Xinyi Li

Assistant Professor

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Personal Information
Born on: 24, August, 1988
Place of Birth: Chengdu, China
Citizenship: Chinese

Research Interests: Probability theory, statistical physics, random geometry.

Education and Work

2019 -	**Assistant Professor**, BICMR, Peking University, Beijing, China.
2016 - 2019	**L. E. Dickson instructor**, Department of Mathematics, the University of Chicago.
2012 - 2016	**Dr. sc. ETH Zurich**, Department of Mathematics, ETH Zurich, Switzerland, under supervision of **Prof. Alain-Sol Sznitman**. Title of thesis: *On large deviations and disconnection for random walk and random interlacements.*
2011 - 2012	**M. Sc. in Mathematics**, Paris Dauphine University, France, as laureate of Paris Graduate School of Mathematical Sciences.
2007 - 2011	**B. Sc. in Mathematics**, Peking University, Beijing, China.

Works

G. Cai, X. Li and X. Sun. On the axiomatic characterization of the natural measures of SLE cut points and CLE pivotal points. *In preparation.*

X. Li and Z. Zhuang. Entropic repulsion for the intersection of two indepndent random interlacements. *In preparation.*

H. Du, Y. Gao, X. Li, and Z. Zhuang. Sharp estimates for probabilities of arm events in critical planar percolation. *In preparation.*

Y. Gao, X. Li and W. Qian. Multiple points on the boundaries of Brownian loop-soup clusters. *In preparation.*

H. Hernandez-Torres, X. Li and D. Shiraishi. Minkowski content for the scaling limit of loop-erased random walk in three dimensions. *In preparation.*

X. Li and Y. Liu. Sharpness of phase transition for Voronoi percolation in hyperbolic space. *Preprint*, available at arXiv:2111.07276.

X. Li and D. Shiraishi. The Hölder continuity of the scaling limit of three-dimensional loop-erased random walk. *Preprint*, available at arXiv:2111.04977.

X. Li and D. Shiraishi. Natural parametrization for the scaling limit of loop-erased random walk in three dimensions. *Preprint*, submitted.

N. Holden, G. Lawler, X. Li and X. Sun. Minkowski content of Brownian cut points.
To appear in *Ann. Inst. Henri Poincaré, Probab. Stat.*

N. Holden, X. Li and X. Sun. Natural parametrization of percolation interface and pivotal points.
To appear in *Ann. Inst. Henri Poincaré, Probab. Stat.*

X. Li and D. Shiraishi. One-point function estimates for loop-erased random walk in three dimensions. *Electron. J. Probab.*, **24**(111):1-46 (2019).

M. Hilario, X. Li and P. Panov. Shape theorem and surface fluctuation for Poisson cylinders.
Preprint. Electron. J. Probab., **24**(68):1-16 (2019).

X. Li. Percolative properties of Brownian interlacements and its vacant set.
J. Theor. Probab., **33**:1855-1893 (2019).

X. Li. A lower bound for disconnection by simple random walk.
Ann. Probab., **45**(2):879-931, 2017.

X. Li and A.-S. Sznitman. Large deviations for occupation time profiles of random interlacements.
Probability Theory and Related Fields, **161**(1-2):309-350 (2015).

X. Li and A.-S. Sznitman. A lower bound for disconnection by random interlacements.
Electronic Journal of Probability, **19**(17):1-26 (2014).

Grants

- **Principal Investigator**, National Key Research & Development Program of China Young Scientist Fellowship CNY 3,000,000. (2022-2026)
- **Principal Investigator**, National Science Foundation of China, Grant No. 12071012: CNY 510,000. (2021-2024)
- **Participant**, National Key Research & Development Program of China No. 2020YFA0712900, CNY 310,000 (CNY 4,400,000 in total). (2020-2025)
- **Principal Investigator**, Start-up Grant of Peking University: CNY 400,000. (2020-2022)

Supervision of Students

- Yifan Gao (5th year, co-supervision with Fuxi Zhang), , will be postdoc at City University of Hong Kong from Jul. 2022.
- Yu Liu (2nd year).
- Aoteng Xia (2nd year, co-supervision with Gang Tian).
- Philippe Deprez (master, , joint with A.-S. Sznitman and D. Belius).

Selected Talks

11/2016	Probability and Statistical Physics Seminar, The University of Chicago.
11/2016	Probability Seminar, Northwestern University.
02/2017	Courant Institute Probability and Mathematical Physics Seminar, New York University.
04/2017	Probability Seminar, UCLA.
09/2017	Probability Seminar, NYU Shanghai.
09/2017	Probability Seminar, Peking University.
12/2017	Probability Seminar, NYU Shanghai.
12/2017	Kansai Probability Seminar, Kyoto University.
02/2018	Probability Seminar, Stanford University.
03/2018	Discrete Mathematics and Statistical Mechanics Seminar, University of Connecticut.
04/2018	Probability Seminar, Michigan State University.
04/2018	Probability Seminar, UCLA.
05/2018	Probability Seminar, Texas A & M University.
08/2018	Random Walks in Correlated and Dynamic Environments, Texas A & M University.
10/2018	Statistics Seminar, University of Illinois at Chicago.
10/2018	Probability Seminar, McGill University.
11/2018	Probability Seminar, University of Illinois at Urbana-Champaign.
01/2019	Penn/Temple Probability Seminar, University of Pennsylvania.
02/2019	Probability Seminar, Purdue University.
04/2019	Colloquium, University of Colorado, Colorado Springs.
04/2919	Columbia Probability Seminar, Columbia University.
07/2019	Seasonal Institute of Mathematical Society of Japan.
11/2019	Annual meeting of the Chinese Mathematical Society.
12/2019	Probability Symposium, Keio University.
01/2020	Mini-course, National University of Singapore.
12/2020	East China Normal University.
04/2021	Colloquium, Tsinghua University.

Academic Visits

09/2017, 12/2017, 07/2020	NYU Shanghai.
12/2017, 06-07/2018, 07/2019	Kyoto University.

Community Contributions

- Co-organizer of THU-PKU-BNU joint probability webinar.
- Referee for the following journals: *Annals of Probability*, *Communications in Mathematical Physics*, *Electronical Journal of Probability* and *Stochastic Processes and their Applications*.
- Reviewer of Mathematical Reviews of the American Mathematical Society.

Languages

Chinese: native.
English: fluent (written and spoken).
French: intermediate (spoken) to fluent (written).
German: intermediate (written and spoken).
Japanese: intermediate (written).
Latin: intermediate (written).