William Da Silva

Postdoc in probability
University of Vienna

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Education

Post-doctoral fellow (FWF), University of Vienna — 2022–present
Postdoc in Probability within the group of Prof. Nathanaël Berestycki
Principal Investigator of Austrian Science Fund (FWF) grant 2024–2026

PhD in Mathematics, Sorbonne Université, LPSM (Paris) — 2018–2022
Thesis Title: *Growth-fragmentation and multitype planar excursions*
Advisor: Élie Aïdékon (Sorbonne Université)
Jury: E. Aïdékon, N. Curien, T. Duquesne, B. Haas, A. Kyprianou, G. Miermont, Z. Shi

MSc in Mathematics, Sorbonne Université, Paris — 2017–2018
Master of Research, Majored in Probability, *Highest honours*
Master Thesis: *Compensated fragmentation processes*
supervised by Élie Aïdékon (Sorbonne Université)

Agrégation de mathématiques (French highest teaching degree), ENS Paris-Saclay — 2016–2017
Ranked 3rd

Élève normalien, ENS Paris-Saclay — 2014–2018

Research Interests

Probability theory, mathematical physics, combinatorics. More specifically: random geometry, planar maps, statistical mechanics, Liouville quantum gravity, Schramm-Loewner evolutions, branching processes, spinal techniques, pattern-avoiding permutations, universality classes in permutons, directed geometry.

Teaching experience

Teaching Assistant, Sorbonne Université — 2019–2021
Bachelor level, *Functional Analysis* and *Measure Theory and Probability*, 128h

Teaching Assistant, École Polytechnique — 2018–2019
Master level, *Complex Analysis* and *Differential calculus*, 64h

Oral examiner ("colleur"), Lycées Henri 4 and Saint-Louis — 2015–2018

Publication List

- N. Berestycki and W. Da Silva (2025). *Critical behaviour of the fully packed loop-$O(n)$ model on planar triangulations.*
  arxiv:2512.05867 – Submitted.
- W. Da Silva, X. Hu, E. Powell and M.D. Wong (2025). *Scaling limits of critical FK–decorated random planar maps with $q = 4$.*
  arxiv:2511.21480 – Submitted.
- A. Adhikari, J. Borga, T. Budzinski, W. Da Silva and D. Sénizergues (2025). *The longest increasing subsequence of Brownian separable permutons.*
  arXiv:2506.19123 – Submitted.
- W. Da Silva, E. Powell, A. Watson. *Growth-fragmentations, Brownian cone excursions and* SLE_6 *explorations of a quantum disc.*
  arXiv:2501.03010 – Submitted.
- E. Aïdékon, W. Da Silva and X. Hu (2024). *The scaling limit of the volume of loop-$O(n)$ quadrangulations.*
  arXiv:2402.04827 – Accepted in Communications in Mathematical Physics.
- J. Borga, W. Da Silva and E. Gwynne (2024). *Power-law bounds for increasing subsequences in Brownian separable permutons and homogeneous sets in Brownian cographons.*
  Advances in Mathematics 439
- W. Da Silva and J.C. Pardo (2024). *Spatial growth-fragmentations and excursions from hyperplanes.*
  Stochastic Processes and their Applications 181
- W. Da Silva and J.C. Pardo (2024). *Multitype self-similar growth-fragmentation processess.*
  ALEA, Lat. Am. J. Probab. Math. Stat. 21, 985–1040
- W. Da Silva (2023). *Self-similar signed growth-fragmentations.*
  Electronic Journal of Probability 28, 1–45
- E. Aïdékon and W. Da Silva (2022). *Growth-fragmentation process embedded in a planar Brownian excursion.*
  Probability Theory and Related Fields 183, 125–166

Grants

- P.I. of the Austrian Science Fund (FWF-ESPRIT) grant on "Emergent branching structures in random geometry" (DOI: 10.55776/ESP534), amount 316,037 EUR.
  FWF-ESPRIT is an Austrian application-based grant scheme awarded to distinguished post-doctoral researchers across all sciences.
- ENS PhD grant, French Ministry of Research (2018–2021)

Scientific responsibilities & outreach

Referee 2020–present

Over 10 reports and quick opinions for Annals of Probability, Random Structures and Algorithms, SPA, Journal de l'École Polytechnique, Probability and Mathematical Physics, Transactions of the AMS

Co-organiser of the Informal Probability Seminar (University of Vienna) 2024–present
With Marcin Lis, and then Ariane Carrance and Kieran Ryan

Organiser of PhD student seminar, Sorbonne Université, LPSM 2019–2020

Organiser and jury of French national high-school tournament TFJM^2 2018–2019

Public outreach, Lycée E. Michelet (91) 2018–2021
Delivered science presentations at my former high school,
promoting equal opportunities and supporting STEM engagement

Organiser of student seminar, ENS Paris-Saclay 2014–2016

Invited research stays

- **MIT:** 2-week stay visiting Jacopo Borga (2026)
- **Chinese Academy of Sciences:** 3-week stay visiting Quan Shi and Xin Sun (2026)
- **Durham University:** frequent weekly stays visiting Ellen Powell (2023–2025)
- **University of Innsbruck:** weekly stay visiting Alexander Glazman (2025)
- **MIT:** 2-week stay visiting Jacopo Borga (2024)
- **Stanford University:** 2-week stay visiting Jacopo Borga (2024)
- **CIMAT (Guanajuato):** 2-week stay visiting Juan Carlos Pardo (2023)

Distinguished lectures

Minicourse "Critical Fortuin–Kasteleyn planar maps: exponents and scaling limits",
Chinese Academy of Sciences 2026
Based on my joint works with X. Hu, E. Powell and M.D. Wong, and with N. Berestycki

Minicourse "Introduction to Random Planar Geometry", University of Vienna 2024
Graduate course for the Vienna School of Mathematics

Invited talks at international conferences and workshops

- Workshop at CIMAT (Mexico) – *invited* by K. Raschel, July 2026
- Conference "A Random Walker in Random Scenery" – *invited* by Q. Shi, January 2026
- 2025 International Conference on Lévy processes, Sofia (Bulgaria) – *invited* by V. Rivero and M. Savov, July 2025
- SPA 2025 Conference (Wrocław) – *invited* by S. Penington, July 2025
- Branching and Persistence, Angers – *invited* by P. Thévenin, April 2025
- Annual conference of the "GDR Branchement" – *invited* by N. Curien and O. Hénard, January 2025
- Two-dimensional random geometry, Chicago – *invited* by E. Gwynne, July 2024
- Joint Mathematics Meeting (JMM2024), San Francisco – *invited* by Peter Winkler, January 2024

- Journées Cartes, Universität Zürich – *invited* by Armand Riera, June 2023
- BUC conference, Guanajuato (Mexico) – *invited* by Juan Carlos Pardo, January 2023
- Austrian Stochastic Days, University of Vienna, September 2022
- Probability and Mathematical Physics conference (poster), University of Helsinki, July 2022

Seminar talks

- Séminaire Mathématiques-Physique de l'IMB (Dijon) – *invited* by T. Kimura, March 2026
- Séminaire de Probabilités de l'ENS Lyon – *invited* by T. Budzinski, March 2026
- Séminaire de Probabilités de l'IECL (Nancy) – *invited* by V. Féray, December 2025
- Vienna Probability Seminar, May 2025
- Inn'formal probability seminar (Innsbruck) – *invited* by A. Glazman, March 2025
- SEED Seminar (IHES) – *invited* by E. Kammerer, March 2025
- "Probas du vendredi" (seminar talk) – *invited* by Camille Tardif and Armand Riera, February 2025
- Séminaire SPOC de l'IMB (Dijon) – *invited* by Patrick Tardivel, February 2025
- MIT Probability seminar – *invited* by J. Borga, December 2024
- Séminaire de Probabilités de Besançon – *invited* by F. Bienvenu, October 2024
- Informal Probability Seminar, University of Vienna, December 2023
- Fudan University Probability seminar (online), June 2023
- UC Berkeley Probability seminar (California, US) – *invited* by Alan Hammond, January 2023
- Stanford Probability seminar (California, US) – *invited* by Jacopo Borga and Amir Dembo, January 2023
- Informal Probability Seminar, University of Vienna, January 2023
- Seminar on Stochastic Processes, University of Zurich – *invited* by Jean Bertoin, May 2022
- Informal Probability Seminar, University of Vienna, November 2021
- UCL Probability and Statistics Seminar (online) – *invited* by Alexander Watson, October 2021
- Durham Probability seminar (online) – *invited* by Ellen Powell, April 2021
- Séminaire de Probabilités de Paris 13 (online) – *invited* by Clément Foucart, March 2021
- Séminaire de Probabilités d'Orsay, Université Paris-Sud (online) – *invited* by Nicolas Curien, September 2020

Skills and languages

- **Languages:** French and English (fluent), Spanish and Portuguese (proficient), German (B1)
- **Programming:** Scilab, Python, LaTeX, Git