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Paul Maurer

CV

Post-doc fellow in stochastic analysis at CERMICS

Experience

2025– **Post-doc fellow at CERMICS**, *École nationale des ponts et chaussées*
Approximation of Volterra SDEs using Markovian lifts, supervised by Aurélien Alfonsi.

Education

2022–2025 **PhD in Mathematics**, *INRIA, Université Côte d'Azur*
Analysis and approximation of some stochastic differential equations for the modeling of non-diffusive phenomenons and application to turbulent transport, supervised by Mireille Bossy.

2021–2022 **Master 2 in Probability and Random Models**, *Sorbonne University*, High Honours

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

January 2026 **Groupe de travail "Méthodes Stochastiques et Finance"**, *CERMICS, Champs-sur-Marne*, Oral presentation.

Nov. 2025 **OWSNIP Seminar**, *Online*, Oral presentation.

October 2025 **Séminaire "Mathématiques financières et actuarielles, probabilités numériques"**, *LPSM, Paris*, Oral presentation.

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, 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