

Research interests

Probability/analysis in connection with statistical mechanics, especially out of equilibrium.

Keywords: out of equilibrium dynamics, scaling limits, renormalisation, functional inequalities, mixing.

Positions and training

- 2024 – **Marie Curie postdoctoral fellow**, CEREMADE, Université Paris-Dauphine-PSL, funding via MIGP cofund.
- 2023 – 2024 **Courant instructor**, Courant Institute of Mathematical Sciences, New York University.
- 2021 – 2023 **Research associate**, DPMMS, Cambridge University, supervised by Roland Bauerschmidt.
- 2018 – 2021 **Ph.D. thesis**, CMAP (Centre de Mathématiques APpliquées), Ecole Polytechnique, title : "Large deviations in interacting particle systems: out of equilibrium correlations and interface dynamics", supervised by Thierry Bodineau. Defended 13 September 2021.
- 2017 – 2018 **Master 2 "Mathématiques de l'aléatoire" (Mathematics of randomness)**, Université Paris Sud, Orsay, France.
- 2015 – 2017 **Master ICFP (International Centre for Fundamental Physics)**, Ecole normale supérieure, Paris, France, (Master 1 and 2 in physics).
- 2014 – 2015 **Bachelor in mathematics and physics**, Ecole normale supérieure, Paris, France.
- 2014 – 2018 **Student in Ecole normale supérieure**, Ecole normale supérieure, Paris, France.

Research articles

- Oct. 2023 **Fluctuations and correlations in the weakly asymmetric simple exclusion process on a ring subject to an atypical current**, accepted in Annals of Probability. Arxiv preprint: <https://arxiv.org/abs/2310.16793>
- Oct. 2023 **Kawasaki dynamics beyond the uniqueness threshold**, with Roland Bauerschmidt and Thierry Bodineau, published in Probability Theory and Related Fields (2024). <https://doi.org/10.1007/s00440-024-01326-9> (36p, presently only published online). Arxiv preprint: <https://arxiv.org/abs/2310.04609>
- July 2023 **Stochastic dynamics and the Polchinski equation: an introduction**, with Roland Bauerschmidt and Thierry Bodineau, published in Probability Surveys 21: 200-290 (2024). <https://doi.org/10.1214/24-PS27>.

- Dec. 2022 **Large deviations for out of equilibrium correlations in the symmetric simple exclusion process**, with *Thierry Bodineau*, published in *Electronic Journal of Probability* 29: 1-96 (2024). <https://doi.org/10.1214/24-EJP1121>.
- Feb. 2022 **Log-Sobolev inequality for near critical Ising models**, with *Roland Bauerschmidt*, published in *Communications in Pure and Applied Mathematics*, 77: 2568-2576 <https://doi.org/10.1002/cpa.22172>.
- Feb. 2022 **Log-Sobolev inequality for the φ_2^4 and φ_3^4 measures**, with *Roland Bauerschmidt*, published in *Communications in Pure and Applied Mathematics*, 77: 2579-2612 <https://doi.org/10.1002/cpa.22173>.
- May 2020 **Motion by curvature and large deviations for an interface dynamics on \mathbb{Z}^2** , published in *Probability and Mathematical Physics*, Vol. 5 (2024), No. 3, 609–734 <https://doi.org/10.2140/pmp.2024.5.609>. Open access version available at <https://arxiv.org/abs/2005.12581>

Invited talks and research visits

- Sep. 2025 **Interacting particle systems and related fields**, *CIRM, Marseille, France*.
- Sep. 2025 **Workshop Large Scale Stochastic Dynamics**, *Oberwolfach, Germany*.
- May 2025 **Seminar SPMES** (*online*).
- Apr. 2025 **Workshop “Stochastic equations and particle systems”**, *La Sapienza, Roma, Italy*.
- Apr. 2025 **Analysis Seminar at Bielefeld university**, *Bielefeld, Germany*.
- Apr. 2025 **Probability Seminar at Münster university**, *Münster, Germany*.
- Mar./Apr. 2025 **UK Easter probability meeting**, *Durham, United Kingdom*.
- March. 2025 **Analysis and PDE seminar at ENS Lyon** *Lyon, France*
- Feb. 2025 **Probability seminar at Warwick university**, *Coventry, United Kingdom*
- Nov. 2024 **“Markov” working group** *Jussieu, Paris*.
- Nov. 2024 **“Spectral problems in mathematical physics” seminar**, *IHP, Paris*.
- Oct. 2024 **Research visit at Münster university**, *Münster, Germany*, invited by Hendrik Weber.
- Sep./Oct. 2024 **Invited lecture at School and Miniconference on Metric Measure Spaces, Ricci Curvature, and Optimal Transport**, *Lake Como, Italy*.
- Sep. 2024 **Workshop: “Large scale behaviour of interacting diffusions: from stochastic control to functional inequalities”**, *Padova, Italy*.
- Aug. 2024 **IMS conference**, *Bochum, Allemagne*.
- 1 June – 15 July 2024 **Research visit at IHES**, *Bures sur Yvette, France*.
- June 2024 **Probability seminar**, *Rennes, France*.
- Feb. 2024 **Probability seminar**, *UW Madison, USA (online)*.
- Jan. 2024 **Probability and dynamical systems seminar**, *Rouen, France*.
- 18–22 Dec. 2023 **Oberwolfach Arbeitsgemeinschaft: QFT and Stochastic PDEs**, *Oberwolfach, Germany*.
- Nov. 2023 **Cornell probability seminar**, *Cornell university, Ithaca, USA*.

- Sep. 2023 **Probability and mathematical physics seminar**, *Courant institute of mathematical sciences, New York, USA.*
- Jul. 2023 **Stochastic Processes and their applications**, *Lisbon, Portugal.*
- Mar. 2023 **Seminar SPMES** (*online*).
- 6–10 Feb. 2023 **Research visit and 2h lecture on renormalisation method for log-Sobolev inequalities**, *Ecole normale supérieure and Université Paris Dauphine*, invited by Cristina Toninelli.
- 23–27 Jan. 2023 **Research visit in Vienna**, *TU Wien, Austria*, invited by Fabio Toninelli.
- Dec. 2022 **Séminaire de probabilités Lyon 1 - ENS de Lyon**, *Lyon, France.*
- 24–28 Sep. 2022 **Mathematical physics seminar and visit to Université de Genève**, *Genève, Suisse*
- Sep. 2022 **Short talk in research workshop**, *Oberwolfach, Germany*, (25 minutes talk).
- July 2022 **Short talk in research workshop**, *Oberwolfach, Germany*, (25 minutes talk).
- June 2022 **IMS conference**, *London, United Kingdom.*
- May 2022 **Bath probability seminar**, *Bath, United Kingdom.*
- Mar.–May 2022 **Participation and talk during "Probability and PDE" thematic semester**, *CRM, Montréal, Canada.*
- Jan. 2022 **5th colloquium on interacting particle systems**, *Técnico Lisboa*, online talk.
- Oct. 2021 **Rencontres de probabilité**, *Probability conference in Rouen, France.*
- Aug. 2020 **Bernoulli-IMS One World Symposium 2020**, online talk.

Teaching

- 2024-2025 **Lecturer at Université Paris-Dauphine-PSL**
M2 course on large deviation theory, 15h.
- 2023-2024 **Lecturer at Courant institute**
 - Fall 2023: Calculus II (4h/week), mostly for first year undergraduates.
 - Spring 2024: Ordinary differential equations (2h30/week), first ODE class for second-third year undergraduates.
- 2018-2021 **Teaching assistant at Ecole polytechnique**
 - Exercise classes in probability theory for 2nd year bachelor students for the course by Giovanni Conforti.
 - Exercise classes for the course "Theory of stochastic processes" for Master 2 students in the MSV master (Mathématiques et Sciences du Vivant), course by Sylvie Méléard.
 - Computational linear algebra exercise classes for 2nd year bachelor students for the course by Teddy Pichard.
- Jan. 2020 **Outreach course within Parimaths** (*association organising outreach mathematics courses for highly motivated voluntary high-school and middle school students*).
- 2014 – 2015 **Mathematics "Colles"** *MPSI classe préparatoire, lycée Chaptal, Paris*, Teaching assistant for maths undergraduate.