

Li-Cheng Tsai Curriculum Vitae

<https://lc-tsai.github.io/>

lctsai@gmail.com

Education

Stanford University	Sep 2011 – Jun 2016
Ph.D. Mathematics, June 2016 Thesis advisor: Amir Dembo	
Institute of Mathematics, Academia Sinica	Jul 2010 – Jun 2011
Research Trainee Mentor: Tai-Ping Liu	
National Taiwan University	Sep 2005 – June 2009
Bachelor of Science in Physics with minor in Mathematics, June 2009	

Positions

The University of Utah	Jul 2022 –
Tenure-track Assistant Professor of Mathematics	
Rutgers University—New Brunswick	Jul 2019 – Jun 2022
Tenure-track Assistant Professor of Mathematics	
Columbia University	Jul 2016 – Jun 2019
Junior Fellow of the Simons Society of Fellows Postdoctoral Research Scientist in Department of Mathematics Mentor: Ivan Corwin	

Honors and awards

Sloan Research Fellowships	2022
Bernoulli Society New Researcher Award	2020
Junior Fellow, Simons Society of Fellows	2016

Grants and fellowships

Sloan Research Fellowships	2022	\$75,000	Jul 2022 – Jun 2026
Standard NSF Grant DMS-2153739 transferred to DMS-2243112	2022	\$225,000	Jul 2022 – Jun 2025
Standard NSF Grant DMS-1712575 transferred to DMS-1953407	2017	\$149,111	Jul 2017 – Jun 2022

Professional service

Associate Editor Journal of Statistical Physics Jan 2022 –

Publications

Preprint

- [33] Sudheesh Surendranath and Li-Cheng Tsai
Two-dimensional delta Bose gas in a weighted space
In preparation
- [32] Li-Cheng Tsai
Stochastic heat flow by moments
arXiv: 2410.14657
- [31] Sayan Das and Li-Cheng Tsai
Solving marginals of the LDP for the directed landscape
arXiv: 2405.17041
- [30] Yier Lin and Li-Cheng Tsai
Spacetime limit shapes of the KPZ equation in the upper tails
arXiv:2304.14380

Published or to appear

- [29] Li-Cheng Tsai
High moments of the SHE in the clustering regimes
Journal of Functional Analysis 288 (1) 110675
- [28] Jeremy Quastel and Li-Cheng Tsai
Hydrodynamic large deviations of TASEP
To appear in Communications on Pure and Applied Mathematics
arXiv:2104.04444
- [27] Yier Lin and Li-Cheng Tsai
A lower-tail limit in the weak noise theory
To appear in Annales de l'Institut Henri Poincaré (B) Probabilités et
Statistiques. arXiv:2210.05629
- 2023 [26] Li-Cheng Tsai
Integrability in the weak noise theory
Transactions of the American Mathematical Society 376, pp 6521–6572 (2023)
- [25] Pierre Yves Gaudreau Lamarre, Yier Lin, and Li-Cheng Tsai
KPZ equation with a small noise, deep upper tail and limit shape
Probability Theory and Related Fields 185, pp 885–920 (2023)

- 2022 [24] Li-Cheng Tsai
Exact lower tail large deviations of the KPZ equation
Duke Mathematical Journal 171(9), pp 1879–1922 (2022)
- 2021 [23] Li-Cheng Tsai
Large deviations of the KPZ equation via the Stochastic Airy operator
Advanced Studies in Pure Mathematics 87, pp 415–429 (2021)
- [22] Yier Lin and Li-Cheng Tsai
Short time large deviations of the KPZ equation
Communications in Mathematical Physics 386(1), pp 359–393 (2021)
- [21] Sayan Das* and Li-Cheng Tsai
Fractional moments of the Stochastic Heat Equation
Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques 57(2), pp 778–799 (2021)
- [20] Yu Gu, Jeremy Quastel, and Li-Cheng Tsai
Moments of the 2D SHE at criticality
Probability and Mathematical Physics 2(1), pp 179–219 (2021)
- 2020 [19] Ivan Corwin and Li-Cheng Tsai
SPDE Limit of Weakly Inhomogeneous ASEP
Electronic Journal of Probability 25, pp 1–55 (2020)
- [18] Ivan Corwin, Promit Ghosal*, Hao Shen, and Li-Cheng Tsai
Stochastic PDE Limit of the Six Vertex Model
Communications in Mathematical Physics 375, pp 1945–2038 (2020)
- 2019 [17] Yu Gu and Li-Cheng Tsai
Another look into the Wong-Zakai Theorem for Stochastic Heat Equation
Annals of Applied Probability 29(5), pp 3037–3061 (2019)
- [16] Hao Shen and Li-Cheng Tsai
Stochastic Telegraph Equation Limit for the Stochastic Six Vertex Model
Proceedings of American Mathematical Society 147(6), pp 2685–2705 (2019)
- [15] Stefano Olla and Li-Cheng Tsai
Exceedingly Large Deviations of the Totally Asymmetric Exclusion Process
Electronic Journal of Probability 24(16), pp 1–71 (2019)
- [14] Amir Dembo and Li-Cheng Tsai
Criticality of a Randomly-Driven Front
Archive for Rational Mechanics and Analysis 233(2), pp 643–699 (2019)
- 2018 [13] Ivan Corwin, Promit Ghosal*, Alexandre Krajenbrink*, Pierre Le Doussal, and Li-Cheng Tsai
Coulomb-gas electrostatics controls large fluctuations of the KPZ equation
Physical Review Letters 121(6), page 060201-1 to page 060201-6 (2018)

- [12] Li-Cheng Tsai
Stationary Distributions of the Atlas Model
Electronic Communications in Probability 23(10) pp 1–10 (2018)
- [11] Ivan Corwin, Hao Shen, and Li-Cheng Tsai
ASEP (q,j) converges to the KPZ equation
Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques 54(2), pp 995–1012 (2018)
- [10] Wenpin Tang and Li-Cheng Tsai
Optimal Surviving Strategy for Drifted Brownian Motions with Absorption
Annals of Probability 46(3), pp 1597–1650 (2018)
- 2017 [9] Andrey Sarantsev and Li-Cheng Tsai
Stationary Gap Distributions for Infinite Systems of Competing Brownian Particles
Electronic Journal of Probability 22, pp 1–20 (2017)
- [8] Amir Dembo and Li-Cheng Tsai
Equilibrium Fluctuation of the Atlas Model
Annals of Probability 45(6B), pp 4529–4560 (2017)
- [7] Ivan Corwin and Li-Cheng Tsai
KPZ equation limit of higher-spin exclusion processes
Annals of Probability 45(3), pp 1771–1798 (2017)
- 2016 [6] Li-Cheng Tsai
Infinite Dimensional Stochastic Differential Equations for Dyson's Model
RIMS Kôkyûroku Bessatsu B59, pp 175–201 (2016)
- [5] Li-Cheng Tsai
Infinite Dimensional Stochastic Differential Equations for Dyson's Model
Probability Theory and Related Fields 166(3), pp 801–850 (2016)
- [4] Amir Dembo and Li-Cheng Tsai
Weakly Asymmetric Non-Simple Exclusion Process and the Kardar-Parisi-Zhang Equation
Communications in Mathematical Physics 341(1) 219–261 (2016)
- [3] Hung-Wen Kuo, Tai-Ping Liu, and Li-Cheng Tsai
Equilibrating effects of boundary and collision in rarefied gasses
Communications in Mathematical Physics 328(2) pp 421–480 (2014)
- [2] Hung-Wen Kuo, Tai-Ping Liu, and Li-Cheng Tsai
Free Molecular Flow with Boundary Effect
Communications in Mathematical Physics 318(2), pp 375–409 (2013)
- [1] Li-Cheng Tsai
Viscous Shock Propagation with Boundary Effect
Bulletin, Institute of Mathematics, Academia Sinica (New Series) 6(1), pp 1–25 (2011)

