

# Ayman Rimah Said

## Current employment

Fall 23– **Research Associate**, *Cambridge University*, Cambridge, United Kingdom

## Academic professional experience

Fall 21 – **Griffiths Research Assistant Professor (postdoc)**, *Duke University*, Durham, NC,  
Spring 23 USA

Spring 21 **Program Associate in the Mathematical Problems In Fluid Dynamics**, *MSRI*,  
Berkeley, USA

9/18–6/21 **PhD**, *ENS Paris Saclay*, Paris, France

9/19–9/20 **Teaching Assistant**, *Université de Paris Sud*, Paris, France

9/18–9/19 **Teaching Assistant**, *ENS Paris Saclay*, Paris, France

## Studies

9/18–6/21 **ENS Paris Saclay**, Paris, France

Thesis: "On the regularity of the flow of the Euler system with free Boundary"

9/17–6/18 **École Polytechnique-Université de Paris Sud- Paris Saclay**, Paris, France

Masters 2 in theoretical mathematics: M2 AAG, the Title of "Polytechnician Engineer".

9/14–3/17 **École Polytechnique**, Paris

Generalist engineering diploma, Bachelors in mathematics and physics and Masters 2 in theoretical mathematics.

9/13–7/14 **Classes préparatoires of lycée Hoche**, Versailles, France

Mathematics and Physics (MP\*).

## Funding

8/21–8/23 **Phillip Griffiths Assistant Research Professor of Mathematics at Duke University**

9/18–9/21 **Doctoral Grant AMX**, École Polytechnique

## Published Articles

1. **A geometric proof to the Quasi-linearity of the Water-Waves system**, SIAM Journal on Mathematical Analysis, 2023
2. **On the Cauchy problem for dispersive Burgers type equations**, Indiana University Mathematics Journal, 2023
3. **On Paracomposition and change of variables in Paradifferential operators**, Journal of Pseudo-Differential Operators and Applications, 2023
4. **Regularity results on the flow map of periodic dispersive Burgers type equations and the Gravity-Capillary equations**, Water Waves, 2023

## Preprints in the peer review process

5. **On the long-time behavior of scale-invariant solutions to the 2d Euler equation and applications**, with T. M. Elgindi and R. M. Murray, arXiv preprint, arXiv:2211.08418

6. **Logarithmic spirals for 2d perfect fluids**, with I.-J. Jeong, arXiv preprint, arXiv:2302.09447
7. **Wellposedness and singularity formation beyond the Yudovich class**, with T. M. Elgindi and R. M. Murray, arXiv preprint, arXiv:2312.17610
8. **Small scale creation of the Lagrangian flow in 2d perfect fluids**, arXiv preprint, arXiv:2401.06476
9. **A quantitative DiPerna-Lions theory and mixing bounds for passive scalar transport**, with L. Huysmans, arXiv preprint, arXiv:2402.11642

## Conferences and talks

### Talks at International conferences

- 01/24 **Conference at HCMC: Fluids in Seoul 2024**, *Seoul*, South Korea
- 9/23 **Workshop talk: Enjoying probability and fluids in Lausanne**, *Lausanne*, Switzerland
- 6/22 **Conference talk at the Oberwolfach Workshop on Nonlinear Waves and Dispersive Equations**, *The Mathematisches Forschungsinstitut Oberwolfach*, Germany
- 6/22 **Conference talk at the workshop on small scale dynamics in fluid motion**, *Simons Center for Geometry and Physics, Stony Brook University*, USA
- 4/22 **Conference talk at the AMS special session on Fluid Mechanics**, *Seattle*, USA
- Spring 21 **Graduate talk at the Mathematical Problems In Fluid Dynamics program**, *MSRI, Berkeley*, USA

### Talks at analysis seminars

- 02/24 **Seminari Vito Volterra**, *Rome*, Italy
- 02/24 **Workshop: Nonlinear Waves and Hamiltonian PDEs**, *Courmayeur*, Italy
- 12/23 **ENS Lyon analysis seminar**, *Lyon*, France
- 10/23 **Imperial college analysis seminar**, *London*, UK
- 10/23 **Analysis seminar**, *IMB, Bordeaux*, France
- 3/23 **Analysis of Fluids & Related Topics Seminar**, *Princeton University*, USA
- 3/23 **Analysis seminar**, *North Carolina State University, Raleigh*, USA
- 3/23 **Analysis seminar**, *Université de Reims, Reims*, France
- 2/23 **PDE seminar**, *University of Maryland, Maryland*, USA
- 1/23 **Analysis seminar**, *École Polytechnique, Paris*, France
- 10/22 **Analysis seminar**, *Posetech, Pohang*, South Korea
- 9/22 **Analysis seminar**, *Seoul National University, Seoul*, South Korea
- Spring 20 **Graduate students seminar**, *Université Paris-Saclay, Orsay*, France

### Upcoming invited Talks

- 4/24 **EPFL analysis seminar**, *Lausanne*, Switzerland
- 4/24 **Duke analysis seminar**, *Durham*, USA
- 4/24 **Workshop: Patterns in solutions to the incompressible Euler equations**, *Bedlewo*, Poland

### Attended conferences

- 6/23 **New Trends in Mathematical Fluid Dynamics**, *Institut Fourier, Grenoble*, France
- 19 **Inhomogeneous Flows: Asymptotic Models and Interfaces Evolution**, *CIRM, Marseille*, France
- 19 **Journées EDP 19**, *Obernai*, France

## Teaching

- 18–19 **Tutorials on functional Analysis, Masters 1**, *ENS Paris Saclay, Paris*

- 18–19 **Lectures on Distributions for Aggregation, Masters 2**, *ENS Paris Saclay, Paris*  
19–20 **Tutorials in Calculus, Bachelors 1**, *Paris-Sud University, Paris*  
19–20 **Lectures on Dynamical Systems for Biology, Bachelors 3**, *Paris-Sud University, Paris*  
21–23 **Ordinary and partial differential equations, Math 353**, *Duke University, Durham*  
21–23 **Elliptic PDE, Graduate course**, *Duke University, Durham*

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## Previous Professional Experience

- 3/17–9/17 **Research Internship**, *IMPA, Rio, Brazil*  
6/16–9/16 **Actuarial Studies**, *AXA France, Paris*  
○ Survival studies of populations for special insurance products.  
10/14–4/15 **Teaching assistant**, *Académie De Toulouse, Lycée de La Borde Basse, Toulouse*  
9/14–10/14 **Officer Cadet Training**, *French Army: École Polytechnique, France*