

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. 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**, arXiv preprint, arXiv:2312.17610
8. **Small scale creation of the Lagrangian flow in 2d perfect fluids**, arXiv preprint, arXiv:2401.06476

Preprints in preparation

9. **A quantitative DiPerna-Lions theory and mixing bounds for passive scalar transport**, with *L. Huysmans*

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

- 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
- 1/23 **Analysis seminar, École Polytechnique**, *Paris*, France
- 2/23 **PDE seminar, University of Maryland**, *Maryland*, USA
- 3/23 **Analysis seminar, Université de Reims**, *Reims*, France
- 3/23 **Analysis seminar, North Carolina State University**, *Raleigh*, USA
- 3/23 **Analysis of Fluids & Related Topics Seminar, Princeton University**, *USA*
- 10/23 **Analysis seminar, IMB**, *Bordeaux*, France
- 12/23 **Imperial college analysis seminar**, *London*, UK
- 12/23 **ENS Lyon analysis seminar**, *Lyon*, France

Upcoming invited Talks

- 02/24 **Workshop: Nonlinear Waves and Hamiltonian PDEs**, *Courmayeur*, Italy
- 02/24 **Seminari Vito Volterra**, *Rome*, Italy
- 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*

Previous Professional Experience

- 3/17–9/17 **Research Internship, IMPA, Rio, Brazil**
 - Worked under the direction of Pr. Jose Espinar in the domain of minimal and constant mean curvature surfaces specifically on Alexandrov's Theorem and the spherical cap conjecture with special interest on the maximum principle for Elliptic PDE.
- 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**
 - Teaching assistant on the topics: Mathematics and Physics on an undergraduate level: first and second year of mathematical preparatory classes.
 - Supervise the undergraduate student scientific projects.
 - Assistant Teacher: Mathematics, Physics and English in High School.
- 9/14–10/14 **Officer Cadet Training, French Army: École Polytechnique, France**
 - Officer Cadet.