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Scientific interests

Probability theory and mathematical physics.

Keywords: Statistical Physics, Interacting particle systems, Integrable probability, random walks in random environment, quantum integrable systems, random matrix theory, symmetric functions, stochastic PDEs.

Academic positions

- 2018 – ... **CNRS researcher**, École Normale Supérieure, Laboratoire de Physique de l'ENS.
2016 – 2018 Ritt assistant professor, Columbia University, Department of Mathematics.
2015 – 2016 Postdoctoral researcher, Columbia University, Department of Mathematics.

Education

- 2012 – 2015 **Université Paris-Cité (Paris 7)**, Ph.D. in applied mathematics.
2011 – 2012 **Sorbonne Université (Paris 6)**, M.S. in probability and statistics.
2008 – 2011 **École Polytechnique**.
2006 – 2008 **Lycée Henri IV**, Classes préparatoires aux grandes écoles, mathematics and physics.

Funding

- 2025 – 2029 Coordinator of PSL's "grand programme" [Statistical Physics and Mathematics](#). It gathers 25 mathematicians and physicists from ENS and Dauphine. Budget: 2M€.
2023 – 2025 PI of ANR Tremplin ERC IntStoch – [Integrable stochastic models of non-intersecting paths, interfaces and diffusion in random media](#). Budget: 113k€.
2022 – 2026 Member of [ANR CORTIPOM](#) – Combinatorial representation theory and interactions with probabilistic models.
2020 – 2024 Member of [ANR MICMOV](#) – Description microscopique des interfaces mobiles.
2020 – 2023 France-MIT MISTI travel grant (joint with Alexei Borodin and Pierre Le Doussal).

Publications

Mathematics

21. Integral formulas for two-layer Schur and Whittaker processes, [preprint](#). [ArXiv:2409.08927](https://arxiv.org/abs/2409.08927)
20. KPZ exponents for the half-space log-gamma polymer, with Ivan Corwin and Sayan Das, [Probability Theory and Related Fields](#). [ArXiv:2310.10019](https://arxiv.org/abs/2310.10019)
19. Stationary measures for integrable polymers on a strip, with Ivan Corwin and Zongrui Yang, [Inventiones Mathematicae](#). [ArXiv:2306.05983](https://arxiv.org/abs/2306.05983)
18. Weakly asymmetric facilitated exclusion process, with Oriane Blondel and Marielle Simon, [preprint](#). [ArXiv:2301.04689](https://arxiv.org/abs/2301.04689)
17. Markov duality and Bethe ansatz formula for half-line open ASEP, with Ivan Corwin, [Probability and Mathematical Physics](#). [ArXiv:2212.07349](https://arxiv.org/abs/2212.07349)

16. Stationary measures for the log-gamma polymer and KPZ equation in half-space, with Ivan Corwin, **Annals of Probability**. [ArXiv:2203.11037](#)
15. Random walk on nonnegative integers in beta distributed random environment, with Mark Rychnovsky, **Communications in Mathematical Physics**, 2023. [ArXiv:2201.07270](#)
14. An identity in distribution between full-space and half-space log-gamma polymers, with Shouda Wang, **International Mathematics Research Notices**, 2022. [ArXiv:2108.08737](#)
13. Maximal free energy of the log-gamma polymer, with Ivan Corwin and Evgeni Dimitrov, **Journal d'Analyse Mathématique**. [ArXiv:2105.05283](#)
12. Spatial tightness at the edge of Gibbsian line ensembles, with Ivan Corwin and Evgeni Dimitrov, **Communications in Mathematical Physics**, 2023. [ArXiv:2101.03045](#)
11. Fluctuations of the log-gamma polymer free energy with general parameters and slopes, with Ivan Corwin and Evgeni Dimitrov, **Probability Theory and Related Fields**, 2021. [ArXiv:2012.12316](#)
10. Large deviations for sticky Brownian motions, with Mark Rychnovsky, **Electronic Journal of Probability**, 2020. [ArXiv:1905.10280](#)
9. Half-space Macdonald processes, with Alexei Borodin et Ivan Corwin, **Forum of Mathematics Pi**, 2020. [ArXiv:1802.08210](#)
8. Tracy-Widom asymptotics for a river delta model, with Mark Rychnovsky, in **Stochastic Dynamics Out of Equilibrium**, Institut Henri Poincaré, Paris, France, 2017, Springer Proceedings in Mathematics & Statistics, 2019. [ArXiv:1807.01824](#)
7. Stochastic six-vertex model in a half-quadrant and half-line open ASEP, with Alexei Borodin, Ivan Corwin and Michael Wheeler, **Duke Mathematical Journal**, 2018. [ArXiv:1704.04309](#)
6. Facilitated exclusion process, with Jinho Baik, Ivan Corwin and Toufic Suidan, **Computation and Combinatorics in Dynamics, Stochastics and Control**. Abel Symposia, 2018. [ArXiv:1707.01923](#)
5. Pfaffian Schur processes and last passage percolation in a half-quadrant, with Jinho Baik, Ivan Corwin and Toufic Suidan, **Annals of Probability**, 2018. [ArXiv:1605.00525](#)
4. Random walks in Beta-distributed random environment, with Ivan Corwin, **Probability Theory and Related Fields**, 2017. [Arxiv:1503.04117](#).
3. The q -Hahn asymmetric exclusion process, with Ivan Corwin, **Annals of Applied Probability**, 2016. [ArXiv:1501.03445](#).
2. A phase transition for q -TASEP with a few slower particles. **Stochastic Processes and their Applications**, 2015. 2674–2699. [ArXiv:1404.7409](#)
1. A short proof of a symmetry identity for the q -Hahn distribution. **Electronic Communications in Probability**, 2014. [ArXiv:1404.4265](#)

Physics

9. Large time cumulants of the KPZ equation on an interval, with Pierre Le Doussal, **preprint**, 2025. [ArXiv:2504.18292](#)
8. Stationary measures of the KPZ equation on an interval from Enaud-Derrida's matrix product ansatz representation, with Pierre Le Doussal, **Journal of Physics A: Mathematical and Theoretical**, 2023. [ArXiv:2209.03131](#)
7. A stationary model of non-intersecting directed polymers, with Pierre Le Doussal, **Journal of Physics A: Mathematical and Theoretical**, 2023. [ArXiv:2205.08023](#)
6. Half-space stationary Kardar-Parisi-Zhang equation beyond the Brownian case, with Alexandre Krajenbrink and Pierre Le Doussal, **Journal of Physics A: Mathematical and Theoretical**, 2022. [ArXiv:2202.10487](#)
5. Steady state of the KPZ equation on an interval and Liouville quantum mechanics, with Pierre Le Doussal, **EuroPhysics Letters**, 2021. [ArXiv:2105.15178](#)
4. The KPZ equation in a half space with flat initial condition and the unbinding of a directed polymer from an attractive wall, with Pierre Le Doussal, **Physical Review E**, 104, 2021. [ArXiv:2104.08234](#)

3. Half-space stationary Kardar-Parisi-Zhang equation, with Alexandre Krajenbrink and Pierre Le Doussal, **Journal of Statistical Physics**, 2020. [ArXiv:2003.03809](#)
2. Moderate deviations for diffusion in time dependent random media, with Pierre Le Doussal, **Journal of Physics A: Mathematical and Theoretical** 2020. [ArXiv:1912.11085](#)
1. Stochastic growth in time dependent environments, with Pierre Le Doussal and Alberto Rosso, **Physical Review E, rapid communications**, 2020. [ArXiv:1909.11557](#)

Other texts

2. Le paysage dirigé, d'après Duncan Dauvergne, Janosch Ortmann et Balint Virág, Séminaire Bourbaki 1227, Novembre 2024 [\[hal-04834177\]](#)
1. PhD thesis: [Some integrable models in the KPZ universality class](#), Université Paris Diderot – Paris 7, June 2015.

Advising

- 2025 Postdoc: Francesco Casini
 2024–2027 Phd student: Zikun Ouyang

Service and Organization of events

Research programs, conferences, workshops co-organized

- Jan-Mar 2028 Trimester program at Institut Henri Poincaré “Statistical Physics and Mathematics”.
 Apr-May 2025 Two-month research program at CMSA, Harvard: [Classical, quantum, and probabilistic integrable systems – novel interactions and applications](#).
 Oct. 2022 Workshop in Lille, [Asymmetry in interacting particle systems, microscopic and macroscopic effects](#).
 June 2020 Conference [Random networks and interacting particle systems](#) at École Normale Supérieure – event cancelled at the last minute due to Covid.
 Oct. 2017 Workshop at Columbia University for the NSF Focused Research Group Integrable Probability.

Seminars co-organized

- 2024 – ... Rencontres de probabilité intégrables: integrable probability meetings, one day twice a year at Institut Henri Poincaré.
 2019 – 2024 Seminar [MEGA](#), a Parisian seminar on random matrix theory at Institut Henri Poincaré.
 2018 – 2022 Seminar [Statistical Physics Forum](#) at École normale supérieure Physics department.
 2015 – 2018 Columbia Probability Seminar.
 2013 – 2014 PhD students probability seminar joint between Paris 6 and Paris 7.

Editorial

- 2025–2027 Associate Editor for **ALEA – Latin American Journal of Probability and Mathematical Statistics**.

Other responsibilities

- 2023 – 2025 Member of CNRS Mathematics “comité national” (section 41).
 2024 Member of the visiting committee (HCERES) of [MODAL'X](#), Université Paris Nanterre.

Teaching

- 2024 – ... Specialized master level course on “Integrable probability and the KPZ universality class”, Master MATH, PSL University.
 2016 – 2018 Instructor at Columbia University Mathematics Department: Linear algebra, Ordinary differential equations, Calculus.
 2012 – 2015 “Chargé de TD” at University Paris-Cité.

Invited talks

General audience talks and colloquia

- Nov. 2024 Séminaire Bourbaki, Institut Henri Poincaré.
Le paysage dirigé, d'après Dauvigne, Ortmann, Virág.
- May 2023 Mathematics and Physics Colloquium, Strasbourg.
The Kardar-Parisi-Zhang equation and its universality class.

Conferences

- June 2026 Universality in the Kardar-Parisi-Zhang Class and Random Matrix Theory, Edinburgh.
TBD.
- Sept. 2025 French Japanese Conference on Probability and Interactions, Tokyo.
TBD.
- July 2025 Non-equilibrium Statistical Physics: Mathematical and Physical Advances (StatPhys25 satellite meeting), Florence.
TBD.
- July 2025 SPA, Warsaw.
TBD.
- July 2025 InterPlay between Integrable Probability and Interacting Particle systems, Angers.
TBD.
- June 2025 PIICQ annual meeting, Lyon.
TBD.
- May 2025 Statistical Physics Out of Equilibrium: Quantitative Results and Universality, Oberwolfach.
TBD.
- Oct. 2024 Discrete integrable systems: difference equations, cluster algebras and probabilistic models, ICTS Bangalore, India.
Last passage percolation in a strip.
- Oct. 2024 Algebraic Aspects of Random Matrices, CIRM.
Last passage percolation in a strip.
- Sept. 2024 Random Matrices and Scaling Limits, focus week at Mittag Leffler Institute, Stockholm.
Last passage percolation in a strip.
- Aug. 2024 Intertwining between Probability, Analysis and Statistical Physics, Singapore.
Last passage percolation in a strip.
- May 2024 At the crossroads of physics and mathematics : the joy of integrable combinatorics — A conference in the honor of Philippe Di Francesco's 60th birthday
Last passage percolation in a strip.
- Apr. 2024 Kardar-Parisi-Zhang equation: new trends in theories and experiments, Les Houches School of Physics.
Non-equilibrium steady state for the open KPZ equation.
- Mar. 2024 Conference for Jeremy Quastel's 60th birthday, New York
Stationary measures for the open KPZ class.
- Oct. 2023 The Asymmetric Simple Exclusion Process, Simons center, Stony Brook.
Stationary measures in last passage percolation.
- July 2023 Stochastic Processes and their Applications, Lisbon, Portugal
Stationary measures of the open KPZ equation
- June 2023 Simons Symposia on Solvable Lattice Models and Interacting Particle Systems, Schloss-Elmau, Germany
Stationary measures for directed polymer models on a strip
- Déc. 2022 Coulomb gases and universality in Paris.
Non-intersecting directed polymers
- Déc. 2022 Recent developments in stochastic duality, EURANDOM, Delft.
ASEP with boundary, stationary measures and Markov duality
- Nov. 2022 Rouen probability meeting 2022
Stationary measures for the Kardar-Parisi-Zhang equation and ASEP
- May 2022 Randomness, Integrability, Universality, Galileo Galilei Institute, Florence.
Characterizing invariant measures using symmetries of integrable probabilistic models
- May. 2022 Random Matrix Eurasia, Singapore.
Pinning of directed polymers and the Baik-Ben Arous-Péché phase transition.

Jan. 2022	Inhomogeneous Random Systems, Institut Henri Poincaré. <i>Half-space Kardar-Parisi-Zhang equation</i>
Oct. 2021	Workshop of the GDR MEGA, Saint Malo. <i>The KPZ universality class and integrable probability</i>
July 2021	Classical and Quantum Integrable Systems, Sochi, Russia. <i>Cancelled.</i>
Mar. 2020	NYC Integrable Probability 2020 – Cancelled. <i>Half-space stationary KPZ equation</i>
Feb. 2020	Third Haifa Probability School, Israel. <i>Diffusions in random environment</i>
Jun. 2019	Virginia summer school in integrable probability, Charlottesville, USA. <i>Diffusions in random environment.</i>
Jun. 2018	Young Researchers Meeting on Integrable Systems, Cergy, France. <i>Kardar-Parisi-Zhang equation and Macdonald processes in a half-space.</i>
May 2018	Integrable Probability Boston 2018, MIT. <i>Macdonald processes and KPZ equation in a half space.</i>
Jul. 2017	27th Annual PCMI Summer Session, Random Matrices, Park city, USA. <i>ASEP and KPZ equation in a half-space with open boundary.</i>
Jun. 2017	Stochastic dynamics out of equilibrium, Institut Henri Poincaré, France. <i>ASEP and the KPZ equation in a half space.</i>
Apr. 2017	Qualitative Methods in KPZ Universality, CIRM, Marseille, France. <i>ASEP on the positive integers with an open boundary and the KPZ equation in a half space.</i>
Jan. 2017	Joint mathematics meeting American Mathematical Society-Mathematical Association of America, Atlanta, USA. <i>Facilitated TASEP and half-space KPZ growth.</i>
Apr. 2016	Columbia-Princeton Probability Day, New York, USA. <i>Random walks in Beta random environment.</i>
Jan. 2016	New approaches to non-equilibrium and random systems, Kavli institute, Santa Barbara, USA. <i>Fluctuations of the first particle in exclusion processes.</i>
Dec. 2015	Master Lectures in Mathematics around the work of Horng-Tzer Yau, Tsinghua Sanya International Mathematics Forum, China. <i>Fluctuations of the first particle in exclusion processes.</i>
May 2015	Clay Mathematics Institute workshop “Random Polymers and Algebraic Combinatorics”, Oxford, UK. <i>Random walks in Beta random environment.</i>

Seminars

2025	Sorbonne Université (LPSM), CMSA Harvard, Université d'Angers.
2024	Sorbonne Université (CORTIPOM workshop), KTH (Stockholm), Université Paris-Nord, Université Grenoble-Alpes, Sorbonne Université Physics (LPTMC), University College Dublin
2023	Université Paris-Dauphine (séminaire Analyse-Probabilités), University of Cincinnati, Université Paris-Cité, University of Bristol (online), University of Edimburg, University of Bonn
2022	Ecole Normale Supérieure, Sorbonne Université, Seminário de Probabilidade e Mecânica Estatística (online), MIT, Leipzig (Oberseminar Analysis-Probability), Université Paris-Saclay (LPTMS), Columbia University, Warsaw University of Technology (online)
2021	Université d'Aix-Marseille, Université de Toulouse, MSRI (Berkeley), Columbia University
2020	Université de Lille, University of Bath (online), École Normale supérieure de Lyon.
2019	Université de Lyon, Université Paris Saclay, University College Dublin, Institut Henri Poincaré, Université d'Angers
2018	Université Paris 5, ENS (LPTENS), Sorbonne Université (LPTHE), Institut Henri Poincaré (MEGA seminar), Université Paris Dauphine, Université Paris Diderot, Universität Bonn, NYU Shanghai
2017	New York University, CUNY, University of Kansas
2016	UCLA, University of Virginia, NYC Integrable Probability Working Group
2015	Université d'Angers, Université Paris 6, Institut Henri Poincaré (MEGA seminar), Stanford University, UC Davis, UC Berkeley, University of Michigan, New York University, MIT, Harvard