

Paul Maurer

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PhD candidate in stochastic analysis at INRIA

Education

- 2022– **PhD in Mathematics, INRIA, Université Côte d'Azur**
Analysis and approximation of some stochastic differential equations for the modeling of non-diffusive phenomena and application to turbulent transport, supervised by Mireille Bossy.
Excellence PhD scholarship from EUR Spectrum and the "Complex Systems" Academy.
- 2021–2022 **Master 2 in Probability and Random Models, Sorbonne University, High Honours**
Research internship at INRIA, Université Côte d'Azur under the supervision of Mireille Bossy, on the topic of jump stochastic dynamics for particle orientation in turbulence.
- 2020–2021 **Agrégation in Mathematics, ENS Rennes**, ranked 115 out of 327
- 2020–2022 **ENS Rennes**
Excellence scholarship in Mathematics 2020
- 2019–2020 **Master 1 in Mathematics, Sorbonne University, High Honours**
- 2017–2019 **Bachelor's Degree in Mathematics, Sorbonne University, High Honours**
Erasmus exchange at Lund University in Sweden during the sixth semester

Teaching

Teacher Assistant (DCME 2022–2024, 128h)

- 2022–2024 - **Tutorials and labs in stochastic modeling and simulation, Université Côte d'Azur, Nice**
Tutorials in stochastic modelling and Python-based lab sessions for Master's students in Mathematics (M1).
- 2022–2024 - **Supervision sessions in Probability, Université Côte d'Azur, Nice**
Oral exams in Probability for second-year undergraduates (L2 Mathematics).
- 2023–2024 - **Tutorials in Linear Algebra, Université Côte d'Azur, Nice**
Tutorials for first-year undergraduates (L1).
- 2023–2024 - **Lecture on Complex Numbers, Université Côte d'Azur, Nice**
Lectures for first-year undergraduates (L1).
- 2022–2023 - **Tutorials in Linear Algebra, Université Côte d'Azur, Nice**
Tutorials for second-year students in Economics and Management.

Other Teaching Activities

- 2019–2024 - **Supervisions and mock oral exams in CPGE**, *Lycée Masséna, Nice & Lycée Stanislas, Paris*
For MPSI and MP classes, 2 hours per week over 4 years.
- 2021–2023 - **Part-time teaching in CPGE**, *Lycée Stanislas, Paris*
Mathematics teacher for pre-term and exam revision courses, and mock exam marker for ECS2 class.

Publications and preprints

- 2025 **On the ε -Euler-Maruyama scheme for time inhomogeneous jump-driven SDEs**, [arXiv:2401.09338](#), [DOI:10.1016/j.spa.2025.104747](#), M. Bossy and P. Maurer
Stochastic Processes and their Applications.
- 2025 **Proceeding "Journées MAS" 2024: Recent contributions to stochastic numerics**, C-E Bréhier, A. Busnot Laurent, L. Goudenège, P. Maurer and U. Vaes
To appear in *ESAIM: Proceedings and Surveys*.
- 2025 **Weak rough kernel comparison via PPDEs for integrated Volterra processes**, [arXiv:2501.07509](#), M. Bossy, K. Martinez and P. Maurer
Submitted to an international journal since 01/27/2025.
- 2025 **A Poisson–Alekseev–Gröbner formula through Malliavin calculus for Poisson random integrals**, [arXiv:2510.05300](#), P. Maurer, J. Zurcher
Submitted to an international journal since 06/10/2025.
- 2025 **(In preparation) Intermittency through Markovian stochastic models: quantifying the convergence to local multi-fractality property**, M. Bossy, B. Eisvogel, K. Martinez, P. Maurer

Collaborative Projects

- May 2025 **BOUM Project by SMAI**, *CIRM, Marseille*
One-week collaborative research project with Jérémy Zurcher on proving the Itô–Alekseev–Gröbner formula for SDE flows driven by Poisson random measures by the use of Malliavin calculus.
- October 2024 **Research Visit**, *Universidad de Valparaíso, Universidad de Concepción, Chile*
Three-week research visit to Chile as part of the interdisciplinary French-Chilean SWAM project. Mathematical collaboration with Kerlyns Martinez (UdeC).

Presentations

- August 2025 **SNIPS 2025**, *Linnaeus University, Växjö, Sweden*, Oral presentation.
- July 2025 **Workshop "Milstein's method: 50 years on"**, *University of Nottingham, Nottingham*, Poster presentation.
Applied Probability Trust Prize for the best poster.
- Dec. 2024 **20th Oxford-Berlin Young Researchers Meeting on Applied Stochastic Analysis**, *Mathematical Institute, Oxford*, Oral presentation.
- Oct. 2024 **Chilean Probability Seminar**, *Universidad de Concepción, Chile*, Oral presentation.

Aug. 2024 **MAS Days**, Poitiers, Oral presentation.
June 2024 **TRAG Conference**, *Université Côte d'Azur*, Nice, Oral presentation.
May 2024 **PhD Students' Seminar**, *Université de Lille*, Lille, Oral presentation.
Nov. 2023 **Chilean Probability Seminar**, Online, Oral presentation.
July 2023 **Saint-Flour Summer School**, Saint-Flour, Poster presentation.
May 2023 **NASPDE**, *TUE*, Eindhoven, Poster presentation.
Feb. 2023 **Complex Day**, *Crowne Plaza*, Nice, Oral presentation.
Aug. 2023 **Workshop - Particles in turbulence**, *AMU*, Marseille, Oral presentation.

Other Experience

Oct. 2022 **Maths C2+**, *INRIA*, Valbonne
Presentation of the profession of mathematical researcher to middle and high school students.
2015–2024 **Private math tutoring**, Paris
Tutoring students from middle school, high school, bachelor's, preparatory classes (PSI*), engineering school, and Master's level (stochastic calculus).

Skills

Mathematics Stochastic analysis, Numerical probability
Computer Science C, C++, Python, $\text{\LaTeX}$
Languages French, Fluent English (C1), German (basic school level), Chinese (beginner)

Interests

Sports Hiking, Mountaineering, Skiing
Gastronomy French, Italian and Chinese cuisine, Wine, Tea and Coffee
Literature Poetry