

Sonia Velasco

PhD student in probability

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Languages: English (native speaker), French (ns), Spanish (ns)

Education

2021– **Université Paris Cité.**

PhD student under the supervision of Ellen Saada (Université Paris Cité) and Mustapha Mourragui (Université Rouen Normandie) on interacting particle systems and reaction diffusion equations.

2017–2021 **École Normale Supérieure de Lyon, Department of Mathematics.**

- L3 Mathématiques Fondamentales,
- M1 Advanced Mathematics,
- M2 Advanced Probabilities,
- Research internships.

Research internships

February – **Université Paris Cité.**

June 2021 Research internship under the supervision of Ellen Saada on *A boundary driven generalized contact process with exchange of particles: Hydrodynamics in infinite volume.*

September **Institut Fourier, Grenoble.**

2020 - Research internship under the supervision of Vincent Beffara on the random walk with a bias on a supercritical percolation graph.

April – July **INRIA, Lille.**

2020 Master's thesis under the supervision of Marielle Simon on the equilibrium fluctuations of an interacting particle system with degenerate rates.

May–July **EPFL, Lausanne.**

2019 Research internship under the supervision of Juhan Aru on the discrete gaussian free field.

(Pre)Publications

In preparation Duality for two non conservative particle systems, with Chiara Franceschini, Gunter Schütz and Ellen Saada.

April 2024 Survival and extinction in inherited sterility, submitted, arXiv:2404.11963

August 2023 Dynamic and static large deviations of a one dimensional SSEP in weak contact with reservoirs, with Claudio Landim, under revision for *Stochastic Processes and their Applications*, arXiv:2308.10895

December 2022 Hydrodynamic and hydrostatic limit for a contact process with random slowdowns in finite volume and with slow boundaries, with Moustapha Mourragui and Ellen Saada, *Electronic Journal of Probability*

Research talks

Nov. 2023 Seminario de Probabilidade e Mecanica Estatistica, Online Brazilian seminar.

Nov. 2023 Probability seminar of the LAMA laboratory, University of Créteil.

Nov. 2023 PSPDE XI, Instituto Superior Técnico, University of Lisbon.

Sept. 2023 Rencontres de Probabilités, LMRS, Rouen.

May 2023 Probability seminar of the LMRS laboratory, Rouen.

Apr. 2023 Probability seminar of the MAP5 laboratory, Paris.

Apr. 2023 Les probabilités de demain, Institut Henri Poincaré, Paris.

Apr. 2023 Scaling limits and generalized hydrodynamics, GSSI, l'Aquila.

- March 2023 PhD seminar of the Paul Painlevé laboratory, Lille.
Feb. 2023 Probability seminar of the LAREMA laboratory, Angers.
Jan. 2023 Young Statisticians and Probabilists' day, Institut Henri Poincaré, Paris.
Nov. 2022 Seminar of the maths department of Unimore, Modena.
Oct. 2022 Seminar Groupe de travail des éphémères of the MAP5 laboratory, Paris.
Apr. 2022 Probability seminar of the MAP5 laboratory, Paris.

Teaching and mentoring

- 2021– **Teaching at Université Paris Cité, Department of mathematics and computer sciences.**
- Exercise session in calculus for first year undergraduate students,
 - Exercise session in probabilities for third year undergraduate students,
 - Exercise session in algebra for second year undergraduate students.
- 2022 **Mentoring secondary school girls at an event organized by Associations Femmes et Mathématiques, Paris**
- 2020–2021 **Oral interrogations in preparatory classes, MPSI, PCSI, PC*, Lycée Champollion, Grenoble.**

Responsibilities

- July 2023 **Co-organizer of an event, dedicated to career opportunities after a PhD in Mathematics, with Mariem Abaach and Ivan Hasenohr.**
- 2023– **Member of the MAP5 gender equality committee.**
- 2021–2022 **Co-organizer of the MAP5 PhD seminar, with Mehdi Boussaa.**
- 2021–2022 **Creation of a mental support group for PhD students within the MAP5 laboratory., with Mariem Abaach.**
- 2022– **Elected member of the MAP5 laboratory board.**