HUGO DA CUNHA | Curriculum Vitæ

✉ dacunha@math.univ-lyon1.fr   ●   Franco-Portuguese

in **LinkedIn**   ●   R⁶ **ResearchGate**   ●   🌐 **Personal webpage**   ●   🎓 Google Scholar

Today

I am a PhD Student at Institut Camille Jordan (Villeurbanne, Lyon, France), under the supervision of Marielle Simon and Clément Erignoux. I am also a Research Fellow at The University of Tokyo, collaborating with Makiko Sasada, thanks to the support of the Japan Society for the Promotion of Science.

My research interests lie in Probability Theory, and more specifically on scaling limits of Interacting Particle Systems and non-equilibrium Statistical Mechanics.

🎓 EDUCATION

PHD IN MATHEMATICS   2024 - Today
Institut Camille Jordan, Université Lyon 1, France

LONG RESEARCH PROJECT (PLR)   2023-2024
École Normale Supérieure de Lyon, France

SECOND YEAR OF MASTER'S DEGREE IN ADVANCED MATHEMATICS, PROBABILITY & STATISTICS   2022-2023
École Normale Supérieure de Lyon, France

FIRST YEAR OF MASTER'S DEGREE IN ADVANCED MATHEMATICS   2021-2022
École Normale Supérieure de Lyon, France

BACHELOR'S DEGREE IN FUNDAMENTAL MATHEMATICS   2020-2021
École Normale Supérieure de Lyon, France

CLASSES PRÉPARATOIRES AUX GRANDES ÉCOLES (CPGE) PCSI-PC*   2018-2020
Lycée Blaise Pascal, Clermont-Ferrand, France

📖 EXPERIENCE

JSPS SUMMER PROGRAMME 2025   June – August 2025
Research fellowship, hosted by Makiko Sasada   The University of Tokyo, Japan

RESEARCH INTERNSHIP   April – July 2024 and 2025
under the supervision of Marielle Simon and Clément Erignoux   Université Lyon 1, France

RESEARCH INTERNSHIP   October 2023 - March 2024
Research visit, hosted by Lu Xu   Gran Sasso Science Institute, L'Aquila, Italy

RESEARCH INTERNSHIP   May – July 2022
Research visit, hosted by Patrícia Gonçalves   Instituto Superior Técnico, Lisbon, Portugal

📰 PUBLICATIONS

"COUPLING HYDRODYNAMICS OF SEVERAL FACILITATED EXCLUSION PROCESSES WITH CLOSED BOUNDARIES"   2025
Hugo Da Cunha and Lu Xu   🔗 arXiv:2502.00738
accepted in the Springer Proceedings "From Particle Sytems to Partial Differential Equations".

"HYDRODYNAMIC LIMIT FOR AN OPEN FACILITATED EXCLUSION PROCESS WITH SLOW/FAST BOUNDARIES"   2024
Hugo Da Cunha, Clément Erignoux and Marielle Simon   🔗 arXiv:2401.16535
accepted in the Springer journal "Communications in Mathematical Physics".

💬 Talks

OSAKA PROBABILITY SEMINAR
<div align="right">

July, 2025
Osaka, Japan
</div>

TOKYO PROBABILITY SEMINAR
<div align="right">

July, 2025
Tokyo, Japan
</div>

WINTER SCHOOL ON STATISTICAL MECHANICS, NONEQUILIBRIUM PROCESSES AND PROBABILITY
<div align="right">

February, 2025
Rome, Italy
</div>

YOUNG RESEARCHERS IN APPLIED MATHEMATICS CONGRESS
<div align="right">

October 30th, 2024
Lyon, France
</div>

ICJ/UMPA PHD STUDENTS SEMINAR
<div align="right">

October 21st, 2024
Lyon, France
</div>

SMAQ SEMINAR (STOCHASTIC MODELLING IN L'AQUILA)
<div align="right">

March 18th, 2024
L'Aquila, Italy
</div>

👥 Participations to conferences and workshops

INTERACTING PARTICLE SYSTEMS AND RELATED FIELDS
in the honor of Claudio Landim 60th birthday
<div align="right">

September 22nd – 26th, 2025
CIRM, Marseille, France
</div>

EMERGENT PHENOMENA IN NON-EQUILIBRIUM STATISTICAL MECHANICS
Intensive thematic trimester
<div align="right">

April 28th – May 9th, 2025
L'Aquila, Italy
</div>

PARTICLE SYSTEMS AND PARTIAL DIFFERENTIAL EQUATIONS (PSPDE)
Twelfth edition
Presentation of a poster about the work done during the different research internships
<div align="right">

September 9th-13th, 2024
Trieste, Italy
</div>

BRAZILIAN SCHOOL OF PROBABILITY
Twenty-seventh edition
<div align="right">

August 5th-9th, 2024
Salvador de Bahia, Brazil
</div>

INTERACTIONS EDP/PROBABILITÉ :
Functional inequalities, optimal transport and particle systems
<div align="right">

January 22nd-26th, 2024
CIRM, Marseille, France
</div>

SUMMER SCHOOL "SAMPLING HIGH-DIMENSIONAL PROBABILITY MEASURES:
applications in (non)equilibrium molecular dynamics and statistics"
<div align="right">

September 25th-27th, 2023
CERMICS, Marne-la-Vallée, France
</div>

CONFERENCE ON STOCHASTIC PROCESSES AND THEIR APPLICATIONS (SPA)
Fortythird edition
Participation to the organization of this event.
<div align="right">

July 24th-28th, 2023
Lisbon, Portugal
</div>

27ÈMES RENCONTRES ITZYKSON
Fluctuations far from Equilibrium
<div align="right">

May 31st-June 2nd, 2023
Institut de Physique Théorique (IPhT), Gif-sur-Yvette, France
</div>

WORKSHOP "ASYMMETRY IN INTERACTING PARTICLE SYSTEMS"
Microscopic and macroscopic effects
<div align="right">

October 3rd-5th, 2022
INRIA Lille, France
</div>

PARTICLE SYSTEMS AND PARTIAL DIFFERENTIAL EQUATIONS (PSPDE)
Tenth edition
<div align="right">

June 27th-July 1st, 2022
Universidade do Minho, Braga, Portugal
</div>

📢 Outreach activities

JOURNÉE MATHÀLYON
Intervention with middle school students
to introduce mathematical research through hands-on activities and workshops
<div align="right">

October 8th, 2024
Collège Sonia Delaunay, Villefontaine
</div>

DIFFUSION OF MATHEMATICS : "CAN WE TRUST POLITICAL SURVEYS?"
March 19th, 2022
Intervention in a High School
Lycée Victor Duruy, Paris, France

📖 TEACHING EXPERIENCES

TEACHING ACTIVITIES (64 HOURS)
2025-2026
Exercise sessions of Statistics for 2nd-year students & Analysis for 1st-year students
Université Lyon 1

TEACHING ACTIVITIES (64 HOURS)
2024-2025
Exercise sessions and oral examinations of Analysis and Algebra for 1st & 2nd-year students
Université Lyon 1

AUTHOR AT H&K PUBLISHING
May 2024
Writing of solutions for the 2024 competitive exams for preparatory classes (CPGE)

"COLLEUR EN MATHÉMATIQUES"
September 2022 – June 2023
Weekly oral interrogations in Mathematics
Lycée aux Lazaristes-La Salle, Lyon, France
for students of "Classes préparatoires"

MOCK ORAL EXAMINATIONS OF MATHEMATICS
June 2023
for the preparation to competition
Lycée Blaise Pascal, Clermont-Ferrand, France
of students of "Classes préparatoires"

🌐 LANGUAGES

FRENCH	Native speaker
ENGLISH	Cambridge Advanced C1 Certification
PORTUGUESE	Fluent
ITALIAN	Intermediate
SPANISH	Intermediate

💻 SOFTWARES

LATEX	Fully proficient
PYTHON	Proficient

Fields of interest – Probability Theory, Statistical Mechanics, Partial Differential Equations