

# Yichao HUANG

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## Research interest

Probability and mathematical physics, especially on Gaussian Multiplicative Chaos, Liouville Quantum Gravity and Conformal Field Theory and their interactions with other disciplines.

## Work and Education

- 2018 – 21 | **Post-doctoral researcher at University of Helsinki, Finland.**  
Supervisors : **Antti Kupiainen** and **Eero Saksman** under the ERC-grant QFPROBA.
- 2014 – 17 | **PhD student at University Paris VI and DMA of École Normale Supérieure de Paris.**  
Supervisors : **Rémi Rhodes** and **Vincent Vargas**.  
PhD thesis in probability on *Gaussian Multiplicative Chaos* and *Liouville Quantum Gravity*.  
Defended in Nov 2017 at DMA/ENS. Referees: Nathanaël Berestycki, Christophe Garban.  
Jury : J. Barral, N. Curien, C. Garban, A. Kupiainen, R. Rhodes, E. Saksman, Z. Shi, V. Vargas.
- 2010 – 14 | **Élève normalien at École Normale Supérieure de Paris.**  
FIMFA cursus of École Normale Supérieure de Paris. ENS Paris Diploma.  
Master “Probabilités et modèles aléatoires” at University Paris VI, grade “Très Bien”.  
Thesis on *critical Gaussian Multiplicative Chaos*. Supervisors: Rémi Rhodes, Vincent Vargas.
- 2008 – 10 | **Preparatory Classes MPSI–MP\*, Lycée Janson de Sailly.**  
Admitted to École Normale Supérieure de Paris through French national entrance exam.

## Publications (as of 1 Jan 2022)

- [6] *Some elementary properties of Gaussian multiplicative chaos measures as Clark measures* with Eero Saksman, **in preparation**, 2022+
- [5] *Ward identities in the  $\mathfrak{sl}_3$  Toda conformal field theory* with Baptiste Cerclé, **accepted, Communications in Mathematical Physics**, 2021+
- [4] *Another probabilistic construction of  $\Phi^{2n}$  in dimension 2*  
**Electronic Communications in Probability**, 2021
- [3] *Analytic continuation of Liouville theory: the probabilistic region*  
preprint, 2019+
- [2] *Two perspectives of the 2D unit area quantum sphere and their equivalence* with Juhan Aru and Xin Sun, **Communications in Mathematical Physics**, 2017
- [1] *Liouville Quantum Gravity on the unit disk* with Rémi Rhodes and Vincent Vargas, **Annales de l'Institut Henri Poincaré (B)**, 2018

## Conference talks

- 2021 First International Conference for Chinese Young Probability Scholars, **Online**
- 2020+ Spectral Theory and Probability in Mathematical Physics, **Strasbourg, France**, postponed
- 2018 Stochastic Processes and their Applications (SPA), Invited Session, **Göteborg, Sweden**
- 2017 Conference “Fractal geometry and dynamics”, **Institut Mittag-Leffler, Sweden**
- 2016 Conference “Les Probabilités de Demain”, **Institut des Hautes Études Scientifiques, France**  
Colloquium “Jeunes Probabilistes et Statisticiens”, **École de Physique des Houches, France**
- 2013 Conference “Des probas de la rue d'Ulm”, **École Normale Supérieure de Paris, France**

## Seminar talks

- 2022 Joint Probability Webinar, **THU-PKU-BNU, China**  
Seminar of Applied Mathematics, **Academy of Mathematics and Systems Science, China**
- 2017 Conference of Mathematical Physics group, **University of Helsinki, Finland**
- 2016 Conference of Probability/Statistics team, **École Normale Supérieure de Paris, France**  
PhD/Postdoc seminar of ENS Paris, **École Normale Supérieure de Paris, France**
- 2015 PhD/Postdoc seminar of University Paris XII, **Université Paris-Est, France**

## Research visits

- Dec 2018 **Tsinghua University, China**  
Yau Mathematical Sciences Center
- Fall 2017 **Institut Mittag-Leffler, Sweden**  
IML postdoctoral fellowship grant
- Apr 2015 **Isaac Newton Institute, UK**  
Cambridge-PSL French embassy fund

## Teaching

- 2021 – 22 | **Lecturer and assistant**, graduate level, **University of Helsinki (75 hours)**  
Probability Theory I (hybrid onsite/online version due to Covid-19)
- 2020 – 21 | **Lecturer**, undergraduate level, **University of Helsinki (60 hours)**  
Analysis Ia: Limits and Differentiation (online version due to Covid-19)
- 2019 – 20 | **Lecturer and assistant**, undergraduate level, **University of Helsinki (75 hours)**  
Analysis Ia: Limits and Differentiation (first English version in the University of Helsinki)
- 2018 – 19 | **Assistant**, undergraduate level, **University of Helsinki (15 hours)**  
Vector Analysis I
- 2014 – 17 | **Assistant**, undergraduate level, **University Paris VI (192 hours)**  
Several courses in Maths, Chemistry, Computer Science
- 2011 – 12 | **Oral examiner in Preparatory Classes (60 hours)**  
Lycée Janson de Sailly, Paris

## Scientific duties

- Referee | Electronic Journal of Probability  
Journal of Mathematical Analysis and Applications
- 2013 – 17 | **Nominated member of the advisory committee of the laboratory**, DMA, ENS Paris
- 2016 | **(Co)-Supervision of undergraduate thesis**

## Scientific vulgarisation

- 2016 – 17 | **Jury, TFJM<sup>2</sup> (Tournoi français des jeunes mathématiciennes et mathématiciens)**  
TFJM<sup>2</sup>: team competition by French high school students on open questions
- 2010 – 11 | **Tutor of six high school students**, TalENS association

## Languages

- Chinese** Native
- English** Fluent
- French** Fluent