

Marielle Simon

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Married with 2 children (born in 2018 and 2020). Publications list available on my webpage.

Current position

from 2022 **FULL PROFESSOR (“PROFESSEUR DES UNIVERSITÉS”)**, Université Lyon 1, France

Past positions and Education

- 2021-2022 **RICERCATRICE AT GRAN SASSO SCIENCE INSTITUTE**, L'Aquila, Italy
- 2016-2022 **“CHARGÉE DE RECHERCHES” AT INRIA**, Lille, France
- 2019 **HABILITATION DIPLOMA**, Université de Lille, France
• TITLE: Microscopic derivation of degenerated diffusion phenomena.
- 2014-2015 **POST-DOC “CAPES BOLSA DE EXCELÊNCIA”**, P.U.C Rio de Janeiro, Brazil
- 2011-2014 **PHD IN MATHEMATICS**, École Normale Supérieure de Lyon, France
- 2011 **“AGRÉGATION DE MATHÉMATIQUES”**, passed with rank 3

Leadership and awards

- 2019 **PEDR (PRIME D'ENCADREMENT DOCTORAL ET DE RECHERCHE)**, during 4 years
- 2013 **FOR WOMEN IN SCIENCE**, L'Oréal France-UNESCO program for PhD students

Coordination of research projects and grants

- 2020-2022 **FEDER “TREMPIN ERC”, RÉGION HAUTS DE FRANCE**, 94 000 €
• TITLE: Description microscopique des transitions de phase
- 2020-2024 **ANR JCJC (FRENCH NATIONAL GRANT FOR YOUNG RESEARCHERS)**, 132 000 €
• TITLE: Microscopic derivation of moving interfaces
- 2019 **RESULT AT ERC STARTING GRANT CALL**
• Final score **A**
• Final range **37%-39%** after oral examination (granted up to 32%)
- 2019-2020 **FAPESP-CNRS (FRANCE-BRAZIL)**, 20 000 €
• TITLE: Approximation of partial differential equations by stochastic particle systems with weak and moderate interaction
• In partnership with C. OLIVEIRA (Unicamp, Campinas, Brazil)
- 2016 **PEPS CNRS JEUNES CHERCHEURS**, 8000 €
• TITLE: Mathematical derivation of the porous medium equation

Responsabilities (juries and committees)

- 2022- **MEMBER OF THE SCIENTIFIC COMMITTEE OF THE GDR (GROUPEMENT DE RECHERCHE) “MATHGEOPHY”, CNRS INSMI**
• WEBSITE: <https://mathgeophy.math.cnrs.fr/>
- 2020- **APPOINTED MEMBER OF THE CNU (COMITÉ NATIONAL DES UNIVERSITÉS), Section 26**
- 2020- **MEMBER OF SEVERAL SELECTION COMMITTEES FOR MCF (“MAÎTRE DE CONFÉRENCES”) POSITIONS, IN FRANCE (Strasbourg, Nantes, Paris Dauphine)**
- 2021 **MEMBER OF THE JURY OF THE PHD THESIS OF A. HANNANI, Université PSL Paris**
• TITLE: Random perturbation of certain interacting particle systems related to quantum mechanics
- 2021 **MEMBER OF THE JURY OF THE PHD THESIS OF A. ERTUL, Université Lyon 1**
• TITLE: Diffusion et relaxation pour des systèmes de particules avec contraintes cinétiques
- 2021 **MEMBER OF THE JURY OF THE PHD THESIS OF B. DAGALLIER, École Polytechnique (Palaiseau, France)**
• TITLE: Large deviations in interacting particle systems: out of equilibrium correlations and interface dynamics
- 2018 **MEMBER OF THE JURY OF THE PHD THESIS OF J. ROUSSEL, École des Ponts (Marne-la-Vallée, France)**
• TITLE: Theoretical and numerical analysis of non-reversible dynamics in computational statistical physics
- 2015-2019 **MEMBER OF THE JURY OF THE FRENCH NATIONAL COMPETITION “AGRÉGATION DE MATHÉMATIQUES”**

Supervision of research thesis and postdocs

- 2022- **POSTDOC**
• STUDENT : Lu Xu, lu.xu@inria.fr
- 2020-2022 **POSTDOC, Program “FEDER Tremplin ERC”**
• STUDENT : Linjie Zhao, linjie.zhao@inria.fr
- 2020-2023 **COSUPERVISION OF PHD THESIS, with P. Gonçalves (IST Lisbon)**
• STUDENT : Gabriel Nahum, gabriel.nahum@protonmail.com
- 2020 **SUPERVISION OF MASTER THESIS, student from the ÉNS of Lyon**
• TITLE : Equilibrium fluctuation of an IPS with degenerate rates.
• STUDENT : Sonia Velasco, sonia.velasco@ens-lyon.fr
- 2013 **SUPERVISION OF MASTER THESIS (FIRST YEAR), student from the ÉNS of Rennes**
• STUDENT : Laura Gay, laura.gay@ac-lyon.fr

Organization of conferences

- 2022 **ASYMMETRY IN INTERACTING PARTICLE SYSTEMS: MICRO AND MACRO EFFECTS**
• [WEBSITE](#)
- 2022 **PROBABILITY/PDE INTERACTIONS: INTERFACE MODELS AND PARTICLE SYSTEMS**
• [WEBSITE](#)
- 2021 **ONLINE CONFERENCE ON RANDOM GRAPHS AND INTERACTING PARTICLE SYSTEMS**
• [WEBSITE](#)

Teaching

- 2021-2022 **PHD PROGRAM, LECTURE AT GSSI (GRAN SASSO SCIENCE INSTITUTE) L'Aquila, Italy**
• TITLE: Harmonic chain of oscillators with random flips of velocities
• DURATION: 12H
- 2020-2022 **LECTURE AT "ÉCOLE SUPÉRIEURE DES TRAVAUX PUBLICS" Dijon**
• TITLE: Mathematics for engineers
• DURATION: 33H+25HTD
- 2020 **TEACHING ASSISTANT FOR FIRST YEAR STUDENTS ESIREM, Dijon**
• TITLE: Analysis
• DURATION: 28HTD
- Jan 2020 **MASTER CLASS IN PROBABILITY, IRMA, Université de Strasbourg**
• TITLE: Random walks on the integer line
• DURATION: 9HTD
- 2019-2020 **LECTURE FOR FIRST YEAR STUDENTS OF THE MASTER "DATA SCIENCE", École Centrale and Université de Lille**
• TITLE: Markov Chains and Applications
• DURATION: 24HTD
- 2018-2019 **LECTURE FOR SECOND YEAR STUDENTS OF THE MASTER "RESEARCH IN APPLIED MATHS", Université de Lille**
• TITLE: Introduction to Statistical Physics
• DURATION: 56HTD
- 2015 **LECTURE AT THE SUMMER SCHOOL "SOVREMENNAYA MATEMATIKA", Dubna, Russia**
• TITLE: Introduction to Statistical Mechanics
• DURATION: 8HTD
- 2014-2015 **LECTURE FOR 1ST YEAR MASTER STUDENTS IN MATHEMATICS, P.U.C. Rio**
• TITLE: Teoria da Probabilidade
• DURATION : 32HTD
- 2011-2014 **TEACHING HOURS DURING THE PHD PROGRAM, É.N.S. de Lyon**
• MATERIALS: Integration Theory, Probability Theory, Stochastic Processes, Statistics, Practice Sessions using MATLAB.
• DURATION: 60HTD per year

2010-2014 **WEEKLY ORAL EXAMINATIONS IN MATHEMATICS IN POST SECONDARY PREPARATORY**
2016-2017 **CLASSES**, *Lyon and Dijon*

Popularization of mathematics

- 2022 **PLENARY TALK**, *Congrès “Maths en Jean”, Dijon*
- 2019 **POPULARIZATION SEMINAR FOR THE ANNUAL EVENT “FÊTE DE LA SCIENCE”**, *Lycée Carnot, Dijon*
- 2018-2019 **PARTICIPATION IN THE POPULARIZATION PROGRAM “CHERCHEURS ITINÉRANTS”**, *Highschools and middle schools in Lille and surroundings*
- 2016 - 2017 **COACHING OF A SMALL GROUP OF MIDDLE SCHOOLS STUDENTS FOR THE COMPETITION “C’GÉNIAL”**, *Villeneuve d’Ascq*
- 2016 **POPULARIZATION SEMINAR FOR THE ANNUAL EVENT “SEMAINE DES MATHÉMATIQUES”**, *E.S.P.E. Lille Nord de France*
- 2011-2014 **PARTICIPATION TO THE POPULARIZATION PROGRAM MATH@LYON**, *Highschools and middle schools in Lyon and surroundings*

Selection of invited seminars

- 2021 **Forum Jeunes Mathématicien·ne·es** (plenary talk), *Besançon, France*
- 2019 **Interactions PDE/Probability: particle systems, hyperbolic conservation laws**, *CIRM, Marseille, France*
- 2019 **1st SFB International Workshop “Taming Complexity in Partial Differential Systems”**, *University of Vienna, Austria*
- 2018 **Particle Systems and PDEs, 7th edition**, *Palermo, Italy*
- 2018 **Workshop of the Simons Semester “PDE/SPDEs, Functional Inequalities”**, *Bedlewo Center, Poznan, Poland*
- 2016 **Oberwolfach Workshop: “Large scale stochastic dynamics”**, *Oberfolwach, Germany*
- 2016 **Workshop in Stochastic Analysis**, *CAMPINAS University, Sao Paolo, Brazil*
- 2016 **YEP XIII: Large Deviations for Interacting Particle Systems and Partial Differential Equations**, *EURANDOM, Eindhoven, Netherlands*
- 2015 **Non-equilibrium statistical physics**, *ICTS, Bangalore, India*