

Alan Riquier

Doctoral student
Applied Mathematics

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✉ École Normale Supérieure - PSL,
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@ `alan.riquier@ens.psl.eu`

Languages

English

French

Interests

Applied Mathematics

Fluid Mechanics

Numerical analysis

Geophysical flows

Partial Differential Equations

Mathematical modeling

Parallel computing

Mathematical Physics

Teaching

Science popularisation

Ethics and research integrity

Education

- 2022-2025 **Doctoral student** Paris, FR
Département de Mathématiques et Applications [Department of Mathematics and Applications], École Normale Supérieure (ENS) - PSL
Advisor: Emmanuel Dormy
- 2019-2022 **ENS diploma** Paris, FR
End of study diploma from the ENS - PSL (one of the most prestigious educational institutions in France)
- 2020-2021 **Second year of the MATH MSc** Paris, FR
Mathematical Physics Master jointly awarded by the ENS - PSL and the Université Paris-Dauphine.
Curriculum: *Numerical physics and mathematical modeling*
- 2019-2020 **First year of the ICFP MSc** Paris, FR
MSc in Physics at the International Center of Fundamental Physics of the ENS - PSL
- 2016-2019 **BSc in Physics** Geneva, CH
University of Geneva (UNIGE)
Excellence scholarship awarded, I declined it in order to follow a MSc in Paris instead.

Publication list

- Riquier, A. & Dormy, E. (2024) Numerical study of a viscous breaking water wave and the limit of vanishing viscosity. *J. Fluid Mech.* **984**, R5.
- Riquier, A. & Dormy, E. (2024) Irrotationality of Water Waves and Topography. *Submitted.* `arxiv:2411.09291` [`physics.flui-dyn`].

Teaching

- 2024-2025 **ENS - PSL** Paris, FR
Teaching assistant for the course *Numerical methods for Partial Differential Equations* (1st year of MSc).
- 2023 **ENS - PSL** Paris, FR
Substitute teacher for two lectures of the course *Computational Fluid Dynamics* (2nd year of MSc).
- 2018-2019 **University of Geneva** Geneva, CH
Teaching assistant for the course *Physique générale A* addressed to first year medical students.

Oral presentations in scientific conferences

- dec. 2024 **16th FreeFEM days** Paris, FR
Sorbonne Université
The free-surface Navier-Stokes equations, a numerical study using FreeFEM
- nov. 2024 **19th Hydrodynamics Days** Nantes, FR
École Centrale Nantes
Effects of viscosity on the shape of water waves
- sep. 2024 **European Fluid Dynamics Conference (EFDC1)** Aachen, DE
Rheinisch-Westfälische Technische Hochschule (RWTH)
Breaking water waves and the high Reynolds number limit
- may 2024 **CANUM (Numerical Analysis Congress)** Île de Ré, FR
Société de Mathématiques Appliquées et Industrielles (SMAI)
Numerical methods for the free-surface Navier-Stokes equations
- jan. 2024 **EDPs2 seminar** Chambéry, FR
Université Savoie Mont-Blanc
An introduction to the mathematical modeling of breaking waves
- nov. 2023 **Conference for young researchers in mathematics applied to geophysics** Amiens, FR
Université Picardie Jules Verne
Breaking water waves and the high Reynolds number limit

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Poster presentations

apr. 2024	Wind Waves in the Earth System meeting	Cargèse, FR
jan. 2024	Bourgeons project two-day meeting	Paris, FR
june 2023	Mathematical Fluid Dynamics summer school	Cargèse, FR

Oral presentations in doctoral seminars

may. 2024	Séminaire doctoral du LAMFA Université Picardie Jules Verne <i>Breaking Water Waves and Irrotationality</i>	Amiens, FR
mar. 2024	Séminaire doctoral du DMA École Normale Supérieure – PSL <i>An invitation to the mathematical modeling of Water Waves</i>	Paris, FR

Scientific popularisation

2022-2025	Palais de la Découverte Popularisation of general mathematics in front of an audience.	Paris, FR
2024	Salon des Jeux et de la Culture Mathématique Presentation of my research topics to a non-scientific audience: Mathematical modeling, Fluid Mechanics and Numerical Analysis.	Paris, FR
2024	La Découverte Article in the magazine <i>La Découverte</i> about bifurcations, catastrophes, tipping points and the thermohaline circulation.	Publication
2024	Université Populaire 92 An introduction to Fluid Mechanics from the point of view of both Physics and Mathematics, addressed to a non-scientific audience.	Paris, FR
2023	La Découverte Article in the magazine <i>La Découverte</i> about Partial Differential Equations and the Navier-Stokes millenium problem.	Publication
2018-2019	Physiscope, University of Geneva Popularisation of broad physical concepts in front of a young audience.	Geneva, CH