

# Yijun Wan

Département de Mathématiques et Applications  
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Born: July 22, 1995—China

Citizenship: Chinese

Languages: English (fluent), French (intermediate), Chinese (native)

Computer skills: Python, C, LaTeX

Research interests: random walks, Ising model, random fields, optimization, learning theory

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## Education

- 2019-2022 **Ph.D.** under the supervision of Prof. Dmitry Chelkak at École Normale Supérieure, Paris.  
2016-2019 **Normalienne** at École Normale Supérieure, Paris, France.  
2017-2018 **M.Sc. 2**, Probability and random models, Sorbonne Université, Paris, France. Mention: *Très bien*.  
Courses: Markov processes and applications, Stochastic calculus and diffusion processes, Limit theorems for stochastic processes, Poisson point processes, Lévy processes and excursions, Statistics and learning, Malliavin calculus, Ergodic theory, Gaussian multiplicative chaos, Two-dimensional Yang-Mills measure.  
2016-2017 **M.Sc. 1**, Mathematics, Université Paris Diderot, Paris, France. Mention: *Très bien*.  
Courses: Stochastic processes, Dynamical systems, Algorithms, Differential geometry, Algebraic topology, Combinatorics, Mixing times.  
2013-2016 **B.Sc.** Mathematics, Beihang University, being selected in Hua Loo-gehng Class, Beijing, China.

## Papers

- [1] On the convergence of massive loop-erased random walks to massive SLE(2) curves, with Dmitry Chelkak, *Electron. J. Probab.*, 26: 1-35 (2021).  
[2] Capacity of the range of tree-indexed random walk, with Tianyi Bai, *Ann. Appl. Probab.*, 32(3): 1557-1589 (2022)  
[3] On the crossing estimates of simple conformal loops ensembles, with Tianyi Bai, *Int. Math. Res. Not.*, 2022.  
[4] Chaotic Regularization and Heavy-Tailed Limits for Deterministic Gradient Descent, with Soon Hoe Lim and Umut Şimşekli, Advances in Neural Information Processing Systems Conference (NeurIPS), 2022.  
[5] On the convergence of energy densities in the Ising model and bosonization on rough domains, with Dmitry Chelkak and S.C. Park, In preparation, 2022.

## Research visits and schools

10/2022-12/2022	Institut des Hautes Études Scientifiques, Bures-sur-Yvette (host: Yilin Wang)
07/2022	Summer school on Statistical Physics Machine learning, Les Houches, France.
04/2022	New York University Abu Dhabi, the United Arab Emirates (host: Prof. Federico Camia)
02/2019-04/2019	Yau Mathematical Sciences Center, Tsinghua University, Beijing, China (host: Prof. Hao Wu).
2021	CRM-PIMS Summer School in Probability.
2020, 2021	Online Open Probability School - UBC Math.
2020	CMI-HIMR Integrable Probability Online Summer School.
2019	Random Trees and Graphs Summer School, CIRM, Marseille, France.
2019	Probability and quantum field theory: discrete models, CFT, SLE and constructive aspects, Porquerolles, France.

## Teaching

2019-2022	Teaching assistant of "Fundamental Mathematics" for CPESz (Cycle Pluridisciplinaire d'Études Supérieures) at PSL. The course "Fundamental Mathematics" for sophomores at PSL in Science track is divided in two parts: algebra and analysis. I am in charge of the exercise sessions, which are devoted to these two parts on alternate weeks.
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## Talks

03/2019	The convergence of massive loop-erased random walks to massive SLE(2). Beijing.
07/2019	The convergence of massive loop-erased random walks to massive SLE(2). CIRM Luminy.
06/2021	On the crossing estimates of simple conformal loops ensembles and the scaling limits of double-dimer loop configurations. Orsay.
03/2022	Crossing estimates for simple conformal loop ensembles. Rencontre de printemps à Lyon.
04/2022	On the massive loop-erased random walks and massive SLEs. Abu Dhabi Stochastics Seminar.
06/2022	On massive perturbations of LERW, the Ising model and the dimer model. The 42nd Conference on Stochastic Processes and their Applications (SPA).
10/2022	cCrossing estimates for simple conformal loops ensembles and the convergence of probabilities of topological events for the double-dimer model. Les Probas du vendredi, Jussieu.

## Other professional activities

2020-	Member of the organizing committee of the quarterly conference <i>Les Probabilités de Demain</i> . This conference aims to bring together probabilists from the Paris region and give PhD students an opportunity to present their works after introductory talks given by senior researchers.
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