

# CYRIL LABBÉ

Date of birth : 20 November 1987, Citizenship : French  
2 children born in 2017 and 2020

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## CURRENT AND FORMER POSITIONS

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- 2021 - present    **Professor of mathematics** LPSM, Université Paris Cité
- 2020 - 2021      **Assistant professor (part-time)** DMA, Ecole Normale Supérieure
- 2015 - 2021      **Assistant professor** CEREMADE, Université Paris-Dauphine
- 2013 - 2015      **Research fellow** Mathematics Institute, University of Warwick  
under the supervision of Martin Hairer.
- 2010 - 2013      **PhD student** LPMA, Univ. Pierre et Marie Curie - Paris 6

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## EDUCATION

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- Nov. 2019      **Habilitation** Univ. Paris-Dauphine, PSL University.  
Title of the thesis: Particle systems, singular stochastic PDEs  
and continuous Anderson model.  
Coordinator: D. Chafaï.  
Referees: G. Giacomin, M. Gubinelli et B. Rider.  
Jury : D. Chafaï, C. Garban, G. Giacomin, M. Gubinelli,  
C. Toninelli et L. Zambotti.
- Oct. 2013      **PhD** LPMA, Univ. Pierre et Marie Curie - Paris 6.  
Title of the thesis: Stochastic flows and lockdown representation.  
Supervisors: J. Berestycki et A. Lambert.  
Referees: D. Dawson et J.F. Le Gall.  
Jury : J. Berestycki, J. Bertoin, T. Duquesne, A. Etheridge,  
A. Lambert, J.F. Le Gall.
- 2009 - 2010      **Master 2** Probability theory, Univ. Paris 11 - Orsay  
Master thesis: Coalescence and random trees, supervised by G. Miermont.
- 2006 - 2010      **Ecole Centrale Paris**  
Major: Applied mathematics.
- 2004 - 2006      **Classes préparatoires** Lycée Henri IV, Paris  
MPSI/MP\*
- 2004              **Baccalauréat** Lycée Jules Ferry, Paris

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## PUBLICATIONS AND PREPRINTS

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1. *From flows of  $\Lambda$ -Fleming-Viot processes to lockdown processes via flows of partitions*,  
Electronic Journal of Probability, 2014 vol.19, no 55 pp 1-49.
2. *Genealogy of flows of continuous-state branching processes via flows of partitions and the Eve property*,  
Annales de l'Institut Henri Poincaré, 2014 vol.50, no 3 pp 732-769.
3. *Quasi-stationary distributions associated with explosive CSBP*,  
Electronic Communications in Probability, 2013 vol. 18, no 57 pp 1-13.
4. *On the Eve property for CSBP*, (with Thomas Duquesne),  
Electronic Journal of Probability, 2014 vol. 19, no 6 pp 1-31.
5. *Scaling limits of weakly asymmetric interfaces*, (with Alison M. Etheridge),  
Communications in Mathematical Physics, 2015 vol. 336, issue 1, pp 287-336.
6. *A simple construction of the parabolic Anderson model on  $\mathbf{R}^2$* , (with Martin Hairer),  
Electronic Communications in Probability, 2015 vol. 20, no 43 pp 1-11.
7. *Multiplicative stochastic heat equations on the whole space*, (with Martin Hairer),  
Journal of the European Mathematical Society, 2018 vol. 20, issue 4, pp 1005-1054.
8. *Weakly asymmetric bridges and the KPZ equation*,  
Communications in Mathematical Physics, 2017 vol. 353, no 3, pp 1261-1298.
9. *The reconstruction theorem in Besov spaces*, (with Martin Hairer)  
Journal of Functional Analysis, 2017 vol. 273, issue 8, pp 2578-2618.
10. *On the scaling limits of weakly asymmetric bridges*,  
Probability Surveys, 2018 vol. 15, pp 156-242.

11. *Cutoff phenomenon for the asymmetric simple exclusion process and the biased card shuffling*, (with Hubert Lacoïn)  
Annals of Probability, 2019 vol. 47, No. 3, pp 1541-1586.
12. *Localization of the continuous Anderson Hamiltonian in 1-d*, (with Laure Dumaz)  
Probability Theory and Related Fields, 2020 vol. 176, No.1-2, 353-419.
13. *Existence of densities for the dynamic  $\Phi_3^4$  model*, (with Paul Gassiat)  
Annales de l'Institut Henri Poincaré, 2020 vol. 56, No. 1, 326-373..
14. *Mixing time and cutoff for the weakly asymmetric simple exclusion process*, (with Hubert Lacoïn)  
Annals of Applied Probability, 2020 vol. 30, No.4, 1847-1883.
15. *The continuous Anderson hamiltonian in  $d \leq 3$* ,  
Journal of Functional Analysis, 2019 vol 277, issue 9, pp 3187-3235.
16. *Mixing time of the adjacent walk on the simplex*, (with Pietro Caputo and Hubert Lacoïn)  
Annals of Probability, 2020 vol. 48, No. 5, pp 2449-2493.
17. *The stochastic Airy operator at large temperature*, (with Laure Dumaz)  
Annals of Applied Probability, 2022 vol. 32, issue 6, pp 4481-4534.
18. *Spectral gap and cutoff for the Gibbs sampler of  $\nabla\varphi$  interfaces with convex potential*, (with Pietro Caputo and Hubert Lacoïn)  
Annales de l'Institut Henri Poincaré, 2022 vol 58, No.2, pp 794-826.
19. *The delocalized phase of the Anderson Hamiltonian in 1-d*, (avec Laure Dumaz)  
Annals of Probability, 2023 vol. 51, No. 3, pp 805-839.
20. *Localization crossover for the continuous Anderson Hamiltonian in 1-d*, (avec Laure Dumaz)  
Inventiones Mathematicae, 2024 vol. 235, pp 345-440.
21. *Universal cutoff for Dyson-Ornstein-Uhlenbeck process*, (avec Jeanne Boursier et Djalil Chafaï)  
Probability Theory and Related Fields, 2023 vol. 185, pp 449-512.
22. *Asymptotic of the smallest eigenvalues of the continuous Anderson Hamiltonian in  $d \leq 3$* , (avec Yueh-Sheng Hsu)  
Stochastics and Partial Differential Equations: Analysis and Computations, 2022.
23. *Hydrodynamic limit and cutoff for the biased adjacent walk on the simplex*, (avec Enguérand Petit)  
accepted at Annales de l'Institut Henri Poincaré.  
arXiv e-print 2203.04008.
24. *Anderson localization for the 1-d Schrödinger operator with white noise potential*, (avec Laure Dumaz)  
Journal of Functional Analysis, 2024 vol. 286, issue 1.
25. *Construction and spectrum of the Anderson Hamiltonian with white noise potential on  $\mathbf{R}^2$  and  $\mathbf{R}^3$* , (avec Yueh-Sheng Hsu)  
submitted, arXiv e-print 2401.17900.
26. *Cutoff phenomenon in nonlinear recombinations*, (avec Pietro Caputo et Hubert Lacoïn)  
submitted, arXiv e-print 2402.11396.
27. *Convergence of dynamical stationary fluctuations*, (avec Benoît Laslier, Fabio Toninelli et Lorenzo Zambotti)  
submitted, arXiv e-print 2404.18803.

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#### RESEARCH INTERESTS

- Stochastic analysis, stochastic PDEs, regularity structures.
- Anderson localisation, Schrödinger operators, random matrices.
- Convergence to equilibrium of Markov processes, cutoff phenomenon.
- Scaling limits of particle systems.
- Branching processes, coalescent processes, measure-valued processes.

## TEACHING

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- 2021-present **Lecturer** at the University Paris Cité  
Courses and classwork sessions on probability theory for undergraduate students.
- 2015-2021 **Lecturer** at the University Paris-Dauphine  
Courses and classwork sessions on probability theory for master students.
- 2014-2015 **Tutor** at the University of Warwick (approx. 8h.)  
Lectures on stochastic PDEs for PhD students.
- 2013-2014 **Tutor** at the University of Warwick (approx. 10h.)  
Classwork sessions in the Probability course for PhD students.
- 2010-2013 **Tutor** at the Université Paris 6 (approx. 192h.)  
Linear algebra (L1), Series and integrals (L2),  
Measure theory and integration (L3).

## SUPERVISIONS OF STUDENTS

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- Supervision of the PhD thesis of Pierre Faugère at Université Paris Cité from 2024.
- Co-supervision with L. Zambotti of the PhD thesis of Thomas Le Guerch at Université Paris Cité from 2024.
- Supervision of the PhD thesis of Yueh-Sheng Hsu at Université Paris Dauphine from 2020 to 2024.
- Co-supervision with C. Toninelli of the PhD thesis of Enguérand Petit at Université Paris Dauphine from 2019 to 2023.
- Co-supervision with L. Zambotti of the PhD thesis of Lucas Broux at Sorbonne Université from 2019 to 2022.
- Supervision master thesis: Jordan Chu 2018, Enguérand Petit 2019, Yueh-Sheng Hsu 2020, Pierre Faugère 2023.

## SCIENTIFIC AND ADMINISTRATIVE DUTIES

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- In charge of the research team “Structures et Modèles Aléatoires”, LPSM (since 2023).
- President of the Conseil Scientifique of the UFR de mathématiques of Université Paris Cité (since 2023).
- Co-organiser of the Séminaire du LPSM (since 2023).
- Vice-president of the Conseil Scientifique of the UFR de mathématiques of Université Paris-Cité (2022-2023).
- Referee of the PhD thesis of Antoine Mouzard IRMAR 2021.
- Member of the defence panel for the PhD thesis of : Marco Furlan Université Paris Dauphine 2018, Carlo Bellingeri Sorbonne Université 2019, Shangjie Yang IMPA 2021, Antoine Mouzard IRMAR 2021, Rita Nader Université d’Orléans 2022 (président of the panel).
- President of hiring comitee : MCF Probability Université Paris Cité 2022.
- Member of hiring comitee : MCF Probas-Stats Université Paris-Est Créteil 2016, MCF Probas Sorbonne Université 2019, MCF Probabilités Lyon 1 2022.
- Member of the Commission Consultative Représentative at the Ceremade from 2016 to 2021.
- Referee for mathematical journals (approx. 8 reports per year) : *Journal of the Europ.Math.Soc.*, *Communications of the AMS*, *Communications in PDE*, *Communications in Mathematical Physics*, *Probability Theory and Related Fields*, *Annals of Probability*, *Journal of Functional Analysis*, *Annales Henri Lebesgue*, *Annales de l’Institut Henri Poincaré*, *Electronic Communications in Probability*, *Electronic Journal of Probability*, *Stochastic Processes and their Applications*, *Stochastic PDEs: Analysis and Computations*, *Journal of Mathematical Physics*, *Nonlinearity*, *Studia Mathematica*, etc.

## TALKS

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- 2024: Stochastic analysis seminar (EPFL), Bourbaki seminar (IHP), ANR meeting on stochastic analysis (Brest), Symposium China-France in probability (AMSS Beijing), ECM - mini symposium on stochastic analysis and harmonic analysis (Sevilla), Journées MAS (Poitiers).

- 2023: Midrasha mathematicae meeting on Random Schroedinger operators and Random matrices (Jerusalem IAS), Séminaire Problemes spectraux en physique mathématique (Paris IHP), Probability Seminar (Rennes), Analysis Seminar (Orsay).
- 2022: Conf. on localization (Les Diablerets), Séminaire hypatie jointly with Laure Dumaz (Marseille), OWPS jointly with Laure Dumaz (online).
- 2021: Journée de rentrée LPSM (Sorbonne Univ.), Séminaire CMAP (Ecole Polytechnique), Colloquium (Univ. Cergy-Pontoise), Proba. seminar (Bath), Proba. seminar (Bristol-Queen Mary - Warwick), SPDE workshop (Nancy).
- 2020: Séminaire de math. (Orléans), Proba. seminar (Bath), Workshop on Random Schrödinger operators and related topics (Florence) Séminaire de proba. (Grenoble).
- 2019: Proba seminar (Imperial college), Proba seminar (Warwick university), Stochastic analysis seminar (Oxford university), Séminaire Proba (Marseille), Séminaire Proba (Paris 6), Séminaire Proba (Lille), Gustafsson symposium (KTH Stockholm), Workshop on Proba, PDEs and Physics (Imperial college).
- 2018: Séminaire de Proba (Orsay), Groupe de travail Matrices Aléatoires (IHP), Proba seminar (TU Berlin), Séminaire Proba (ENSTA), Proba seminar (IMPA, Rio), Journées MAS (Dijon), Proba seminar (Mannheim), Anal-Proba-MathPhys seminar (IST Vienna).
- 2017: Séminaire méca stat (Paris 7), Séminaire de proba (Angers), SPDE conference (Warwick), Séminaire de proba (Nanterre), Probability seminar (Columbia/Courant), Séminaire de proba (Marseille), Interacting systems and SPDEs (Sheffield), Séminaire de proba (Paris 13), Meeting of the German and Austrian Math Soc. (Salzbourg), Séminaire d'analyse et probabilités (Cermics), Probas du vendredi (Paris 6), Séminaire de proba (ENS Lyon), Séminaire de math. appli. (Collège de France).
- 2016: Frontiers in probability and analysis (Strasbourg), Workshop on probabilistic models (Warwick), Workshop on SPDEs (Oberwolfach), Séminaire de Proba (Paris 7), Workshop on random trees and maps (Luminy), Workshop on SDEs (Mannheim), Paris-Bath meeting (Paris), Conf on Dynamical systems, diff eq and appl (Orlando), Statistical Mechanics seminar (Warwick), Probability seminar (Zurich).
- 2015: Rough Paths meeting (Berlin), Stochastic analysis colloquium (Nice), Probability seminar (Cambridge), Probability seminar (Dauphine), East Midlands Stochastic Analysis Seminar (York), School on renormalisation group theory (Warwick), Probability seminar (Lyon), SPDEs workshop (Paris), British Mathematical Colloquium (Cambridge), Rough Paths meeting (Berlin).
- 2014: Probability seminar (Bath), Probability seminar (Rennes), Stochastic analysis seminar (Oxford), Singular SPDEs summer school (Pisa), Saint-Flour summer school, Rough Paths meeting (Oxford), Statistical Mechanics Seminar (Warwick), GTX seminar (Ecole Polytechnique).
- 2013: Rough Paths meeting (Berlin), Probability seminar (Oxford), Random trees workshop (Montreal), Probability seminar (Nancy), Stochastic analysis seminar (Warwick).
- 2012: Random trees and applications workshop (Luminy), Saint-Flour summer school, Informal Workshop (Oxford).
- 2011: Paris-Bath branching structures meeting (Paris), Population Genetics workshop (Agay).

- Junior membre of the IUF 2024-2029.
- Team member of the project RANDOP ANR 2024-2028. Head of the project: Laure Dumaz.
- Team member of the project SMOOTH ANR 2022-2026. Heads of the project: Ismaël Bailleul et Nikolay Tzvetkov.
- Team member of the project SINGULAR ANR-16-CE40-0020-01 ANR JCJC 2017-2021. Head of the project: Ismaël Bailleul.
- Part-time “Délégation CRCT” over the year 2020-2021.
- Part-time “Délégation CNRS” over the year 2018-2019.
- Scientific sojourn at the Department of statistics in Oxford from January to June 2012. Supervised by Alison Etheridge. Partially funded by the Fondation Sciences Mathématiques de Paris.
- English: fluent; Spanish: solid notions; Russian: to be brushed up.
- Regular practice of football and swimming.