seminar, *Stochastic Ricci flow on surfaces* (10/16/2019)
18. Princeton Probability Seminar, *Stochastic quantization of Yang-Mills via regularity structures* (4/17/2019)
19. Rochester Probability, Ergodic Theory, Mathematical Physics Seminar, *Stochastic quantization of Yang-Mills via regularity structures* (3/29/2019)
20. Rutgers Mathematical Physics Seminar, *Stochastic quantization of Yang-Mills via regularity structures* (3/14/2019)
21. UCLA Probability Seminar, *Stochastic quantization of Yang-Mills via regularity structures* (11/01/2018)
22. Columbia Probability Seminar, *Stochastic quantization of Yang-Mills below four dimensions* (10/05/2018)
23. Wisconsin-Madison Probability Seminar, *Stochastic quantization of Yang-Mills* (9/20/2018)
24. Carnegie Mellon SPDE working group, *Some new results on stochastic heat equations* (4/17/2018)
25. Carnegie Mellon University, Center for Nonlinear Analysis Seminar, *Singular stochastic PDEs and renormalization* (4/17/2018)
26. Cornell Probability Seminar, *Stochastic quantization of gauge theories* (4/10/2018)
27. Duke Probability Seminar, *Stochastic quantization of gauge theories* (3/1/2018)
28. U. of Connecticut Discrete Math and Statistical Mechanics Seminar, *Lattice Gauge Theory and Stochastic PDE* (2/22/2018)
29. Imperial College London Probability Seminar, *Six vertex model and KPZ equation* (11/21/2017)
30. Penn and Temple Probability Seminar, *Some new scaling limit results on ASEP and Glauber dynamics of spin models* (12/6/2016)
31. Wisconsin-Madison Probability Seminar, *On scaling limits of Open ASEP and Glauber dynamics of ferromagnetic models* (12/1/2016)
32. University of Toronto Probability Seminar, *Asymmetric simple exclusion processes with open boundaries and their KPZ equation limits* (10/21/2016)
33. Rutgers Seminar on Mathematical Finance, Probability and PDEs, *Stochastic PDE with $U(1)$ gauge symmetry* (10/4/2016)
34. Chinese Academy of Sciences, *Stochastic PDEs and regularity structures* (8/5/2016)
35. U. of Chicago Probability Seminar, *Regularity structure theory and its applications* (4/15/2016)
36. Brown Dynamical System Seminar, *Regularity structure theory and its applications* (3/14/2016)
37. Harvard University Random Matrix and Probability Seminar, *The sine-Gordon stochastic PDE and regularity structures* (3/11/2016)
38. City University of New York Probability Seminar, *Regularity structure theory and its applications* (3/1/2016)
39. Institute for Advanced Study Analysis Seminar, *Stochastic quantization equations* (2/23/2016)
40. Duke University Probability seminar, *Stochastic PDEs and regularity structures* (10/29/2015)
41. U. of Macau Probability Seminar, *Stochastic PDEs and regularity structures* (8/20/2015)
42. Oxford Stochastic Analysis Seminar, *A central limit theorem for the KPZ equation* (6/15/2015)

43. Max Planck Institute at Leipzig, Analysis Seminar, *Theory of regularity structures and dynamical sine-Gordon model* (1/12/2015)
44. Cambridge Probability Seminar, *Solving the dynamical sine-Gordon equation* (10/21/2014)
45. Loughborough Probability Seminar, *The dynamical sine-Gordon equation* (10/16/2014)
46. Warwick Statistical Mechanics Seminar, *The dynamical sine-Gordon equation* (10/9/2014)
47. University of Virginia Mathematical Physics Seminar, *Renormalization group by conditional expectations and dipole gas revisited* (12/4/2013)
48. Princeton University Ergodic Theory and Statistical Mechanics Seminar, *Renormalization group and stochastic PDEs* (11/21/2013)
49. Chinese Academy of Sciences, *Rigorous Renormalization Group and Applications* (9/2011)

ORGANIZER

- 2024/Summer, MSRI summer graduate school on “Stochastic Quantisation”
- 2023, 12/17–12/22, Oberwolfach Arbeitsgemeinschaft: QFT and Stochastic PDEs, (Co-organizer)
- 2022, 9/10–9/11, Graduate Student Probability Conference, (supervise organizers, the conference is supported by my NSF CAREER grant DMS-2044415)
- 2022, 7/25–7/30, Summer School on “SPDE and Related Fields”, (Co-organizer)
- 2022, 6/27–6/30, IMS Annual Meeting, London, invited session on “Quantum field theory and stochastic analysis”
- 2022, 6/27–7/1, 42nd conference on Stochastic Processes and their Applications (SPA), Wuhan, contributed session “KPZ equation”
- 2021, 7/26–7/31, SPDE annual summer school, (Co-organizer)
- 2020, 8/3–8/8, SPDE summer school, (Co-organizer, joint with Chinese Academy of Sciences / Beijing Institute of Technology)
- 2019, 10/21–10/25, Workshop “Singular SPDEs and Related Topics”, Hausdorff Institute for Mathematics in Bonn (Co-organizer)
- 2019, 9/23–9/27, Summer School “New Frontiers in Singular SPDEs and Scaling Limits”, Hausdorff Institute for Mathematics in Bonn (Co-organizer)
- 2019, 9/14–9/15, AMS Fall Central Sectional Meeting, Special Session on “Large Scale Properties of Interacting Stochastic Systems”, Madison, (Co-organized with Seppalainen and Valko)
- 2019, 7/6–7/10, Invited session on “KPZ equations and related models”, IMS-China 2019, Dalian
- 2018, 5/1–5/3, Meeting on “Transport and localization in random media: theory and applications” at Columbia University, partially supported by NSF DMS-1804339 (Co-PI)
(Co-organized with Ivan Corwin, Alexis Drouot and Michael Weinstein)
- 2016, 2/5, Semi-annual Columbia-Courant joint probability seminar, with theme on Stochastic PDEs, at Columbia University
- 2018–2022, University of Wisconsin - Madison Probability Seminar, (co-organizer)
- 2015–2018, Columbia University Probability Seminar, (co-organizer)

JOURNAL REFEREE

• Annals of Probability; • Annals of Applied Probability; • Annales Henri Lebesgue; • Annales Henri Poincaré; • Archive for Rational Mechanics and Analysis; • Brazilian Journal of Probability and Statistics; • Communications in Mathematical Physics (≥ 5 times); • Communications in Mathematical Sciences; • Communications in Partial Differential Equations; • Communications on Pure and Applied Mathematics; • Electronic Journal of Probability; • Forum of Mathematics, Pi; • International Mathematics Research Notices; • Journal of Evolution Equations; • Journal of Functional Analysis; • Journal of Mathematical Analysis and Applications; • Journal of Statistical Physics; • Mathematical Physics, Analysis and Geometry; • Memoirs of the AMS; • Nonlinearity; • Probability Theory and Related Fields (≥ 5 times); • Science China Mathematics; • Stochastics and Partial Differential Equations: Analysis and Computations. • Transactions of the AMS.

SERVICE

Member of University of Wisconsin - Madison Graduate Advising Committee, Visiting International Student Program Committee, and Conference/special lectures Committee
Served on NSF panel for several times

REFERENCES

David Brydges (db5d@math.ubc.ca), Ivan Corwin (ivan.corwin@gmail.com),
Weinan E (weinan@math.princeton.edu), Martin Hairer (m.hairer@imperial.ac.uk).