

ALAN RIQUIER

Post-doctoral fellow
Applied Mathematics

✉ The Fields Institute
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Interests

Numerical analysis

High performance parallel computing

Geophysical flows

Teaching

Partial Differential Equations

Ethics and research integrity

Water Waves

Fluid Mechanics

Mathematical modelling

Mathematical Physics

Science communication

Coding

L^AT_EX

HTML, CSS & Javascript

Python (≥ 3)

Julia

Fortran (≤ 2003)

C & C++

Numerical libraries

(the ones I like to use)

Ferrite.jl

FreeFEM

MPI

PETSc

Research

- 2026 **Postdoctoral research** Toronto, CA
Fields Postdoctoral Fellow – The Fields Institute
Advisor: Catherine Sulem
- 2025 **Invited postdoctoral researcher** Cambridge, UK
David Crighton Fellow – Department of Applied Mathematics and Theoretical Physics, University of Cambridge.
Advisor: Jerome Neufeld
- 2022-2025 **Ph.D. candidate** Paris, FR
Département de Mathématiques et Applications, ENS - PSL
Thesis : *Breaking Water Waves : Mathematical modelling, numerical approximation and the limit of vanishing viscosity* (defended September 9, 2025). Link : [hal:tel-05494046](https://hal.archives-ouvertes.fr/hal-05494046)
Advisor: Emmanuel Dormy

Études supérieures

- 2019-2022 **ENS Diploma** Paris, FR
École Normale Supérieure - PSL (prestigious french)
- 2020-2021 **Second year of master** Paris, FR
École Normale Supérieure et Université Paris-Dauphine.
Curriculum: *Numerical Physics and Mathematical Modelling*
- 2019-2020 **First year of master (in Physics)** Paris, FR
International Center of Fundamental Physics, ENS - PSL
- 2016-2019 **B.Sc. in Physics** Geneva, CH
Université de Genève (UNIGE)

Publications in peer-reviewed journals

- Riquier, A. & Dormy, E. (2024) Numerical study of a viscous breaking water wave and the limit of vanishing viscosity. *J. Fluid Mech.* **984**, R5.
[doi:10.1098/10.1017/jfm.2024.208](https://doi.org/10.1098/10.1017/jfm.2024.208)
- Riquier, A. & Dormy, E. (2026) Do irrotational Water Waves remain irrotational in the limit of a vanishing viscosity? *Proc. Roy. Soc. A* **482**:2329.
[doi:10.1098/rspa.2025.0772](https://doi.org/10.1098/rspa.2025.0772)

Proceeding

- Beck, G. & Riquier, A. (2026) Interactions between water waves and floating structures, a numerical method. *Accepted in the Proceedings of The 17th International Conference on Mathematical and Numerical Aspects of Wave Propagation.*

Teaching

- 2024-2025 **ENS - PSL** Paris, FR
TA – *Numerical methods for PDEs* (First year of M.Sc.)
- 2023 **ENS - PSL** Paris, FR
TA – *Computational Fluid Dynamics* (Second year of M.Sc.).
- 2018-2019 **Université de Genève** Genève, CH
TA – *General Physics*, first year of medical studies.

Seminar organization

- 2026 **The Fields Institute** Toronto, CA
Nonlinear Dynamics & PDEs seminar.

Presentations in conferences

Jun 2026	WAVES 2026 17th International Conference on Mathematical and Numerical Aspects of Wave Propagation Concordia University.	Montréal, CA
Mai 2026	SIAM Conference 2026 SIAM Conference on Nonlinear Waves and Coherent Structures — Concordia University	Montréal, CA
Avr. 2026	Maths for GFD Conference Mathematical Developments in Geophysical Fluid Dynamics — Institut Henri Poincaré	Paris, FR
Mai 2025	CIMAV 2025 Conférence Interdisciplinaire sur les Modèles Avancés de Vagues 2025 Centre Paul-Langevin - CNRS	Aussois, FR
Déc. 2024	16th FreeFEM days Sorbonne Université	Paris, FR
Nov. 2024	19th Hydrodynamics Days École Centrale Nantes	Nantes, FR
Sep. 2024	European Fluid Dynamics Conference (EFDC1) Rheinisch-Westfälische Technische Hochschule (RWTH)	Aachen, DE
Mai 2024	CANUM Congrès d'Analyse NUMérique Société de Mathématiques Appliquées et Industrielles (SMAI)	Île de Ré, FR
Nov. 2023	Conférence jeunes chercheurs Conference for young researchers in mathematics applied to geophysics Université Picardie Jules Verne	Amiens, FR

Presentations in lab seminars

Mar. 2026	Nonlinear Dynamics & PDEs seminar The Fields Institute for Research in Mathematical Sciences	Toronto, CA
Nov. 2025	ITG Seminar DAMTP, University of Cambridge	Cambridge, UK
Nov. 2025	Séminaire ANUM IRMAR, Université de Rennes	Rennes, FR
Sep. 2025	Séminaire Mécanique des Fluides Institut Jean le Rond d'Alembert - Sorbonne Université	Paris, FR
Jan. 2024	Séminaire EDPs2 Université Savoie Mont-Blanc	Chambéry, FR

Scientific communication

2022-2025	Palais de la Découverte Science shows in front of an audience.	Paris, FR
2023-2025	Salon des Jeux et de la Culture Mathématique Mathematical fair taking place once a year in the centre of Paris.	Paris, FR
2024	Article in <i>La Découverte</i> Article in the magazine <i>La Découverte</i> about bifurcation theory, catastrophes and the thermohaline current.	Publication
2024	Université Populaire 92 Introduction to Fluid Dynamics from the viewpoint of a mathematician (PDEs, curvature and surface tension), for retired people.	Paris, FR
2023	Article in <i>La Découverte</i> Article in the magazine <i>La Découverte</i> about the Navier-Stokes equations.	Publication
2018-2019	Physiscope, Université de Genève Science shows in front of a young audience.	Genève, CH