

# Richard Medina Rodríguez

PH.D. IN MATHEMATICS

CEREMADE, Université Paris Dauphine - PSL, FRANCE

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## Education

### Université Paris Dauphine - PSL

Paris, France

PH.D. IN MATHEMATICS

09/2022 - 12/2025

- Thesis: Hypocoercivity and geometric confinement
- Advisors: Kleber Carrapatoso & Stéphane Mischler

### Université Paris Dauphine - PSL

Paris, France

MASTER DEGREE ON APPLIED AND THEORETICAL MATHEMATICS

09/2021 - 06/2022

- With Honors (Mention Bien)

### Universidad de La Habana

La Habana, Cuba

BS MATHEMATICS

09/2016 - 07/2020

- Summa Cum Laude

## Professional Experience

2025-2026 **Temporary Teaching and Research Fellow (ATER)**, Université Paris Dauphine - PSL.

2022 **Master Internship**, CEREMADE, Université Paris Dauphine - PSL.

2020 - 2021 **Assistant Professor**, Dept. of Mathematics, Universidad de La Habana.

2017 - 2019 **Undergraduate Instructor**, Dept. of Mathematics, Universidad de La Habana.

## Research Experience

### Warwick Mathematics Institute

University of Warwick

PROJECT IN COLLABORATION WITH JOSEPHINE EVANS

Oct. & Nov. 2024

## Awards, Fellowships & Grants

2022 **MathInParis2020 COFUND Fellowship**, Fondation de Sciences Mathématiques de Paris

Ph.D. Grant

2021 **PSL PhD Track Grant 2021**, Université PSL

€ 10,000

2020 **Prize to the Scientific Merit 2020**, Universidad de La Habana

## Publications

### SUBMITTED

- The Boltzmann equation on smooth and cylindrical domains with Maxwell boundary conditions. 2025
- Existence and stability of a non equilibrium steady state for a weakly non-linear kinetic Fokker-Planck equation in a domain. 2025. *In collaboration with J. Evans.*
- Constructive Krein-Rutman result for kinetic Fokker-Planck equations in a domain. 2024. *In collaboration with K. Carrapatoso, P. Gabriel, and S. Mischler.*

## Selected Presentations

- Jan. 2025. *Brief introduction to the Boltzmann equation*. Presentation at the Young Researchers Seminar at Paris Dauphine-PSL, France.
- Nov. 2024. *Constructive Krein-Rutman result for kinetic Fokker-Planck equations in a domain (joint work with P. Gabriel, K. Carrapatoso and S. Mischler)*. Presentation at the Junior Analysis Seminar at Imperial College London, UK.
- Oct. 2024. *The Boltzmann equation on  $C^1$  and cylindrical domains near the hydrodynamic limit*. Presentation at the Partial Differential Equations and their Applications Seminar at the University of Warwick, UK.
- Jul. 2024. *Constructive Krein-Rutman result for kinetic Fokker-Planck equations in a domain (joint work with P. Gabriel, K. Carrapatoso and S. Mischler)*. Poster presentation on the summer school “Collective behavior and Pattern formation”, at CIRM, Marseille, France.
- Jun. 2024. *The Boltzmann equation in a cylinder near the hydrodynamic limit*. Conference “Analysis of PDEs in Mathematical Physics”, at University of Bath, UK.
- Nov. 2023. *Introduction to the kinetic Fokker-Planck equation and its long-time behavior*. Young Researchers Seminar, at Université Paris Dauphine - PSL, Paris, France.
- May. 2023. *Hypoocoercivity estimates for some linearized kinetic operators*. Young Researchers Seminar, at Université de Lille, France.
- Feb. 2023. *'Cause I'll **L**-ove you to-**infinity** estimates for the Boltzmann equation*. MAFRAN Days, at King's College, Cambridge, UK.

## Participation on Conferences, Workshops and Schools

- Jul. 2024 **Summer school - Collective behavior and Pattern formation**, at CIRM, Marseille, France.
- Jun. 2024 **Research school - Frontiers in Interacting Particle Systems**, at CIRM, Marseille, France.
- Nov. 2022 **Research School - Kinetic Theory**, at CIRM, Marseille, France
- Jul. 2022 **Conference - When Kinetic Theory Meets Fluid Mechanics**, at FIM, ETH Zürich, Switzerland.
- Jun. 2019 **CIMPA Research Summer School**, at Universidad de La Habana, Cuba.

## Skills

**Languages.** Español (native), English (bilingual proficiency), Français (bilingual proficiency)

**Coding.**  $\text{\LaTeX}$  (advanced level), PYTHON (advanced level), C# (intermediate level), WOLFRAM MATHEMATICA (advanced level), and Matlab (intermediate level)

## Teaching Experience

May 2025	<b>Functional Analysis Summer School</b> , exercise sessions for graduate mathematics students	Univ. Habana
Spring 2025	<b>Analysis 1</b> , lectures and exercise sessions for first-year students of mathematics	Paris Dauphine
Spring 2025	<b>Analysis 2</b> , exercise sessions for first-year students of mathematics	Paris Dauphine
Spring 2024	<b>Analysis 2</b> , exercise sessions for first-year students of mathematics	Paris Dauphine
Fall 2024	<b>Mathematical Methods</b> , lectures and exercise sessions for first-year students of economics	Paris Dauphine
Spring 2021	<b>Complex Analysis</b> , exercise sessions for third-year students of mathematics	Univ. Habana
Fall 2020	<b>Introduction to Mathematics</b> , lectures and exercise sessions for first-year students of mathematics	Univ. Habana

## Outreach activities

2024-2025	<b>Young Researchers Seminar</b> , Co-organizer	Paris Dauphine
May 2024	<b>Salon Culture et Jeux Mathématiques</b> , Volunteer Stand Animator	Pl. Saint Sulpice
March 2024	<b>Math en Jeans 2024</b> , Volunteer Judge	Paris Dauphine