

## Education

### Academic training

- 2022-Today    **Physics PhD**, under the supervision of Adrian Daerr  
*Nonlinear Meandering Dynamics of a Liquid Filament*  
Matière et Systèmes Complexes (MSC), Université Paris Cité | CNRS
- 2021-2022    **Admission to Agrégation de Physique**  
High-level competitive exam for future physics teachers (rank : 2/459)  
École Normale Supérieure and Sorbonne Université
- 2020-2021    **Master 2 Nonlinear and Out of Equilibrium Phenomena** in Physics & Mathematics  
Applied and Theoretical Mathematics (MATH) Master's degree  
École Normale Supérieure and Université Paris Dauphine
- 2019-2020    **Master 2 Lophiss** in History and Philosophy of Science  
Université Paris Diderot
- 2017-2022    **Scholarship at École Normale Supérieure**  
Elite academic institution accessed by competitive exam in Paris, France  
2017-2019 : Bachelor in Physics (L3 FIP) and Master 1 in Fundamental Physics (ICFP)

### Research Internships

- 2021  
(5 months)    **Experimental study of the meandering of a liquid rivulet**, with Adrian Daerr —  
Laboratoire Matière et Systèmes Complexes, Université Paris Cité, Paris, France
- 2020  
(6 months)    **Computational analysis of leukocytes migration dynamics in complex environments**, with  
Pablo Vargas and Matthieu Piel — MOTILE group, Institut Curie, Paris, France
- 2019  
(6 months)    **Transition to disordered front propagation in a Hele-Shaw channel**, with Anne Juel —  
Manchester Center for Nonlinear Dynamics, University of Manchester, Manchester, UK
- 2018  
(1 month)    **Assembly of a TIRFM to study the dynamics of polymers at nanometric scales**, with  
Joshua McGraw — Laboratoire Gulliver, ESPCI, Paris, France

### Summer / Winter schools

- 07 / 2025    **ILL Soft Matter Summer School**, Grenoble, France
- 06 / 2025    **Complex Motion in Fluids**, Oléron, France

## Publications

- [in press] **Grégoire Le Lay** & Adrian Daerr  
*Controlling deposition and characterizing dynamics of thin liquid films with high temporal and spatial resolution*  
Physics of Fluids — [arxiv.org/abs/2502.13552](https://arxiv.org/abs/2502.13552)
- 2025 **Grégoire Le Lay** & Adrian Daerr  
*Phase-locking parametric instability coupling longitudinal and transverse waves on rivulets in a Hele-Shaw cell*  
Physical Review Letters — [10.1103/PhysRevLett.134.014001](https://doi.org/10.1103/PhysRevLett.134.014001)
- 2024 **Grégoire Le Lay**, Sarah Layani, Adrian Daerr, Michael Berhanu et al.  
*Magnetic levitation in the field of a rotating dipole*  
Physical Review E — **Editor's suggestion** — [10.1103/PhysRevE.110.045003](https://doi.org/10.1103/PhysRevE.110.045003)
- 2023 Tania Gajardo, Mathilde Bernard, Marie Lô, Elisa Turck **et al.**  
*Actin dynamics regulation by  $TTC7A/PI4KIII\alpha$  limits DNA damage and cell death under confinement*  
Journal of Allergy and Clinical Immunology — [10.1016/j.jaci.2023.06.016](https://doi.org/10.1016/j.jaci.2023.06.016)
- 2021 Antoine Gaillard, Jack S. Keeler, **Grégoire Le Lay**, Grégoire Lemoult et al.  
*The life and fate of a bubble in a geometrically perturbed Hele-Shaw channel*  
Journal of Fluid Mechanics — [10.1017/jfm.2020.844](https://doi.org/10.1017/jfm.2020.844)
- 2021 Sundry Sormendi, Mathieu Deygas, Anupam Sinha, Mathilde Bernard **et al.**  
*HIF2 $\alpha$  is a direct regulator of neutrophil motility*  
Blood — [10.1182/blood.2020007505](https://doi.org/10.1182/blood.2020007505)

## Presentations

- 03/2025 **Rencontres du Non-Linéaire**, Paris (fr), Long talk — [Conference poster].
- 01/2025 **Journées de la Physique Statistique**, Paris (fr), Contributed talk.
- 12/2024 **MSC Internal Seminar**, Paris (fr), Invited seminar.
- 10/2024 **Journées de la Matière Condensée**, Marseille (fr), Contributed talk.
- 09/2024 **European Fluid Dynamics Conference**, Aachen (de), Contributed talk.
- 06/2024 **International meeting in the memory of Yves Couder**, Paris (fr), Poster presentation.
- 03/2024 **Rencontres du Non-Linéaire**, Paris (fr), Poster presentation.
- 03/2024 **Séminaire Café**, Paris (fr), Invited seminar.
- 09/2023 **European Coating Symposium**, Paris (fr), Contributed talk.
- 07/2023 **Congrès Général des 150 ans de la SFP**, Paris (fr), Contributed talk.
- 06/2023 **Non-linear physics seminar**, Paris (fr), Invited seminar.
- 03/2023 **Rencontres du Non-Linéaire**, Paris (fr), Poster presentation.

## Expertise

Experimental	Optical alignment protocols Chemistry lab techniques Computer Assisted Design, 3D printing & Laser cutting
Softwares	Experiment control (LabView, Arduino, Limrendir) Technical drawing (Inkscape, FreeCAD, SolidWorks) Image analysis (openCV, ImageJ)
Programming	Python - Image analysis, Data treatment C, C++ - Software development, GTK & Qt frameworks Git - Distributed version control

## Para-academic activities

2023-2025	<b>Laboratory board member</b> , MSC Elected representative of the non-permanents (PhD students and post-docs) at the laboratory board of MSC.
2024	<b>EDPIF Scientific Day organizer</b> , Paris Planning and supervision of a one-day event reuniting ~150 2nd year PhD students of the doctoral school EDPIF.
2023	<b>Young Physicists Meeting organizer</b> , Paris Organisation of the RJP 2023, a one-day wide-range conference reuniting ~200 PhD students and Post-Docs with a budget of 15 k€.
2022-2025	<b>French IPHO scientific comitee member</b> , French Ministry of Education Member of the scientific comitee of the selection and training of the french team for the International Physics Olympiads (IPHO).

## Outreach

2025	<b>Pint of Science Festival</b> , Paris Presentation of a scientific topic in front of a public.
2023	<b>Science Fair</b> , Université Paris Cité Presentation of scientific experiments to primary school classes.
2023	<b>Before du grand congrès de la SFP</b> , Cité des sciences et de l'industrie Vulgarization of a scientific concept to the general public.
2018-2019	<b>Cours aux ernests</b> , ENS Short courses explaining the basics of physics for non-physics students.
2018	<b>Science Fair</b> , ENS Presentation of scientific experiments for the general public.

## Teaching

2022-2025	<b>LASER</b> , École d'Ingénieurs Denis Diderot (EIDD) Master 1 — Tutorials to master's students about the physics of lasers 18 h / year (20 students per class)
2022-2025	<b>Preparation for the International Physicists' Tournament (IPT)</b> , Université Paris Cité Bachelor (3rd year) — Supervising the university's team for the IPT 24 h / year, (10 students per class)
2023-2025	<b>Wave phenomena</b> , Préparation à l'agrégation interne, Université Paris Cité Master 2 — Refresher course about waves in physics for candidates to the agrégation 6 h / year, (30 students per class)
2024-2025	<b>Electromagnetism</b> , Préparation à l'agrégation interne, Université Paris Cité Master 2 — Refresher course about electrodynamics for candidates to the agrégation 6 h / year, (30 students per class)
2022-2025	<b>Préparation au montage</b> , Préparation à l'agrégation interne, Université Paris Cité Master 2 — Preparation of the experimental evaluation for candidates to the agrégation 14 h / year, (15 students per class)
2022-2023	<b>Physique expérimentale</b> , Master MEEF, Université Paris Cité Master 1 — Supervision of practical work for candidates to the CAPES competitive exam 27 h in total, (15 students per class)
2021-2022	<b>Colles de physique</b> , Prépa Hadamart Bachelor (1st and 2nd years) — Preparation of exams for students in "classe prépa" 2 hours per week, 3 students per session
2019-2020	<b>Tutorat</b> , Jean Zay state boarding school Bachelor (1st and 2nd years) — Personalized tutoring for scholarship holder students Four one-hour session per week, one student per session
2017-2019	<b>Soutien bénévole</b> , Maison des Jeunes Talents Bachelor (1st and 2nd years) — Preparation of exams for students in "classe prépa" 2 hours per week, 3 to 9 students per session