



Dauphine | PSL | CEREMADE  
UNIVERSITÉ PARIS UMR CNRS 7534

### Contacts

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### Location

Université Paris-Dauphine

Place du Marechal de Lattre de Tassigny  
75016 Paris  
France

## Postdoctoral position at CEREMADE

### *“Stochastic processes for energy transport: models and simulations”*

**Topic** The research project aims at contributing to the mathematical analysis of nonequilibrium stochastic dynamics, to better understand nonequilibrium steady states in physical systems which are subject to external forcings.

Progress is expected at the theoretical or the numerical levels. Regarding the theoretical aspects, we will investigate the macroscopic energy transport induced by some microscopic chaotic or stochastic dynamics, which conserve energy. Depending on the presence of other conservation laws, the energy transport can be ballistic, diffusive or super-diffusive.

On the numerical side, the aim will be to develop alternatives to standard approaches to estimate transport coefficients, such as Green-Kubo formulas or nonequilibrium molecular dynamics. This includes performing the numerical analysis of the algorithms which will be proposed, and testing them on reference systems such as atom chains.

**Scientific context** The project will be carried out at CEREMADE in collaboration with Alessandra Iacobucci and Stefano Olla, and in interaction with the researchers of the other member institutions (CERMICS-Ecole des Ponts and SIMSMART-Inria Rennes). CEREMADE is a Mixed Research Unit (UMR 7534, CNRS and Université Paris-Dauphine) in the vibrant and stimulating Parisian scientific environment. Its research topics cover various fields of applied mathematics, with applications fields as diverse as dynamical systems, quantum chemistry, statistical physics, economy, finance, image and signal processing, data analysis and classification theory.

### Position details

The position is funded by the ANR SINEQ.

Location:	Univ. Paris-Dauphine-PSL, Paris, France
Duration:	24 months (or 12 months, renewable once)
Starting date:	September 2023
Application deadline:	May 2023
Net remuneration:	2000 euros

Full financial support for workshops, conferences and travelling for scientific activity will also be provided.

### Candidate profile

Applicants should hold a PhD in applied mathematics in at least one of the following fields: theory of stochastic processes, functional analysis, probability theory, theory of partial differential equations. A familiarity with the associated numerical analysis, or an interest in molecular dynamics and computational statistical physics methods is a plus, but it is not required. The proof of applicant capabilities must rely on a competitive track record.

The selection process will actively acknowledge diversity and the full range of qualities and perspectives that applicants intend to bring to the project.

### How to apply

Inquiries and applications should be sent to [iacob@ceremade.dauphine.fr](mailto:iacob@ceremade.dauphine.fr).

Full applications should contain:

- o a detailed CV
- o the list of publications
- o a short research statement
- o two letters of recommendation and/or names and e-mail addresses of scientists willing to support the application

In case of informal inquiries, please send an e-mail with your CV, explaining your suitability for the position.