

# Carillo Louis

PhD student at CERMICS, ENPC, Champs-sur-Marne  
Supervisors: Tony Lelièvre, Urbain Vaes

11 rue de Clichy,  
75009 Paris  
+33750255438  
[louis.carillo@enpc.fr](mailto:louis.carillo@enpc.fr)  
[louiscarillo.github.io/](https://louiscarillo.github.io/)



## PhD Topic: *Metastability in statistical physics: a mathematical and numerical analysis*

2024 / 2027

Focus on the Narrow escape problem as the prototypical example of metastability of entropic origin. The first goal is to derive Eyring-Kramers formula in this setting

## ÉDUCATION

### ENS Paris Saclay/Universités de Paris, Paris— Physics of complex systems Master's degree(PCS)

2023 / 2024

Several options on advanced statistical physics problems: disordered systems, out of equilibrium physics

### ENS Paris Saclay, Gif-sur-Yvette— License and Master 1 de physique fondamentale

2021 / 2022

Focus on statistical physics, quantum electrodynamics and general relativity

## INTERNSHIPS

### 2nd year Master's degree internship— Microcanonical Langevin Monte Carlo

4 months in 2024 spring/summer

On Gabriel Stoltz team in CERMICS

Numerical and analytical study of a stabler variant of Langevin dynamics

### ARPE—Hopfield networks and dreaming

2022/2023 school year

On Enzo Marinari team in Rome

Gap year immersed in a lab abroad

Analytical and Numerical studies of Hopfield models and new training methods. Focus on spectrum properties. Resulted in a **published paper**

### 1st year Master's degree internship— Symmetries in Quantum physics

15 weeks in 2022 spring/summer

On Ulrich Scholwöck team in Munich

Added the support of  $U(1)$  and  $SU(2)$  symmetries for simulations of quantum's systems hamiltonians such as atom chains.

### Bachelor's degree internship—Hard spheres in 2D

6 weeks in 2021 summer

On Werner Krauth team in Paris

About historic aspects and straightforward solutions to the computation of pressure in 2D hard spheres systems. Resulted in a **published paper**

## CONFERENCES and WORKSHOPS

### Journée de la physique statistique

(January 2025 Paris): Presented on

Narrow escape

### Workshop on molecular simulations

(July 2024 Birmingham): Poster on

Microcanonical Langevin Monte

Carlo

### Workshop on Uncertainty

quantification (August 2024

Magdeburg)

### Kinetic equation, mathematical

physics and probability (June 2024

Bilbao)

## TEACHING EXPERIENCE

### In class: Teaching assistant in

physics/computer science for ENPC

students (3rd year Bachelor level)

### Private tuitions: maths, physics and

Piano in middle/high school

## SKILLS

**Programming:** Python, Rust, C

**Languages:** French, English, German, Italian