Le Chen

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Tenure-track assistant professor
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Research interest

Probability, stochastic analysis, stochastic processes, stochastic partial differential equations (SPDEs). Fine properties of solutions to various SPDEs such as: existence and uniqueness of a random field solution; moment estimates using special functions; space-time sample-path Hölder regularity; intermittency property and characterizations of the location of high peaks of the solution; regularity and strict positivity of densities of solutions to some SPDEs (using Malliavin calculus); comparison principles for some SPDE's; SPDE with fractional operators; Feynman-Kac representations of moments to some SPDE's; SPDE's with rough initial data; Fractional Brownian motions.

Education

- **Ph.D. in Mathematics** — Lausanne, Switzerland
  École Polytechnique Fédérale de Lausanne — Apr. 2013
  Supervisor: Professor Robert C. Dalang
- **Master in Computer Science** — Beijing, China
  Tsinghua University — Jul. 2005
- **Bachelor in Computer Science** — Dalian, China
  Dalian Jiaotong University — Jul. 2002

Work experience

- Tenure-track assistant professor, *Auburn University* 08/2021 – now
- Visiting assistant professor, *Emory University* 08/2019 – 08/2021
- Tenure-track assistant professor, *University of Nevada, Las Vegas* 01/2018[†] – 07/2019
- Summer research fellow, *MSRI, Berkeley* 06/2017 – 08/2017
- The Black-Babcock visiting assistant professor, *University of Kansas* 01/2015 – 07/2017
- Swiss NSF* research fellow, *University of Utah* 02/2014 – 12/2014
- Research assistant, *École Polytechnique Fédérale de Lausanne* 01/2008 – 12/2013
- Researcher, *IDIAP Research Institute, Switzerland* 07/2006 – 07/2007
- Visiting scholar, *Microsoft Research Asia, China* 07/2005 – 07/2006

[†] This appointment was postponed for one semester from 08/2017 to 01/2018 due to a visa issue.

* Swiss National Science Foundation (P2ELP2_151796).

Publications [†]

Submitted

[1] Le Chen, Cheng Ouyang, Samy Tindel, and Panqiu Xia. "On ergodic properties of stochastic PDEs". In: *Preprint arXiv:2412.03521* (Dec. 2024).

[2] Le Chen, Mohammud Foondun, Jingyu Huang, and Michael Salins. "Global solution for super-linear stochastic heat equation on $\mathbb{R}^d$ under Osgood-type conditions". In: *Preprint arXiv:2310.02153* (Oct. 2023).

Published

[3] David Candil, Le Chen, and Cheuk Yin Lee. "Parabolic stochastic PDEs on bounded domains with rough initial conditions: moment and correlation bounds". In: *preprint arXiv:2301.06435, to appear in Stoch. Partial Differ. Equ. Anal. Comput.* (Jan. 2023).

[4] Le Chen and Nicholas Eisenberg. "Interpolating the stochastic heat and wave equations with time-independent noise: solvability and exact asymptotics". In: *Stoch. Partial Differ. Equ. Anal. Comput.* 11.3 (2023), pp. 1203–1253. MR4624137.

[5] Le Chen and Jingyu Huang. "Superlinear stochastic heat equation on $\mathbb{R}^d$". In: *Proc. Amer. Math. Soc.* 151.9 (2023), pp. 4063–4078. MR4607649.

[6] Le Chen, Davar Khoshnevisan, David Nualart, and Fei Pu. "Central limit theorems for spatial averages of the stochastic heat equation via Malliavin-Stein's method". In: *Stoch. Partial Differ. Equ. Anal. Comput.* 11.1 (2023), pp. 122–176. MR4563698.

[7] Le Chen, Sefika Kuzgun, Carl Mueller, and Panqiu Xia. "On the radius of self-repellent fractional Brownian motion". In: *J. Stat. Phys., pending revision, preprint arXiv:2308.10889* (Aug. 2023).

[8] Le Chen, Cheng Ouyang, and William Vickery. "Parabolic Anderson model with colored noise on torus". In: *Bernoulli, to appear, preprint arXiv:2308.10802* (Aug. 2023).

[9] Le Chen and Panqiu Xia. "Asymptotic properties of stochastic partial differential equations in the sublinear regime". In: *Annals of Probability, to appear, preprint arXiv:2306.06761* (June 2023).

[10] Raluca Balan, Le Chen, and Yiping Ma. "Parabolic Anderson model with rough noise in space and rough initial conditions". In: *Electron. Commun. Probab.* 27 (2022), Paper No. 65, 12. MR4529633.

[11] Raluca M. Balan, Le Chen, and Xia Chen. "Exact asymptotics of the stochastic wave equation with time-independent noise". In: *Ann. Inst. Henri Poincaré Probab. Stat.* 58.3 (2022), pp. 1590–1620. MR4452644.

[12] Le Chen and Nicholas Eisenberg. "Invariant measures for the nonlinear stochastic heat equation with no drift term". In: *J. Theoret. Probab. (pending revision, preprint arXiv:2209.04771)* (Sept. 2022).

[13] Le Chen, Yuhui Guo, and Jian Song. "Moments and asymptotics for a class of SPDEs with space-time white noise". In: *preprint arXiv:2206.10069, to appear in Trans. Amer. Math. Soc.* (June 2022).

[14] Le Chen and Guannan Hu. "Hölder regularity for the nonlinear stochastic time-fractional slow & fast diffusion equations on $\mathbb{R}^d$". In: *Fract. Calc. Appl. Anal.* 25.2 (2022), pp. 608–629. MR4437294.

[15] Le Chen, Davar Khoshnevisan, David Nualart, and Fei Pu. "Central limit theorems for parabolic stochastic partial differential equations". In: *Ann. Inst. Henri Poincaré Probab. Stat.* 58.2 (2022), pp. 1052–1077. MR4421618.

[16] Le Chen, Davar Khoshnevisan, David Nualart, and Fei Pu. "Spatial ergodicity and central limit theorems for parabolic Anderson model with delta initial condition". In: *J. Funct. Anal.* 282.2 (2022), Paper No. 109290, 35. MR4334682.

[17] Le Chen, Yaozhong Hu, and David Nualart. "Regularity and strict positivity of densities for the nonlinear stochastic heat equation". In: *Mem. Amer. Math. Soc.* 273.1340 (2021), pp. v+102. MR4334477.

[18] Le Chen, Davar Khoshnevisan, David Nualart, and Fei Pu. "A CLT for dependent random variables with an application to an infinite system of interacting diffusion processes". In: *Proc. Amer. Math. Soc.* 149.12 (2021), pp. 5367–5384. MR4327439.

[19] Le Chen, Davar Khoshnevisan, David Nualart, and Fei Pu. "Spatial ergodicity for SPDEs via Poincaré-type inequalities". In: *Electron. J. Probab.* 26 (2021), Paper No. 140, 37. MR4346664.

[20] Le Chen and Kunwoo Kim. "Stochastic comparisons for stochastic heat equation". In: *Electron. J. Probab.* 25 (2020), Paper No. 140, 38. MR4186259.

[21] Le Chen, Yaozhong Hu, and David Nualart. "Nonlinear stochastic time-fractional slow and fast diffusion equations on $\mathbb{R}^d$". In: *Stochastic Process. Appl.* 129.12 (2019), pp. 5073–5112. MR4025700.

[22] Le Chen and Jingyu Huang. "Comparison principle for stochastic heat equation on $\mathbb{R}^d$". In: *Ann. Probab.* 47.2 (2019), pp. 989–1035. MR3916940.

[23] Le Chen, Jingyu Huang, Davar Khoshnevisan, and Kunwoo Kim. "Dense blowup for parabolic SPDEs". In: *Electron. J. Probab.* 24 (2019), Paper No. 118, 33. MR4029421.

[24] Le Chen and Kunwoo Kim. "Nonlinear stochastic heat equation driven by spatially colored noise: moments and intermittency". In: *Acta Math. Sci. Ser. B (Engl. Ed.)* 39.3 (2019), pp. 645–668. MR4066498.

[25] Raluca M. Balan and Le Chen. "Parabolic Anderson model with space-time homogeneous Gaussian noise and rough initial condition". In: *J. Theoret. Probab.* 31.4 (2018), pp. 2216–2265. MR3866613.

[26] Le Chen, Yaozhong Hu, Kamran Kalbasi, and David Nualart. "Intermittency for the stochastic heat equation driven by a rough time fractional Gaussian noise". In: *Probab. Theory Related Fields* 171.1-2 (2018), pp. 431–457. MR3800837.

[27] Le Chen. "Nonlinear stochastic time-fractional diffusion equations on $\mathbb{R}$: moments, Hölder regularity and intermittency". In: *Trans. Amer. Math. Soc.* 369.12 (2017), pp. 8497–8535. MR3710633.

[28] Le Chen, Michael Cranston, Davar Khoshnevisan, and Kunwoo Kim. "Dissipation and high disorder". In: *Ann. Probab.* 45.1 (2017), pp. 82–99. MR3601646.

[29] Le Chen, Guannan Hu, Yaozhong Hu, and Jingyu Huang. "Space-time fractional diffusions in Gaussian noisy environment". In: *Stochastics* 89.1 (2017), pp. 171–206. MR3574699.

[30] Le Chen, Yaozhong Hu, and David Nualart. "Two-point correlation function and Feynman-Kac formula for the stochastic heat equation". In: *Potential Anal.* 46.4 (2017), pp. 779–797. MR3636598.

[31] Le Chen, Davar Khoshnevisan, and Kunwoo Kim. "A boundedness trichotomy for the stochastic heat equation". In: *Ann. Inst. Henri Poincaré Probab. Stat.* 53.4 (2017), pp. 1991–2004. MR3729644.

[32] Le Chen and Kunwoo Kim. "On comparison principle and strict positivity of solutions to the nonlinear stochastic fractional heat equations". In: *Ann. Inst. Henri Poincaré Probab. Stat.* 53.1 (2017), pp. 358–388. MR3606745.

[33] Le Chen, Davar Khoshnevisan, and Kunwoo Kim. "Decorrelation of total mass via energy". In: *Potential Anal.* 45.1 (2016), pp. 157–166. MR3511809.

[34] Le Chen and Robert C. Dalang. "Moment bounds and asymptotics for the stochastic wave equation". In: *Stochastic Process. Appl.* 125.4 (2015), pp. 1605–1628. MR3310358.

[35] Le Chen and Robert C. Dalang. "Moments and growth indices for the nonlinear stochastic heat equation with rough initial conditions". In: *Ann. Probab.* 43.6 (2015), pp. 3006–3051. MR3433576.

[36] Le Chen and Robert C. Dalang. "Moments, intermittency and growth indices for the nonlinear fractional stochastic heat equation". In: *Stoch. Partial Differ. Equ. Anal. Comput.* 3.3 (2015), pp. 360–397. MR3383450.

[37] Le Chen and Robert C. Dalang. "Hölder-continuity for the nonlinear stochastic heat equation with rough initial conditions". In: *Stoch. Partial Differ. Equ. Anal. Comput.* 2.3 (2014), pp. 316–352. MR3255231.

Thesis

[38] Le Chen. "Moments, Intermittency, and Growth Indices for Nonlinear Stochastic PDE's with Rough Initial Conditions". In: *EPFL Ph.D. Thesis* (2013).

Unpublished notes

[39] Le Chen and Jingyu Huang. "Regularity and strict positivity of densities for the stochastic heat equation on $\mathbb{R}^d$". In: *Preprint arXiv:1902.02382* (Feb. 2019).

[40] Le Chen. "The third moment for the parabolic Anderson model". In: *Preprint arXiv:1609.01005* (Sept. 2016).

[41] Le Chen and Robert C. Dalang. "Moment bounds in spde's with application to the stochastic wave equation". In: *Preprint arXiv:1401.6506* (Jan. 2014).

[42] Le Chen and Robert C. Dalang. "The nonlinear stochastic heat equation with rough initial data:a summary of some new results". In: *Preprint arXiv:1210.1690* (Oct. 2012).

† References are generated using Biber from SPDEs-Bib: https://github.com/chenle02/SPDEs-Bib.

Grants and awards

- PI for the National Science Foundation grant (DMS–2246850) 2023 – 2026
  Studies of the Stochastic Partial Differential Equations (USD 180,000)
  - *Panqiu Xia* (Co-PI)
- Travel grant for mathematicians from *Simons Foundation*
  MPS-TSM-00959981 (USD 40,000) 2022 – 2027
- Auburn Author Award (link) 2022
- PI for the National Science Foundation conference grant (DMS–1947572) 2019 – 2020
  Frontier Probability Days 2020 (USD 32,000)
  - *Sunder Sethuraman* (Co-PI)
  - *Yevgeniy Kovchegov* (Co-PI)
  - *Firas Rassoul-Agha* (Co-PI)
  - *Thomas Alberts* (Co-PI)
- Collaboration grants for mathematicians from *Simons Foundation*† 2019
- Swiss National Science Foundation grant 2014
  No. P2ELP2_151796 (USD 62,000)
- One of four recipients of the travel grant from the *Elsevier publisher* 2015
  for young researchers to attend the SPA conference at Oxford UK (EUR 500)
- Teaching award at EPFL (CHF 1,200) 2012
- Our team at Tsinghua University scored the best in one competition and among 2004
  the best in several other competitions in the *TRECVid evaluation* hosted by NIST.
- Wendeng Chen's scholarship for mathematics 2002
  Awarded to students who obtained a full score in the national
  entrance exam in the subject of mathematics for graduate study
- Chinese National Physics Olympiad, 1997
  First class prize (ranked the 7th in Shanxi province, P.R. China)

† L. Chen was awarded this collaboration grant in Spring 2019. Due to his transition from the tenure-track position at UNLV to the non tenure-track vising position at Emory University in Summer 2019, this grant was terminated before its commencement.

Teaching

Auburn University, Auburn

- Math 7450: Partial Differential Equations – II — Spring 2026
- Math 7440: Partial Differential Equations – I — Fall 2025
- Math 7810: Advanced Probability – II — Spring 2025
- Math 7290: Advanced Theory of Ordinary Differential Equations – II — Spring 2025
- Math 7800: Advanced Probability – I — Fall 2024
- Math 7280: Advanced Theory of Ordinary Differential Equations – I — Fall 2024
- Math 7830: Stochastic Processes – II — Spring 2024
- Math 7820: Stochastic Processes – I — Fall 2023
- Math 7810: Advanced Probability – II — Spring 2023
- Math 7010: Applied Mathematics – II — Spring 2023
- Math 7800: Advanced Probability – I — Fall 2022
- Math 7000: Applied Mathematics – I — Fall 2022
- Math 7210: Real Analysis – II — Spring 2022
- Math 5870/6870: Mathematical Finance — Fall 2021
- STAT 3600: Probability and Statistic – I — Fall 2021

Emory University, Atlanta

- STAT 3600: Mathematical statistics II (one session) — Spring 2021
- Math 362: Mathematical statistics II (one session) — Spring 2021
- Math 221†: Linear algebra (two sessions, 60 students) — Spring 2021
- Math 221†: Linear algebra (three sessions, 75 students) — Fall 2020
- Math 362: Mathematical statistics II (one session, 65 students) — Sprint 2020
- Math 361: Mathematical statistics I (two sessions, 120 students) — Fall 2019

University of Nevada, Las Vegas

- Math 463/663: Advanced matrix theory — Spring 2019
- Math 283: Calculus III (multivariate calculus) — Spring 2019
- Math 432: Mathematics for engineers and scientists II (complex analysis) — Fall 2018
- Math 181: Calculus I — Fall 2018
- Math 365: Computational linear algebra — Spring 2018

University of Kansas

- Math526: Probability and statistics — Spring & Fall, 2015–2017

École Polytechnique Fédérale de Lausanne

- Teaching exercise sessions for
  - Analysis I — Fall 2008
  - Analysis IV — Springs, 2009, 2010, 2011, 2012
  - Stochastic processes — Spring, 2008
  - Financial mathematics — Spring, 2009
  - Stochastic calculus — Falls, 2009, 2010, 2012, 2013
  - Martingale and applications — Springs, 2009, 2013

[†] Open Slides for Linear Algebra: https://github.com/chenle02/Open_Slides_for_Linear_Algebra.

Mentoring

- Postdoctoral researcher:
  - *Panqiu Xia* (Auburn University) — 2022 – 2024
    Subsequent position: Lecture (tenure-track) at University of Cardiff, UK.
- Ph.D. student:
  - *Nicholas Eisenberg* (UNLV → Emory University → Auburn University) — 2018 – 2022
    Subsequent position: Postdoc at Department of Energy, USA.
- Master students:
  - *Edward Huynh* (UNLV) — 2018 – 2020
  - *Sarah Grandjean* (EPFL) — 2009 – 2010
- Undergraduate students:
  - Direct Studies: (Emory) — 2019 – 2020
    - *Ricky Huang*
    - *Nathan Yang*
  - Semester projects: (EPFL) — 2010 – 2013
    - *Hélène Ruffieux*
    - *Denis Garcia*
    - *David Spiess*
    - *David Krief*
    - *Alexandre Villard*
    - *Louis Larmonier*
    - *François Pagano*
    - *Jacques Saliba*
    - *Denis Schelling*
    - *Kokollari Kreshnik*

Services

- Panelist:
  - Simons Travel Support for Mathematicians program. — 2023
  - National Science Foundation (NSF). — 2023

- Paper reviews:
  - Refereed research papers for *Ann. Probab.* (2), *Ann. Appl. Probab.* (1), *Acta Math. Sci. Ser. B* (8), *Adv. Difference Equ.* (1), *Ann. Inst. Henri Poincaré Probab. Stat.* (4), *Bernoulli* (1), *East Asian J. Appl. Math.* (1), *Electron. Commun. Probab.* (1), *Electron. J. Probab.* (1), *ESAIM Control Optim. Calc. Var.* (1), *Proc. Amer. Math. Soc.* (4), *Statist. Probab. Lett.* (5), *Stoch. Anal. Appl.* (3), *Stochastic Process. Appl.* (3), *Stoch. Partial Differ. Equ. Anal. Comput.* (1), *Nonlinear* (1), etc., with 49 verified reviews on *Publons* since 2015:

    https://publons.com/researcher/1580762/le-chen/
  - Wrote 48+ reviews for *Mathematics Reviews* for the *MathSciNet*:

    https://shorturl.at/bkoJK.
- Organizing conference/seminars:
  - Organized the conference – *Frontier Probability Days 2020* at UNLV: Dec 5-8, 2021

    http://lechen.faculty.unlv.edu/FPD20/
  - Organized a special session in *the AMS Fall Southeastern Sectional Meeting*: Nov. 2021

    https://github.com/chenle02/AMS-Mobile-2021-Stochastci_Analysis_and_Applications
  - In charge of the Stochastic Analysis Seminar at Auburn: Fall 2021 – Now

    http://webhome.auburn.edu/~lzc0090/SASA.html
  - Helped preparing two conferences (in charge of website and booklets)
    Seminar on Stochastic Analysis, Random Fields and Applications VI & VII
    May 2008 & May 2011 at Ascona, Switzerland.
- Committees at Auburn:
  - Hiring Committee for Tenure-track Assistant Professor. Fall 2024 – Spring 2025
  - COSAM Website Working Group. Fall 2024 – Spring 2025
  - Faculty Award Committee. Fall 2021 – Now
  - Graduate Studies Committee (GSC). Fall 2023 – Now

Outreach

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1. **Auburn University: Summer Science Institute (SSI)** [Official website]
   - 2022/06: An invitation to probability. [Link]
   - 2023/06: Embracing the randomness: intriguing role of chance in science. [Link]
   - 2024/06: How do Surfaces grow? [Link]
2. **Destination STEM** [Official website]
   - 2023/10/20: How do surfaces growth? A probabilistic perspective. [Link]
   - 2024/10: TBA.
3. **Graduate Student Seminars** [Official website] [GitHub]
   - 2021-09-27: Introduction to stochastic partial differential equations

- 2023-01-18: Introduction to stochastic heat equation
- 2023-02-15: Sharpening your saw before cutting down the tree – Personal development environment (PDE)
- 2023-11-01: Disorderly surface growth
- 2024-12-04: TBA

Selected Open-Source Projects

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1. **GitHub: chenle02/SPDEs-Bib**
   - SPDEs-Bib: A Comprehensive Bibliography of Stochastic Partial Differential Equations and Related Topics.
   - Source codes (Bibtex entries): Project Link.
   - Documentation: Readthedocs
   - Citation: DOI: 10.5281/zenodo.10279032.
2. **GitHub: chenle02/Fox-H_Symbolic_Tools**
   - Some symbolic computational tools for the Fox H-function written in Wolfram Mathematica scripts.
   - Source Codes: Project Link.
   - Citation: DOI: 10.5281/zenodo.10.143786.
3. **GitHub: chenle02/Open_Slides_for_Linear_Algebra**
   - Open slides for linear algebra.
   - Beamer LaTex source files: Project Link.
   - Citation: DOI: 10.5281/zenodo.10206020.
4. **GitHub: chenle02/Open_Slides_Statistics**
   - Statistics: Open Slides.
   - Beamer LaTex source files: Project Link.
   - Citation: DOI: 10.5281/zenodo.10206720.
5. **GitHub: chenle02/2022_SSI-AU_Probability_by_Le**
   - Probability: Summer Science Institute at Auburn.
   - Source Codes: Project Link.
   - Citation: DOI: 10.5281/zenodo.10206799.
6. **GitHub: chenle02/NSF-Awards**
   - Awards from National Science Foundation (NSF) with a focus on Division of Mathematical Sciences (DMS).
   - Source: Project Link.
   - Citation: DOI: 10.5281/zenodo.10206801.
7. **GitHub: chenle02/Graduate_Student_Seminars_by_Le_Chen**

- Graduate Student Seminars by Le Chen.
- Source Codes (Slices and Simulations): Project Link.
- Citation: DOI: 10.5281/zenodo.10206966.

8. **GitHub: chenle02/Open_Slides_Financial_Mathematics**
   - Financial Mathematics: Open Slides.
   - Beamer LaTex source files: Project Link.
   - Citation: DOI: 10.5281/zenodo.10207028.
9. **GitHub: chenle02/Simulations_on_Some_Surface_Growth_Models**
   - This is a python package to simulate the surface growth using, e.g, Tetris pieces.
   - Source codes: Project Link.
   - Documentation: Readthedocs.
   - Pypi install: Pypi.
   - Some sample talks: AMS meeting March 2024, FSU.

Conferences delivered and to be delivered

2025

- Emerging Synergies Between Stochastic Analysis and Statistical Mechanics — Oct.
  Banff International Research Station, Banff, Canada.
  Title: TBA
- 12th International Conference on Stochastic Analysis and its Applications — Sept.
  Bucharest, Romania.
  Title: TBA
- Mathematical Congress of the Americas — Jul.
  Special Session on Stochastic Partial Differential Equations
  InterContinental Miami, Florida
  Title: TBA
- Workshop: Stochastic Partial Differential Equations — Jun.
  Brin Mathematics Research Center, University of Maryland
  Title: TBA
- Perspectives in Modern Stochastic Analysis
  Banff International Research Station, Banff, Canada.
  (In honor of the 70th birthday of Prof. Carl Mueller)
  Title: TBA

2024

- KU Probability and Statistics Conference on Stochastic Analysis and Related Area — Nov.
  University of Kansas, Lawrence, Kansas.
  Title: TBA
- Workshop: Stochastic Partial Differential Equations in Seoul — Aug.
  Soorim Cultural Foundation in the Korean Institute of Advanced Study, South Korea.
  Title: Interpolating Stochastic Heat and Wave Equations Through Fractional SPDEs.

- Forum on Scientific and Engineering Computing 2024 Jun.
  The State Key Laboratory of Scientific and Engineering Computing (LSEC)
  Institute of Computational Mathematics, Chinese Academy of Sciences, Beijing China.
  Title: Surface growth models with random Tetris pieces.

- AMS Sectional Meeting – "Topics in Stochastic Analysis/Rough Paths/ SPDE and Applications in Machine Learning" Mar.
  Florida Statue University, Tallahassee, FL, USA.
  Title: Surface growth models with random Tetris pieces.

- AMS Sectional Meeting – "Stochastic Analysis and Applications" Mar.
  Florida Statue University, Tallahassee, FL, USA.
  Title: On the radius of self-repellent fractional Brownian motion.

2023

- Workshop on Stochastic Analysis, Random Fields, and Applications Aug.
  Michigan State University, Michigan, USA.
  Title: Matching moment lower bounds for stochastic wave equation

- Frontiers in Stochastic Analysis Aug.
  University of Illinois, Chicago, Illinois, USA.
  Title: Moment growth and intermittency for SPDEs in the sublinear-growth regime

- AIMS Conference Series on Dynamical Systems and Differential Equations June
  University of North Carolina, Wilmington, USA.
  Talk 1: Moment growth and intermittency for SPDEs in the sublinear-growth regime
  Talk 2: Global existence of stochastic heat equation in the superlinear-growth regime

- AMS Sectional Meeting – "Stochastic Analysis and Applications" Mar.
  Georgia Institue of Technology, Atlanta, USA.
  Title: Parabolic Anderson model with rough noise in space and rough initial conditions.

- Joint Mathematics Meetings AMS Special Session
  "Stochastic Analysis and Applications" Jan.
  Boston University, Boston, USA.
  Title: Superlinear stochastic heat equation on $\mathbb{R}^d$.

2022

- Workshop: Stochastic PDEs & Related Topics Nov.
  Brin Mathematics Research Center, University of Maryland
  Title: Invariant measure for the nonlinear stochastic heat equation with no drift term.

- AMS Sectional Meeting – "Stochastic Analysis" Mar.
  Purdue University (*virtual*)
  Title: Stochastic comparison principle for stochastic heat equations.

2021

- AMS Sectional Meeting – "Stochastic Analysis" Mar.
  Brown University (*virtual*)
  Title: Exact asymptotics of the stochastic wave equation with time-independent noise.

2020

- Theory and Computational Methods for SPDEs (BIRS-CMO) Sept.
  Oaxaca, Mexico (*Canceled*)

- AIMS Conference Series on Dynamical Systems and Differential Equations Jun.
  Georgia Institute of Technology (*Canceled*)
- AMS Sectional Meeting – "Gaussian and non-Gaussian Stochastic Analysis" Apr.
  Purdue University (*Canceled*)
- AMS Sectional Meeting – "Integrable Probability" Mar.
  University of Virginia (*Canceled*)

2019

- SIAM Northern States Section. Sept.
  University of Wyoming, Laramie, WY, USA.
  Title: Spatial ergodicity for SPDEs with applications
- AMS Fall Central Sectional Meeting. Sept.
  Special Session on Stochastic Partial Differential Equations and Related Fields
  University of Wisconsin-Madison, Madison, WI, USA.
  Title: Regularity and strict positivity of densities for the stochastic heat equation on $\mathbb{R}^d$
- The 41st Stochastic Processes and their Applications Conference. Jul.
  Northwestern University, Evanston, Illinois, USA.
  Title: Nonlinear SPDEs with fractional operators
- Workshop on the Theory and Applications of SPDEs. Jun.
  The Fields Institute for Research in Mathematical Sciences, Toronto, Canada.
  Title: Comparison principle for stochastic heat equation on $\mathbb{R}^d$
- AMS Spring Southeastern Sectional Meeting Mar.
  Special Session on Probability and Stochastic Processes
  Auburn University, Auburn, Alabama, USA.
  Title: Nonlinear stochastic time-fractional slow and fast diffusion equations on $\mathbb{R}^d$

2018

- International Conference on Stochastic Partial Differential Equations Sept.
  University of Alberta, Edmonton, Canada.
  Title: Moment formulas for several SPDE's
- Theoretical and Applied Stochastic Analysis (BIRS-CMO). Sept.
  Oaxaca, Mexico.
  Title: Density properties of the stochastic heat equation under degenerate conditions
- Frontier Probability Days. Mar.
  Oregon State University, Corvallis, Oregon, USA.
  Title: Resolvent kernel functions arising from some
  stochastic partial differential equations
- AMS Sectional meeting on Stochastic Analysis in Infinite Dimensions. Mar.
  Ohio State University, Columbus, Ohio, USA.
  Title: Comparison principle for stochastic heat equation on $\mathbb{R}^d$

2016

- Stochastic Partial Differential Equations and Related Fields. Oct.
  Bielefeld University, Bielefeld, Germany.
  Title: Regularity and positivity of densities for the stochastic heat equation

- AMS Sectional Meeting: Topics in Stochastic Partial Differential Equations. Apr.
  University of Utah, Salt Lake City, USA.
  Title: Regularity and positivity of densities for the stochastic heat equation

- SUSTech Global Scientists Forum. Mar.
  South University of Science and Technology of China, Shenzhen, China.
  Title: Intermittency front for various SPDE's

2015

- The 38th Conference on Stochastic Processes and their Applications[†]. Jul.
  University of Oxford, UK.
  Title: Intermittency front for various SPDE's.

- Random Dynamical Systems and Ergodicity. Jun.
  University of Loughborough, Loughborough, UK.
  Title: Nonlinear stochastic slow and fast diffusion equations.

- AMS Special Session on Stochastic Analysis and Rough Paths. Apr.
  University of Nevada, Las Vegas, Nevada, USA.
  Title: On comparison principle and strict positivity of solutions
  to the nonlinear stochastic fractional heat equation.

2014

- Rocky Mountain Mathematics Consortium (RMMC). Jun.
  University of Wyoming, Laramie, Wyoming, USA.
  Title: Hölder continuity for the nonlinear stochastic heat equation
  with rough initial conditions.

- Frontier Probability Days. May
  University of Arizona, Tucson, Arizona, USA.
  Title: Hölder continuity for the nonlinear stochastic heat equation
  with rough initial conditions.

2013

- NSF/CBMS Conference: Analysis of Stochastic Partial Differential Equations. Aug.
  Michigan State University, East Lansing, Michigan, USA.
  Title: Moments, intermittency and growth indices for nonlinear
  stochastic space-fractional heat equation with rough initial conditions.

2012

- Stochastic Partial Differential Equations (SPDEs). Sept.
  Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.
  Poster: Some properties of the parabolic Anderson model.

- Stochastic Analysis and Applications. Jun.
  Centre Interfacultaire Bernoulli, Lausanne, Switzerland.
  Poster: Intermittency for some parabolic and hyperbolic Anderson models.

- Stochastic Analysis and Stochastic Partial Differential Equations. Apr.
  Banff International Research Station, Banff, Canada.
  Title: Intermittency and exponential growth indices
  for some parabolic and hyperbolic Anderson models.

2011

- Evolution Equations: Randomness and Asymptotics. Oct.
  The Karlsruhe Institute of Technology, Bad Herrenalb, Germany.
  Title: Growth indices in a parabolic Anderson model.

2010

- Sixth Ph.D. Student Conference in Stochastics. Oct.
  Zürich University, Zürich, Switzerland.
  Title: A Feynman-Kac type formula for the deterministic
  wave equation on a domain with boundary conditions.

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† I am one of four recipients of the travel grant from the *Elsevier publisher* for young researchers.

Seminars delivered and to be delivered

2024

- Auburn University, Auburn, Alabama. (Graduate Seminar) Dec.
- Auburn University, Auburn, Alabama. (Seminars on Analysis and Stochastic Analysis) Aug.
- Shanxi University, Taiyuan, Shanxi, China (Analysis Seminars) Jun.
- Bejing Normal University, Beijing, China (Probability Seminars) Jun.
- Academy of Mathematics and Systems Science, Chinese Academy of Sciences. (Seminars) Jun.
- Auburn University, Auburn, Alabama. (Seminars on Analysis and Stochastic Analysis) Mar.

2023

- Emory University, Atlanta, Georgia. (Analysis Seminar) Nov.
- University of Alabama, Huntsville, Alabama. (Math Colloquium) Oct.
- Auburn University, Auburn, Alabama. (Graduate Student Seminar) Oct.
- Boston University Massachusetts. (Probability Seminar) Oct.
- Auburn University, Auburn, Alabama. (Graduate Student Seminar) Mar.
- Auburn University, Auburn, Alabama. (Stochastic Analysis Seminar) Jan.
- Auburn University, Auburn, Alabama. (Graduate Student Seminar) Jan.

2022

- Florida State University, Tallahassee, Florida. (Math Colloquium) Oct.
- University of Illinois, Chicago, Illinois. (Probability Seminar) Oct.
- Auburn University, Auburn, Alabama. (Stochastic Analysis Seminar) Aug.
- Auburn University, Auburn, Alabama. (Stochastic Analysis Seminar) Apr.
- Louisiana State University, Baton Rough, Louisiana. (Probability Seminar, virtual) Apr.
- Florida International University, Miami, Florida. (Probability Seminar, virtual) Mar.

- Ohio State University, Columbus, Ohio. (Stochastic Seminar, virtual) Feb.
- Purdue University, West Lafayette, Indiana. (Probability Seminar, virtual) Jan.

2021

- Auburn University, Auburn, Alabama. (Stochastic Analysis Seminar) Oct.
- Auburn University, Auburn, Alabama. (Graduate Seminar) Sep.
- Auburn University, Auburn, Alabama. (Applied Math Seminar) Aug.
- Auburn University, Auburn, Alabama. (*Virtual*) Jan.

2020

- Beijing Institute of Technology, China. (*Virtual*) Dec.
- University of Illinois at Chicago, USA. (*Canceled*) Mar.
- Auburn University, Auburn, USA. Jan.
- Emory University, Atlanta, USA. Jan.

2019

- Tulane University, New Orleans, USA. (Probability Seminar) Dec.
- Georgia Institute of Technology, Atlanta, USA. (Probability Seminar) Sep.
- University of Nevada, Las Vegas, USA. (Applied Math Seminar) Mar.

2018

- University of Nevada, Las Vegas, USA. Oct.
- Pohang University of Science and Technology, Pohang, South Korea. Jun.
- Ningbo University of Technology, Ningbo, China. Jun.
- Nanjing Audit University, Nanjing, China. May
- University of Nevada, Las Vegas, USA. Mar.

2017

- University of Virginia, USA. Dec.
- University of California, Berkeley, USA. Nov.
- University of California, Davis, USA. Oct.
- Stevens Institute of Technology, Hoboken, USA. Feb.
- University of Maryland at Baltimore County, Baltimore County, USA. Feb.
- University of Nevada, Las Vegas, USA. Feb.
- University of Rochester, Rochester, USA. Jan.

2016

- Binghamton University, Vestal, USA. Dec.
- McGill University, Montreal, Canada. Nov.

- University of Tennessee, Knoxville, USA. Nov.
- University of Kansas, Lawrence, USA. Oct.
- Chinese Academy of Science, Beijing, China. Jul.
- University of Sussex, UK. Jun.
- Stanford University, USA. May
- Oxford University, UK. Apr.
- Chinese Academy of Science, Beijing, China. Mar.
- University of Tennessee, USA. Jan.

2015

- Ottawa University, Canada. (Probability Seminar) Nov.
- McGill/Concordia Universities, Montreal, Canada. (CRM-ISM Probability Seminar) Nov.
- University of Kansas, USA. (Probability Seminar) May
- University of Kansas, USA. (Probability Seminar) Apr.
- University of Kansas, USA. (Probability Seminar) Feb.

2014

- University of Utah, USA. (Probability Seminar) Dec.
- Lehigh University, USA. (Math Colloquium) Oct.
- École Polytechnique Fédérale de Lausanne, Switzerland. (Probability Seminar) Aug.
- University of York, UK. (Probability Seminar) Aug.
- Loughborough University, UK. (Probability Seminar) Jul.
- Beijing Normal University, China. (Probability Seminar) Jun.
- University of Utah, USA. (Probability Seminar) Feb.

2013

- Chinese Academy of Sciences, China. May

Previous work on computer science (2005 – 2007)

Research interest

Statistical machine learning, probabilistic graphical model, time series, mixture model, content-based image retrieval, computer vision, etc.

US patent

- F. Jing, L. Chen, L. Zhang and W.-Y. Ma. Normalizing content ratings of content forums, *US20070174865 A1*, 2007.

Publications

1. L. Chen, D. Barber and J. Odobe. Dynamical Dirichlet mixture model. *IDIAP-RR*, 2007. Source code available at https://infoscience.epfl.ch/record/146114/files/ or https://github.com/chenle02/Dynamical_Dirichlet_Mixture_Model

2. L. Chen, L. Zhang, F. Jing, K. Deng and W.-Y. Ma. Ranking web objects from multiple communities. *ACM* 14^{th} *Conference on Information and Knowledge Management (CIKM)*, 2006.

3. L. Zhang, L. Chen, F. Jing, K. Deng and W.-Y. Ma. EnjoyPhoto: a vertical image search engine for enjoying high-quality photos. *ACM Multimedia,* 2006.

4. X. Li, L. Chen, L. Zhang, F. Lin and W.-Y. Ma. Image annotation by large-scale content-based image retrieval. *ACM Multimedia,* 2006.

5. D. Wang, D. Ding, L. Chen, S. Zhang, F. Lin, B. Zhang. Two kinds of timing cues and their usage in concept detection in news video, *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2005.

6. L. Chen, D. Ding, D. Wang, F. Lin and B. Zhang. Ap-based Borda voting method for feature extraction in trecvid-2004. *In: Losada D.E., Fernández-Luna J.M. (eds) Advances in Information Retrieval. ECIR 2005. Lecture Notes in Computer Science*, vol 3408. Springer, Berlin, Heidelberg, 2005.

7. D. Ding, L. Chen, and B. Zhang. Temporal shot clustering analysis for video concept detection. *In: Losada D.E., Fernández-Luna J.M. (eds) Advances in Information Retrieval. ECIR 2005. Lecture Notes in Computer Science*, vol 3408. Springer, Berlin, Heidelberg, 2005.

References

Available upon request.