

September 2024

Personal details

Name	Eduardo García-Juárez
Date of birth	February 20, 1989
Nationality	Spanish
Web page	https://egarciajuarez.com/
Current Position	Ramón y Cajal Researcher
12/2022-	Departamento de Análisis Matemático Universidad de Sevilla C/ Tarfia s/n, 41012, Sevilla

Positions

09/2021-11/2022	Marie Skłodowska-Curie Individual Fellow , <i>Universitat de Barcelona</i> , Spain
07/2020-09/2021	Post-doctoral researcher , <i>Universitat de Barcelona</i> , Spain ERC St-G CAPA (PI Javier Gómez-Serrano)
08/2018-06/2020	Hans Rademacher Instructor , <i>University of Pennsylvania</i> , USA
06/2018-07/2018	Post-doctoral researcher , <i>Universidad de Sevilla</i> , Spain ERC St-G Fluid-Interface (PI Francisco Gancedo)
09/2015-06/2018	FPU Predoctoral Fellow , <i>Universidad de Sevilla</i> , Spain
11/2014-06/2018	PhD candidate , <i>Universidad de Sevilla</i> , Spain

Education

11/2014-06/2018	Mathematics PhD , <i>Universidad de Sevilla</i> , Spain
09/2007-09/2012* 09/2014	Industrial Engineering (five-year degree), <i>Universidad de Sevilla</i> , Spain Final Project
11/2010-12/2013* 07/2014	Mathematics (four-year degree), <i>Universidad de Sevilla</i> , Spain Final Project

PhD Thesis

Title	Global Regularity for Incompressible Fluid Interfaces
Advisor	Francisco Gancedo
Defense	June 11, 2018, at <i>Instituto de Matemáticas de la Universidad de Sevilla</i> (IMUS)
Committee	Peter Constantin (Princeton University), Diego Córdoba (ICMAT), Raphaël Danchin (Université Paris-Est Créteil), Luis Escauriaza (UPV/EHU), Pedro Marín (Universidad de Sevilla).

Publications

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| 14. | E. García-Juárez, P.-C. Kuo, Y. Mori. The immersed inextensible interface problem in 2D Stokes flow. <i>Submitted</i> , <i>arXiv:2405.02446</i> , (2024). |
| 13. | F. Gancedo, E. García-Juárez, N. Patel, R. Strain. On nonlinear stability of Muskat bubbles. <i>Submitted</i> , <i>arXiv:2312.1432</i> , (2023). |

12. E. García-Juárez, S.V. Haziot. Critical well-posedness for the 2D Peskin problem with general tension. *Accepted in **Advances in Mathematics**, arXiv:2311.10157, (2024).*
11. E. García-Juárez, P.-C. Kuo, Y. Mori, R. Strain. Well-posedness of the 3D Peskin problem. *Accepted in **Mathematical Models and Methods in Applied Sciences**, arXiv:2301.12153, (2024).*
10. E. García-Juárez, J. Gómez-Serrano, S.V. Haziot, B. Pausader. Desingularization of small moving corners for the Muskat equation. ***Annals of PDE***, 10, 17, (2024).
9. F. Gancedo, E. García-Juárez, N. Patel, R. Strain. Global Regularity for Gravity Unstable Muskat Bubbles. ***Memoirs of the American Mathematical Society***, 292, no. 1455, (2023).
8. E. García-Juárez, Y. Mori, R. Strain. The Peskin Problem with Viscosity Contrast. ***Analysis & PDE***, Vol. 16, No. 3, 785-838, (2023).
7. F. Gancedo, E. García-Juárez. Global regularity of 2D N-S free boundary with small viscosity contrast. ***Annales de l'Institut Henri Poincaré C, Analyse non linéaire*** 40, no. 6, pp. 1319-1352, (2023).
6. E. García-Juárez, J. Gómez-Serrano, H.Q. Nguyen, B. Pausader. Self-similar solutions for the Muskat equation. ***Advances in Mathematics***, 399, (2022).
4. F. Gancedo, E. García-Juárez. Quantitative Hölder Estimates for Even S.I.O. on patches. ***Journal of Functional Analysis***, 283 (9), (2022).
5. F. Gancedo, E. García-Juárez. Regularity Results for Viscous 3D Boussinesq Temperature Fronts. ***Communication in Mathematical Physics***. 376, 1705-1736, (2020).
3. F. Gancedo, E. García-Juárez, N. Patel, R. Strain. On the Muskat problem with viscosity jump: Global in time results. ***Advances in Mathematics***, 345, p. 552-597, (2019).
2. F. Gancedo, E. García-Juárez. Global Regularity of 2D Density Patches for Inhomogeneous Navier-Stokes. ***Archive for Rational Mechanics and Analysis***, 229, 339-360, (2018)
1. F. Gancedo, E. García-Juárez. Global Regularity for 2D Boussinesq Temperature Patches with No Diffusion. ***Annals of PDE***, 3:14, (2017).

Fellowships and awards

09/2022	<i>Ramón y Cajal Fellowship</i> , Ministerio de Ciencia e Innovación (Spain)
12-2021	<i>Contratado Doctor</i> , Spanish National Accreditation Agency (ANECA)
06-2021	<i>Extraordinary Doctorate Award</i> , Universidad de Sevilla
09/2021-08/2023	<i>MSCA-IF-2020 – Individual Fellowship</i> , Horizon 2020 Framework Programme Project 101031111 CAMINFLOW (160 932.48 eur)
07/2019-07/2021	<i>AMS-Simons Travel Grant</i> , American Mathematical and Simons Foundations, \$4000.
03/2018-06/2018	<i>FPU Travel Grant</i> , Government of Spain
03/2018-06/2018	<i>Travel Grant PP2018-9421</i> , Plan Propio de la Universidad de Sevilla
09/2015-06/2018	<i>Formación de Personal Universitario</i> , FPU, PhD Fellowship, Government of Spain
07/2012-09/2012	<i>Introduction to research scholarship</i> , Plan Propio de Investigación, Universidad de Sevilla
09/2011-06/2012	<i>Collaboration scholarship</i> , Government of Spain

Research Stays

15/10/2024-14/11/2024	<i>Princeton University, USA.</i>
02-03/2024	Three-week visit to <i>Brown University, USA.</i>
05-06/2023	One-week visits to <i>University of Maine, Brown University and University of Pennsylvania, USA.</i>
10-11/2022	One-week visits to <i>University of Pennsylvania and Brown University, USA.</i>
08/09/2021-10/12/2021	Short-term scholar, <i>ICERM at Brown University, USA</i>
31/03/2018-31/05/2018	Visiting Student Research Collaborator, <i>Princeton University, USA</i>
01/06/2017-31/07/2017	Visiting Research Scholar, <i>University of Pennsylvania, USA</i>

Participation in funded projects

09/2023-08/2026	Title: Global dynamics, geometry, and regularity of incompressible fluids AEI Gen. Conocimiento, MICIN (Spain), PID2022-140494NA-I00, 125 00 eur Principal Investigator: E. García-Juárez, F. Torres de Lizaur
12/2022-11/2025	Proyecto Ramón y Cajal Ministerio de Ciencia e Innovación (Spain), RYC2021-032877, 42 000 EUR Principal Investigator: E. García-Juárez
01/2023-12/2023	Title: The motion of drops VII PP Alto Pot. Universidad de Sevilla, II.5A mod. A, 2023/00000480, 13 000 eur Principal Investigator: E. García-Juárez
09/2022-08/2025	Title: PDE and Fluid Mechanics AEI Gen. Conocimiento, MICIN (Spain), PID2021-125021NA-I00, 205 700 eur Principal Investigator: J. Gómez-Serrano, X. Ros-Otón
09/2021-11/2022	Title: Computer-assisted Analysis and Applications of Moving Interfaces in Incompressible Flows H2020 Marie Skłodowska-Curie Actions, CAMINFLOW 101031111, 160 932 eur Principal Investigator: Eduardo García-Juárez
09/2021-08/2024	Title: Dinámica de fluidos incompresibles AEI. Gen. Conocimiento, MICIN (Spain), PID2020-114703GB-I00, 72 600 eur Principal Investigator: Ángel Castro
07/2020-08/2022	Title: Global existence and Computer-Assisted Proofs of singularities in incompressible fluids, with Applications European Research Council, Stg. Grant CAPA-852741, 1 485 000 eur Principal Investigator: Javier Gómez-Serrano
09/2015-	Title: Analysis of moving incompressible fluid interfaces European Research Council, Stg. Grant Fluid-Interface-2251-079, 1 106 936 eur Principal Investigator: Francisco Gancedo
09/2018-08/2021	Title: Formación de singularidades en fluidos incompresibles Ministerio de Ciencia e Innovación (Spain), MTM-2017-88976-P, 51 425 eur Principal Investigator: Diego Córdoba
01/2014-02/2019	Title: Formación de singularidades en interfaces de flujos incompresibles Junta de Andalucía, P12-FQM-2466, 205 802 eur Principal Investigator: Francisco Gancedo

Mentoring

03/2024-	Vittorio Baroncini (FPI scholarship; co-advised with Claudia García)
11/2023-	Paula Luna Velasco (FPI scholarship; co-advised with Francisco Gancedo)

Invited Presentations

/12/2024	Fluid dynamics and KAM theory Special Session, The 14 th AIMS Conference, <i>NYU Abu Dhabi</i> , UAE.
31/10/2024	Analysis of Fluids and Related Topics seminar, <i>Princeton U.</i> , Princeton, USA
03/10/2024	PDEs in Tenerife: from theory to applications, <i>Universidad de La Laguna</i> , Tenerife, Spain
17/07/2024	Current developments in mathematical fluid dynamics, Mini symposium at <i>9ECM</i> , Sevilla, Spain.
09/05/2024	Ecuaciones Diferenciales seminar, <i>IMAG-UGR</i> , Granada, Spain
25/01/2024	New trends and perspectives in fluid dynamics, <i>Congreso Bienal de la RSME</i> , Pamplona, Spain.
20/10/2023	Seminar of the School of Mathematical Sciences, <i>Beijing Normal University</i> , China (online).
20/09/2023	Encuentro de la Red de EDPs No Locales y Aplicaciones, <i>ICMAT</i> , Madrid, Spain.
03/07/2023	Fluid Summer Workshop in Granada, <i>Universidad de Granada</i> , Granada, Spain.
02/03/2023	Free Boundary Problems Arising in Fluid Mechanics, <i>Mathematisches Forschungsinstitut Oberwolfach</i> (MFO), Oberwolfach, Germany.
10/10/2022	Workshop New trends in Mathematics of Dispersive, Integrable and Nonintegrable Models in Fluids, Waves and Quantum Physics, <i>BIRS</i> , Banff, Canada.
12/09/2022	Workshop Free boundary problems in biology and fluid dynamics, <i>Universidad de Cantabria</i> , Cantabria, Spain.
28/04/2022	Fluid Fair Workshop, <i>IMUS</i> , Sevilla, Spain.
20/04/2022	Analysis and PDEs seminar, <i>ICMAT</i> , Madrid, Spain.
18/01/2022	Free Boundary Problems in Physics and Biology Special Session, <i>Congreso Bienal de la RSME</i> , Ciudad Real, Spain.
21/12/2021	I Jornadas de Premios Extraordinarios de Tesis, <i>IMUS</i> , Sevilla, Spain.
15/11/2021	Calderón-Zygmund Analysis Seminar, <i>The University of Chicago</i> , USA.
10/11/2021	PDE seminar for Postdocs/Graduate Students, <i>ICERM</i> , <i>Brown University</i> , USA.
27/09/2021	Analysis seminar, <i>Brown University</i> , USA
21/06/2021	Seminari d'Anàlisi de Barcelona, <i>UAB and UB</i> , Spain.
17/06/2021	One World Meeting of Young Mathematicians in Fluid Dynamics, online.
23/01/2020	MathBio seminar, <i>University of Pennsylvania</i> , Philadelphia, USA
10/05/2019	Partial Differential Equations seminar, <i>Brown University</i> , Providence, USA
28/03/2019	Differential Equations seminar, <i>University of Michigan</i> , Ann Arbor, USA
21/02/2019	Analysis of Fluids and Related Topics seminar, <i>Princeton U.</i> , Princeton, USA
18/01/2019	Special Session on Math. Anal. In Fluid Dynamics, <i>Joint Mathematics Meetings 2019</i> of the American Mathematical Society, Baltimore, USA
10/01/2019	Conversaciones Fluidas seminar, <i>IMUS</i> , Sevilla, Spain

11/10/2018	Analysis seminar, <i>University of Pennsylvania</i> , Philadelphia, USA
20/11/2017	Ecuaciones Diferenciales seminar, <i>IEMATH-Granada</i> , Granada, Spain
07/09/2017	IV Young Researchers Meeting, <i>RSME</i> , Valencia, Spain
25/05/2017	Conversaciones Fluidas seminar, <i>IMUS</i> , Sevilla, Spain
10/05/2017	PDEs and fluid mechanics seminar, <i>ICMAT</i> , Madrid, Spain
23/05/2015	PHD seminar, <i>IMUS</i> , Sevilla, Spain
29/05/2015	Workshop on Mathematics and its Applications, <i>BCAM</i> , Bilbao, Spain

Organization experience

07/2024	Co-organizer of the ECM Satellite <i>Alhambra PDE days</i> , Universidad de Granada, Granada, Spain.
Feb. 2023-	Co-organizer of the <i>Fluid Conversations seminar</i> , IMUS, Sevilla, Spain.
06/02/2023-08/02/2023	Co-organizer of the session <i>Mathematical Challenges in fluid dynamics and kinetic theory</i> , VI Congreso de Jóvenes Investigadores de la RSME, Leon, Spain.
13/12/2019-14/12/2019	Co-organizer of the sessions <i>Recent Results in Incompressible Fluid Mechanics</i> , Part I, II, III, at <i>2019 SIAM Conference on Analysis of Partial Differential Equations</i> , La Quinta, USA
Sept. 2018-May 2020	Co-organizer of the <i>Analysis seminar</i> , UPenn, Philadelphia, USA
12/06/2018-15/06/2018	Co-organizer of the workshop <i>Mathematical Analysis in Incompressible Fluids (MathFluids Workshop)</i> , IMUS, Sevilla, Spain
Sept. 2017-May 2018	Co-organizer of the <i>Conversaciones Fluidas seminar</i> , IMUS, Sevilla, Spain
Sept. 2017-June 2018	Co-organizer of the <i>PHD seminar</i> , IMUS, Sevilla, Spain

Teaching experience

Sept. 2023-Jan 2024	Mathematical Analysis (6 ECTS), 1 st year BSc (Physics degree), Universidad de Sevilla, Spain
Sept. 2023-Jan 2024	Mathematics (1.4 ECTS), 1 st year BSc (Chemistry degree), Universidad de Sevilla, Spain
Sept. 2023-Jan 2024	Infinitesimal Calculus (0.6 ECTS), 1 st year BSc (Mathematics degree), Universidad de Sevilla, Spain
Apr. 2023-June 2023	Mathematical Methods I (6 ECTS), 1 st year BSc (Physics degree), Universidad de Sevilla, Spain
Apr. 2023-June 2023	Integration of functions in $\mathbb{R}^n$ (1.2 ECTS), 2 nd year BSc, Universidad de Sevilla, Spain
Feb. 2022-May 2022	Introduction to Fluid Mechanics (10h), BGSMath Graduate Course, Universitat de Barcelona, Spain
Jan. 2021-June 2021	Ecuaciones Diferenciales (6 ECTS), 3 rd year BSc (Mathematics degree), Universitat de Barcelona, Spain
Jan. 2020-May 2020	Partial Differential Equations (Math 425), 4 th year BSc, University of Pennsylvania, USA
Jan. 2020-May 2020	Calculus IV, PDE (Math 241), 2 nd year BSc, University of Pennsylvania, USA
Aug. 2019-Dec. 2019	Multivariate Calculus, with Probability and Matrices (Math 115), 1 st year BSc, University of Pennsylvania, USA

Jan. 2019-May 2019	Partial Differential Equations (Math 425), 4 th year BSc, University of Pennsylvania, USA
Jan. 2019-May 2019	Linear Algebra (Math 312), 3 rd year BSc, University of Pennsylvania, USA
Aug. 2018-Dec. 2018	Linear Algebra (Math 312), 3 rd year BSc, University of Pennsylvania, USA
Sept. 2017-Feb. 2018	Infinitesimal Calculus (1 ECTS), 1 st year BSc (Mathematics degree), Universidad de Sevilla, Spain
Sept. 2017-Feb. 2018	Mathematical Analysis (2.25 ECTS), 1 st year BSc (Physics degree), Universidad de Sevilla, Spain
Sept. 2017-Feb. 2018	Mathematics (1.6 ECTS), 1 st year BSc (Chemistry degree), Universidad de Sevilla, Spain
Sept. 2016-Feb. 2017	Mathematical Analysis (2.25 ECTS), 1 st year BSc (Physics degree), Universidad de Sevilla, Spain
Sept. 2016-Feb. 2017	Mathematics (2.4 ECTS), 1 st year BSc (Chemistry degree), Universidad de Sevilla, Spain
Sept. 2016-Feb. 2017	Differentiation of functions in $\mathbb{R}^n$ (0.4 ECTS), 2 nd year BSc, Universidad de Sevilla, Spain
Sept. 2016-Feb. 2017	Integration of functions in $\mathbb{R}^n$ (0.4 ECTS), 2 nd year BSc, Universidad de Sevilla, Spain

Reviewer

Analysis & PDE; Archive for Rational Mechanics and Analysis; Annales de l'Institut Henri Poincaré C – Analyse non Linéaire; Journal of Nonlinear Science; Journal of Functional Analysis; Mathematische Nachrichten; Nonlinear Analysis; Publications Mat.; Nonlinearity; Proceedings of the American Mathematical Society; Indiana University Mathematics Journal; Communications in Mathematical Sciences; Journal of Mathematical Physics; Mathematical Modeling of Natural Phenomena; Nonlinear Analysis Series B: Real World Applications.