

Haroune HOUAMED

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📍 Koç University, Istanbul, Turkey 🌐 website

Research Interest. Mathematical Analysis of Partial Differential Equations (PDEs). Particularly, Nonlinear PDEs arising in Fluid Mechanics, Magneto-Hydrodynamics and plasmas. Typically, questions related to the Cauchy problem, Stability, Blow up Analysis and Asymptotic behavior of solutions to Nonlinear PDEs. I am also interested in the dynamics of some specific solutions of PDEs (such as time-periodic solutions and traveling waves).

POSITIONS

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| Feb. 2026 – | Assistant Professor of Mathematics, Koç University, Istanbul, Turkey |
| Jan. 2021 Jan. 2026 | Postdoctoral Associate, New York University Abu Dhabi, UAE > With Diogo Arsénio |
| Sep. 2020 Dec. 2020 | Research & Teaching Assistant (ATER), Côte d'Azur University, Nice, France |

EDUCATION

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| Oct. 2017 Sep. 2020 | Ph.D in Mathematics, Côte d'Azur University, Nice, France > Title : Mathematical Analysis of some 3D Fluid and Magneto-hydrodynamic Models > Thesis supervisor : Fabrice Planchon, Thesis co-supervisor : Pierre Dreyfuss > Referees : Thierry Gallay and Taoufik Hmidi > Thesis Jury : Mario Cannone, Isabelle Gallagher, Boris Haspot, Maxim Ingremeau |
| Sep. 2016 Aug. 2017 | Master 2 in Pure and Applied Mathematics, Côte d'Azur University, Nice, France > Analysis Bloc (Analysis, PDEs & Fluid Mechanics) > Scholarship of Excellence from Laboratoire Jean-Alexander Dieudonné |
| Sep. 2015 Aug. 2016 | Master 1 in Mathematics, University of Batna 2, Algeria > Specialty : Partial Differential Equations |
| Sep. 2012 Aug. 2015 | Licence in Mathematics, University of Batna 1, Algeria > Specialty : Fundamental Mathematics |

RESEARCH FUNDS, GRANTS & AWARDS

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| POSTDOCTORAL INDIVIDUAL RESEARCH TRAVEL AWARD Award : 1000 USD granted by New York University Abu Dhabi, UAE | 2023 |
| IOP OUTSTANDING REVIEWER AWARD For a review activity for Nonlinearity. Full list of the outstanding Reviewer is available here | 2022 |
| MASTER 2 SCHOLARSHIP OF EXCELLENCE Award : 10000 Euro granted by LJAD, Côte d'Azur University, France | 2017 |

PUBLICATIONS

16. ILL-POSEDNESS OF THE INCOMPRESSIBLE EULER—MAXWELL EQUATIONS IN THE YUDOVICH CLASS 2025
preprint (submitted),
[arXiv version](#)
15. SHARP STRONG CONVERGENCE IN IDEAL FLOWS 2026
Nonlinearity, with Marc Maganãna
[Journal version](#), [arXiv version](#)
14. GLOBAL UNIQUE SOLUTIONS TO THE PLANAR INHOMOGENEOUS NAVIER—STOKES—MAXWELL EQUATIONS 2025
Journal of Differential Equations, with Diogo Arsénio and Belkacem Said Houari
[Journal version](#), [arXiv version](#)
13. DAMPED STRICHARTZ ESTIMATES AND THE INCOMPRESSIBLE EULER—MAXWELL SYSTEM IN TWO DIMENSIONS 2025
Analysis and Partial Differential Equations, with Diogo Arsénio
[Journal version](#), [arXiv version](#)
12. DYNAMIC BEHAVIOR OF A MULTI-LAYER QUASI-GEOSTROPHIC MODEL : WEAK AND TIME-PERIODIC SOLUTIONS 2025
Pure and Applied Analysis, with Zineb Hassainia
[Journal version](#), [arXiv version](#)
11. UNIFORMLY ROTATING VORTICES FOR THE LAKE EQUATIONS 2025
Mathematische Annalen, with Taoufik Hmidi, Emeric Roulley and Mohamed Zerguine
[Journal version](#), [arXiv version](#)
10. AXISYMMETRIC INCOMPRESSIBLE VISCOUS PLASMAS : GLOBAL WELL-POSEDNESS AND ASYMPTOTICS 2024
Forum of Mathematics, Sigma, with Diogo Arsénio and Zineb Hassainia
[Journal version](#), [arXiv version](#)
9. CONVERGENCE RATE FOR A SCALAR REGULARIZED CONSERVATION LAW 2024
Zeitschrift für Angewandte Mathematik und Physik, with Billel Guelmame
[Journal version](#), [arXiv version](#)
8. STABILITY ANALYSIS OF TWO—DIMENSIONAL IDEAL FLOWS WITH APPLICATIONS TO VISCOUS FLUIDS AND PLASMAS 2024
International Mathematics Research Notices, with Diogo Arsénio
[Journal version](#), [arXiv version](#)
7. REMARKS ON THE GLOBAL WELL-POSEDNESS OF THE AXISYMMETRIC BOUSSINESQ SYSTEM WITH ROUGH INITIAL DATA 2023
Communications on Pure and Applied Analysis, with Adalet Hanachi and Mohamed Zerguine
[Journal version](#), [arXiv version](#)
6. RIGIDITY ASPECTS OF SINGULAR PATCHES IN STRATIFIED FLOWS 2022
Tunisian Journal of Mathematics, with Taoufik Hmidi and Mohamed Zerguine
[Journal version](#), [arXiv version](#)
5. ABOUT SOME POSSIBLE BLOW-UP CONDITIONS FOR THE 3-D NAVIER-STOKES EQUATIONS 2021
Journal of Differential Equations,
[Journal version](#), [arXiv version](#)
4. WELL-POSEDNESS FOR THE ELECTRON INERTIA HALL-MHD SYSTEM IN BESOV SPACES 2021
Journal of Mathematical Analysis and Applications,
[Journal version](#), [arXiv version](#)
3. UNIQUENESS RESULT FOR THE 3-D NAVIER—STOKES—BOUSSINESQ EQUATIONS WITH HORIZONTAL DISSIPATIONS 2021
Journal of Mathematical Fluid Mechanics, with Pierre Dreyfuss
[Journal version](#), [arXiv version](#)
2. ON THE GLOBAL WELL-POSEDNESS OF THE AXISYMMETRIC VISCOUS BOUSSINESQ SYSTEM IN CRITICAL LEBESGUE SPACES 2021
Discrete and Continuous Dynamical Systems – A, with Adalet Hanachi and Mohamed Zerguine
[Journal version](#), [arXiv version](#)
1. ON THE GLOBAL SOLVABILITY OF THE AXISYMMETRIC BOUSSINESQ SYSTEM WITH CRITICAL REGULARITY 2020
Nonlinear Analysis – Theory, Methods and Applications, with Mohamed Zerguine
[Journal version](#), [arXiv version](#)

TEACHING

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| Spring 2026 | Koç University , Istanbul, Turkey > Advanced Linear Algebra – MATH 320 (main instructor) |
| Fall 2025 | New York University , Abu Dhabi, UAE > Dynamical Systems – MATH-UH 3411 (TA) |
| Spring 2024 | New York University , Abu Dhabi, UAE > Foundations of Mathematics – MATH-UH 1010 (TA) > Analysis 1 – MATH-UH 2013 (TA) |
| Fall 2024, 2022 | New York University , Abu Dhabi, UAE |
| Spring 2023 | > Analysis 1 – MATH-UH 2013 (TA) |
| Fall 2023 | New York University , Abu Dhabi, UAE > Foundations of Mathematics – MATH-UH 1010 (TA) |
| Fall 2020 | Côte d’Azur University, POLYTECH – SOPHIA & CAMPUS OF SCIENCES , Nice, France > Mathematical Methods for PDEs (TA) > Mathematical Methods – Continuous Approach (TA) Côte d’Azur University, ISEM , Nice, France > Mathematics Complements (TA) |
| Fall 2019, 2018 | Côte d’Azur University, CAMPUS OF SCIENCES , Nice, France > Mathematics Complements 1 (TA) |
| Spring 2018, 17 | Côte d’Azur University, ISEM , Nice, France > Mathematics Complements 1 (TA) |

REVIEW ACTIVITIES

MATHSCINET REVIEWER

Since July 2024,
Reviewer number 178059

PEER-REVIEW ACTIVITIES (JOURNALS)

Nonlinearity, Journal of Differential Equations, Advances in Nonlinear Analysis (twice), SIAM Journal on Mathematical Analysis, Discrete and Continuous Dynamical Systems—A, Journal of Evolution Equations, Communications in Mathematics, AIMS Mathematics (twice), Acta Mathematica Scientia—English Series, Canadian Journal of Mathematics, Tunisian Journal of Mathematics, Zeitschrift für Angewandte Mathematik und Physik, Journal of Mathematical Fluid Mechanics, Journal of Elliptic and Parabolic Equations, Asymptotic Analysis.

INTERNATIONAL STAYS (SELECTED)

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| ONE WEEK IN YONSEI UNIVERSITY, KOREA Invited by In-jeong Jeong | JAN. 2025 |
| TWO WEEKS IN GRANADA UNIVERSITY, SPAIN Invited by Claudia Garcia | JUNE. 2024 |
| ONE WEEK IN GRENOBLE UNIVERSITY, FRANCE Invited by Christophe Lacave | JAN. 2023 |
| ONE WEEK IN UNIVERSITY OF LYON 1, FRANCE Invited by Francesco Fanelli | JAN. 2023 |

CONFERENCE & SEMINAR TALKS (SELECTED)

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| MATHEMATICS SEMINAR, KOÇ UNIVERSITY, TURKEY (ONLINE) Well-vs-ill posedness in Incompressible fluids | JAN. 2025 |
| WORKSHOP IN YONSEI UNIVERSITY, KOREA (WORKSHOP WEBSITE) Yudovich’s Theory in the context of Plasmas | JAN. 2025 |

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| YOUNG YOUNG SCHOLARS FORUM AT IMS, SHANGHAI TECH (ONLINE) Analysis of Incompressible Fluids : from classical topics to more recent advances | DEC. 2024 |
| MATH SEMINAR AT DUKE KUNSHAN UNIVERSITY, CHINA (ONLINE) Yudovich's Theory in the context of Plasmas | DEC. 2024 |
| AIMS CONFERENCE (EDITION 14) : DYNAMICAL SYSTEMS, PDEs & APPLICATIONS, UAE special session : Asymptotic behavior of perturbations of the Euler equations in Yudovics's class | DEC. 2024 |
| MATHEMATICS OF FLUIDS IN MOTION : RECENT RESULTS AND TRENDS, CIRM, FRANCE Short talk : Recent Advances on the Analysis of some Plasma models in two and three dimensions | NOV. 2024 |
| DIFFERENTIAL EQUATIONS SEMINAR, GRANADA, SPAIN Wellposedness and Asymptotic behavior for a two-dimensional Incompressible Euler—Maxwell system | JULY. 2024 |
| PDE SEMINAR, UNIVERSITY OF RENNES 1, FRANCE (ONLINE) Recent Advances in Incompressible Plasmas : Cauchy Problem and Asymptotic Behavior at High Speeds of Light | MARCH 2024 |
| MATH SEMINAR, UNIVERSITY OF BEIHANG, CHINA (ONLINE) A new proof of the vanishing-viscosity-limit in the Navier—Stokes equations via Extrapolation- Compactness | DEC. 2023 |
| ANALYSIS SEMINAR, UNIVERSITY OF SOUTHERN CALIFORNIA, USA (ONLINE) Stability Analysis of Ideal Flows within Yudovich's class via Extrapolation Compactness | DEC. 2023 |
| MATH SEMINAR, BEIJING NORMAL UNIVERSITY, CHINA (ONLINE) Analysis of incompressible plasmas at large values of the speed of light | DEC. 2023 |
| TWO SERIES OF LECTURES IN ANALYSIS & PDE'S READING GROUP, NYUAD, UAE Compactness—Extrapolation with Applications in Fluids and Plasmas | OCT., NOV. 2023 |
| MATH SEMINAR, UNIVERSITY OF WENZHOU, CHINA (ONLINE) Global-in-time Unique Solutions of the Incompressible Euler—Maxwell System in Two-Dimensions | OCT. 2023 |
| SUMMER SCHOOL ON NEW TRENDS IN MATHEMATICAL FLUID DYNAMICS, GRENOBLE, FRANCE Short talk & poster : Inviscid Limit in Yudovich's Class and Enhanced Rate of Convergence | JUNE 2023 |
| OPEN PURE MATH DAYS (ONLINE EVENT) Incompressible Ideal Fluids : Yudovich's Theory, Vortex Patch Problem and Time-periodic Solutions | JUNE 2023 |
| MATHEMATICAL PHYSICS SEMINAR, FOURIER INSTITUTE, GRENOBLE, FRANCE Recent Advances on Ideal Incompressible Plasma Models : Perturbation of Euler equations | JAN. 2023 |
| ANALYSIS & PDE SEMINAR, CAMILLE JORDAN INSTITUTE, LYON 1, FRANCE Recent Progress in Plasma Models | JAN. 2023 |
| ANALYSIS & PDE'S WORKING GROUP, NEW YORK UNIVERSITY ABU DHABI, UAE Profile Decomposition with Applications in Fluid Mechanics | DEC. 2021 |
| TASSILI SUNDAY MATHS SEMINAR—TSMS (ONLINE) On the Analysis of Some PDEs Arising in Fluid Mechanics and Hydrodynamics | NOV. 2021 |
| MATH RESEARCH SEMINAR, NEW YORK UNIVERSITY ABU DHABI, UAE On the Global Well-posedness of the 2D Euler—Maxwell Equations | OCT. 2021 |
| LJAD'S PH.D. STUDENTS' SEMINAR, NICE, FRANCE Anisotropic Serrin Criteria for the 3D Navier—Stokes Equations | DEC. 2020 |
| INHOMOGENEOUS FLOWS : ASYMPTOTIC MODELS AND INTERFACES EVOLUTION, CIRM, FRANCE Conference Poster : Uniqueness Results for the Horizontal 3D Boussinesq Equations | SEP. 2019 |
| MAGHREB—LJAD EXCHANGE DAY, NICE, FRANCE Well-posedness of some Quasi-linear Schrödinger Equations | JUNE 2019 |
| EDPAN'S TEAM THESIS DAY IN LJAD, NICE, FRANCE About some possible Blow-up Conditions for the 3D Navier—Stokes Equations | MAY 2019 |
| SECOND YEAR PH.D. STUDENTS' COLLOQUIUM "EDSFA", SOPHIA, FRANCE Poster : Uniqueness Results for the Horizontal 3D Boussinesq Equations | MAY 2019 |
| MATH-CAMP (EDITION 5), ORAN, ALGERIA A summary of my first year as a Ph.D. student | JULY 2018 |
| LJAD'S PHD STUDENTS' COLLOQUIUM, PEIRESQ, FRANCE Famous Results on the Mathematical Study of the 3D Navier—Stokes Equations | MAY 2018 |

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| EDPAN’S TEAM THESIS DAY, LJAD, NICE, FRANCE Asymptotic Analysis of some Fluid Models | APRIL 2018 |
| ON MY MASTER 2 THESIS, RENNES 1, FRANCE On Necas’s inequality : Relevant Results and Applications | JUNE 2017 |

ORGANIZED EVENTS (SELECTED)

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| NYUAD POSTDOC DAY New York University Abu Dhabi, UAE. Details available on website | 2024 – 2026 |
| NYUAD MATH POSTDOC SEMINAR New York University Abu Dhabi, UAE. Details available on website | 2024 – 2026 |
| THE 14TH EDITION OF AIMS CONFERENCE New York University Abu Dhabi, UAE. Details available on website | DEC. 2024 |
| TSMS SEMINAR TSMS is a bi-weekly online seminar that aims at providing opportunities for young researchers to share their work, earn experience and learn something new, even sometimes from a completely different field of expertise. Check out the website and the YouTube channel. | 2021 – 2025 |
| ANALYSIS & PDE WORKING GROUP This is a recurring meeting at NYUAD aimed at creating a collegial space to discuss and study topics related to the mathematical analysis and partial differential equations. The meetings host speakers who give an introductory mini-course on some contemporary research topic, followed by a more advanced lecture. | 2021 – 2023 |
| LJAD PH.D. STUDENTS’ COLLOQUIUM This is an annual Colloquium, organized by Ph.D.students’ of LJAD—Nice (France) each year in a different location. The version of 2019 took place in Barcelonnette (France) and contained two courses, presented by Maxime Ingremeau and Emmanuel Militon, several presentations by Ph.D.students and post-docs in different fields, in addition to four mini workshops on miscellaneous topics. | MAY 2019 |

PARTICIPATION IN INTERNATIONAL EVENTS (SELECTED)

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| WORKSHOP ON PDES, YONSEI UNIVERSITY, KOREA | JAN. 2025 |
| AIMS CONFERENCE (EDITION 14) : DYNAMICAL SYSTEMS, PDES & APPLICATIONS | DEC. 2024 |
| CONFERENCE ON MATHEMATICS OF FLUIDS IN MOTION : RECENT RESULTS AND TRENDS, CIRM, FRANCE | NOV. 2024 |
| LONG TIME BEHAVIOR AND SINGULARITY FORMATION IN PDES, NYUAD, UAE | JAN. 2024 |
| ALHAMBRA PDE DAYS, GRANADA, SPAIN | JULY 2024 |
| SUMMER SCHOOL ON NEW TRENDS IN MATHEMATICAL FLUID DYNAMICS, GRENoble, FRANCE | JUNE 2023 |
| CONFERENCE IN THE OCCASION OF PATRICK GERARD’S 60TH BIRTHDAY, PARIS, FRANCE | JULY 2021 |
| CONFERENCE IN THE OCCASION OF JEAN-YVES CHEMIN’S 60TH BIRTHDAY, PARIS, FRANCE | MARCH 2019 |
| INHOMOGENEOUS FLOWS : ASYMPTOTIC MODELS AND INTERFACES EVOLUTION, CIRM, FRANCE | SEP. 2019 |
| WAVES CÔTE D’AZUR, NICE—CÔTE D’AZUR, FRANCE | JUNE 2019 |
| PDE DAYS, OBERNAI, FRANCE | JUNE 2018 |

MEMBERSHIP IN SCIENTIFIC COMMITTEES

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| PH.D. MONITORING COMMITTEE Ph.D. Monitoring Committee of Komal Khalid, Koç University, Istanbul, Turkey | FEB. 2026 – |
| GUEST OF HONOR (PH.D. DEFENSE) Ph.D. defense of Youssouf Maafa, University of Batna 2, Algeria | JULY 2023 |
| GUEST OF HONOR (PH.D. DEFENSE) Ph.D. defense of Adalete Hanachi, University of Batna 2, Algeria | MARCH 2022 |

OUTREACH ACTIVITIES

MATH PROGRAM—HIGH SCHOOL STUDENT VISIT

MAR. 2023 & FEB. 2024

Two small cohorts of enthusiastic high school students from Raha International School and the British School, Al Khubairat (Abu Dhabi, UAE) visited NYUAD in 27—30 March 2023 and 19—21 February 2024, respectively. The purpose of their visit was to provide them with a glimpse of mathematics research, higher education and campus life. With Benjamin Anwasia, we conducted two two-hour sessions where we introduced the group to our research interest and proposed challenging math problems, focusing on the importance of logical and mathematical reasoning in solving simple questions.

NYUAD OPEN-DAYS

17 MARCH 2023

This was the first open-days event in New York University | Abu Dhabi. Our group (Diogo Arsenio, Benjamin Anwasia and myself) presented the Math-lab in the division of science and proposed to explain and illustrate the minimal surfaces problem by simple examples utilizing “Soap Bubbles”.

SCIENCE PARTY “LA FÊTE DE LA SCIENCE”

13 MARCH 2017

This is a popular event where we celebrate science, technology and innovation in the country (France). It is aimed at all audiences and helps to promote the sharing of knowledge between scientists and citizens. I was part of the team who presented the math activity of LJAD in Nice during that day.