

# Curriculum Vitae

Javier Gómez Serrano

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## Personal Data

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## Academic Background

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- 5-year degree** February 2009  
Universidad Politécnica de Cataluña, Barcelona.  
Mathematics. Ranked 3<sup>rd</sup> in class.
- 5-year degree** October 2009  
Universidad Politécnica de Cataluña, Barcelona.  
Telecommunication. Ranked 1<sup>st</sup> in class. Ranked 3<sup>rd</sup> in Spain (36 universities).  
Final Degree Project done in collaboration with EPFL (Lausanne, Switzerland):  
*Mean field dynamics of the bounded confidence model*  
Grade: 6.0/6.0 (ECTS: A), 10.0/10.0 (Honors)  
Advisor: Prof. Jean-Yves Le Boudec.
- Engineering** October 2009  
Centro de Formación Interdisciplinaria Superior (CFIS), Barcelona.  
Multidisciplinar Engineer.
- Master** October 2010  
Universidad Autónoma de Madrid, Madrid.  
Mathematics. Ranked 1<sup>st</sup> in class.  
Master Thesis: *Boundary layer theory and Prandtl's equation*  
Grade: 10.0/10.0. Advisor: Prof. Diego Córdoba.
- PhD** July 2013  
Universidad Autónoma de Madrid, Madrid.  
Mathematics. Best dissertation of the year award.  
*Analytical and Computer-assisted proofs in incompressible fluids*  
Advisor: Prof. Diego Córdoba.

## Professional Interests

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Partial Differential Equations, Fluid Mechanics, Computer-assisted proofs, Machine learning,  
Spectral geometry, Analysis

## Appointments

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- Associate Professor, Brown University, 2022-currently.
- CRM Simons Professor, CRM Montreal, Fall 2024.
- Aisenstadt Chair, CRM Montreal, Fall 2024.
- Full Professor, Universitat de Barcelona, 2022.
- Visiting Professor, Brown University, 2020-2022.
- Investigador Distinguido, Universitat de Barcelona, 2020-2022.
- Assistant Professor, Princeton University, 2016-2020.
- Instructor, Princeton University, 2013-2016.
- ERC Predoc, CSIC, Madrid, 2009-2013.
- Software Engineering Intern, Google Dublin, 2008.
- Becario de Penúltimo Curso, CSIC, Madrid, 2007.
- High School Teacher (Programming in C++), Aula Escola Europea, Barcelona, 2007.

## Selected Prizes and Honors

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- CRM Aisenstadt Chair, 2024.
- Antonio Ambrosetti Medal, 2023.
- Antonio Valle Prize. Best Spanish Applied Mathematician under 33, 2018.
- FBBVA Vicent Caselles Prize. Best Spanish Mathematicians under 32, 2017.
- Junior Faculty Teaching Award, Princeton, 2015.
- Best PhD dissertation award in Mathematics in the year 2012-2013 at UAM, 2013.
- Third best Record Nationwide in Telecommunication Engineering (National Prize - 36 Universities), 2013.
- Certamen Universitario Arquímedes (Introduction to Research for Undergraduates), 2009. Science Category, 2<sup>nd</sup> Prize for the paper *The bounded confidence model in opinion dynamics*.
- International Mathematics Competition, 2<sup>nd</sup> Prize (2005), 3<sup>rd</sup> Prize (2006).
- Iberoamerican Mathematical Olympiad for University Students, Silver Medal (2004), Silver Medal (2007).
- Top 250 Worldwide at Google Code Jam 2005.
- ACM ICPC SouthWestern Europe Regional Contest, 7<sup>th</sup> Place (2004), 9<sup>th</sup> Place (2005), 4<sup>th</sup> Place (2006), 8<sup>th</sup> Place (2007), 3<sup>rd</sup> Place (2008).
- Participant at the International Mathematical Olympiad, (Tokio, Japan), 2003.
- Spanish National Olympiads:
  - Mathematics: Silver Medal (2002), Gold Medal (2003).
  - Physics: Bronze Medal (2003).
  - Chemistry: Bronze Medal (2002), Gold Medal (2003).
- Mediterranean Mathematics Competition, Honorable Mention (2002). Bronze Medal (2003).
- Olimpiada de Mayo (Iberoamerican level), Bronze Medal (2000).

## Selected Lectures

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- Riviere Fabes Symposium
- CRM Aisenstadt Lectures

April 2025  
September 2024

## Research Grants

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- PI: NSF AIMing Grant DMS-2434314 (\$689,835), 2024-2027.
- co-PI: NSF FRG Grant DMS-2245017 (\$1,337,169), 2023-2026. Joint PI with T. Buckmaster, A. Ionescu, H. Jia, and C.Y. Lai.
- PI: NSF Grant DMS-2247537 (\$226,333), 2023-2026.
- PI: ERC Starting Grant ERC-StG-CAPA-852741 (1,485,000 €), 2020-2025.
- co-PI: Generación de Conocimiento 2021 (PID2021-125021NA-I00). Spanish Science and Innovation Ministry. (205,700 €), 2022-2025. Joint PI with X. Ros-Otón.
- PI: NSF CAREER Grant (*declined*).
- PI: NSF Grant DMS-1763356 (\$120,000), 2018-2021.
- PI: Simons Collaboration Grant (\$42,000), 2017-2022.
- PI: AMS-Simons Travel Grant, 2014-2016.

## Publications

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### Research papers

1. “Non-radial implosion for the defocusing nonlinear Schrödinger equation in  $\mathbb{T}^d$  and  $\mathbb{R}^d$ ” (with G. Cao-Labora, J. Shi and G. Staffilani), *arXiv preprint:2410.04532*. Submitted.
2. “Non-radial implosion for compressible Euler and Navier-Stokes in  $\mathbb{T}^3$  and  $\mathbb{R}^3$ ” (with G. Cao-Labora, J. Shi and G. Staffilani), *arXiv preprint:2310.05325*. Submitted.
3. “Desingularization of small moving corners for the Muskat equation” (with E. García-Juárez, S. V. Haziot and B. Pausader), *Annals of PDE*, 10, 17 (2024).
4. “Quasiperiodic solutions of the generalized SQG equation” (with A. Ionescu and J. Park), *Annals of Mathematics Studies*, to appear.
5. “Smooth self-similar imploding profiles to 3D compressible Euler” (with T. Buckmaster and G. Cao-Labora), *Quarterly of Applied Mathematics*, 81, 517-532 (2023).
6. “Smooth imploding solutions for 3D compressible fluids” (with T. Buckmaster and G. Cao-Labora), *Forum of Mathematics, Pi*, to appear.
7. “Self-similar spirals for the generalized surface quasi-geostrophic equations” (with C. García), *Journal of the European Mathematical Society*, to appear.
8. “Highest Cusped Waves for the Burgers-Hilbert equation” (with J. Dahne), *Arch. Ration. Mech. Anal.*, 247, Article number: 74 (2023).
9. “Self-similar blow-up profile for the Boussinesq equations via a physics-informed neural network” (with T. Buckmaster, C.Y. Lai and Y. Wang), *Physical Review Letters*, 130, no. 24, 244002 (2023).  
Featured in:  
**Quanta Magazine, Quanta Podcast, El País, AMS “What’s happening in the Mathematical Sciences?”**
10. “Existence of non-trivial non-concentrated compactly supported stationary solutions of the 2D Euler equation with finite energy” (with J. Park and J. Shi), *Memoirs of the AMS*. To appear.

11. “Self-similar solutions for the Muskat equation” (with E. García-Juárez, H. Q. Nguyen and B. Pausader), *Advances in Mathematics*, 399, 108294 (2022).
12. “A counterexample to Payne’s nodal line conjecture with few holes” (with J. Dahne and K. Hou), *Commun. Nonlinear Sci. Numer. Simul.*, 103, 105957 (2021). Special Issue “Computer Assisted Proofs in Dynamical Systems”.
13. “Remarks on stationary and uniformly-rotating vortex sheets: Flexibility results” (with J. Park, J. Shi and Y. Yao), *Philosophical Transactions of the Royal Society A*. 380, no. 2226, 20210045 (2022).
14. “Remarks on stationary and uniformly-rotating vortex sheets: Rigidity results” (with J. Park, J. Shi and Y. Yao), *Communications in Mathematical Physics*, 386, 1845–1879 (2021).
15. “Any three eigenvalues do not determine a triangle” (with G. Orriols), *Journal of Differential Equations*, 275, 920-938 (2021).
16. “Symmetry in stationary and uniformly-rotating solutions of active scalar equations” (with J. Park, J. Shi and Y. Yao), *Duke Mathematical Journal*, 170, no. 13, 2957-3038 (2021).
17. “Convexity of cusped Whitham waves” (with A. Enciso and B. Vergara), *arXiv preprint:1810.10935*. Submitted.
18. “Computer-Assisted Proofs in PDE: a survey”, *SeMA Journal*, 76, no. 3, 459-484 (2019).
19. “On the existence of stationary patches”, *Advances in Mathematics*, 343, 110-140 (2019).
20. “Spectral determination of semi-regular polygons” (with A. Enciso), *Journal of Differential Geometry*, 122 (3), 399-419 (2022).
21. “Global solutions for the generalized SQG patch equation” (with D. Córdoba & A. Ionescu), *Arch. Ration. Mech. Anal.*, 233, no. 3, 1211-1251 (2019).
22. “Uniformly rotating smooth solutions for the incompressible 2D Euler equations” (with A. Castro & D. Córdoba), *Arch. Ration. Mech. Anal.*, 231, no. 2, 719-785 (2019).
23. “Global smooth solutions for the inviscid SQG equation” (with A. Castro & D. Córdoba), *Memoirs of the AMS*, 266, no. 1292, 89 pp (2020).
24. “A note on stability shifting for the Muskat problem II: stable to unstable and back” (with D. Córdoba & A. Zlatoš), *Analysis & PDE*, 10, no. 2, 367-378 (2017).
25. “Uniformly rotating analytic global patch solutions for active scalars” (with A. Castro and D. Córdoba), *Annals of PDE*, 2, no. 1, 1-34 (2016).
26. “Splash singularities for the free boundary Navier-Stokes equations” (with A. Castro, D. Córdoba, C. Fefferman and F. Gancedo), *Annals of PDE*, 5, no. 1, Art. 12, 1-117 (2019).
27. “A note on stability shifting for the Muskat problem” (with D. Córdoba & A. Zlatoš), *Philosophical Transactions of the Royal Society A*, 373, 20140278 (2015).
28. “Existence and regularity of rotating global solutions for the generalized surface quasi-geostrophic equations” (with A. Castro & D. Córdoba), *Duke Mathematical Journal*, 165, no. 5, 935-984 (2016).
29. “Structural stability for the splash singularities of the water waves problem” (with A. Castro, D. Córdoba, C. Fefferman & F. Gancedo), *Discrete and Continuous Dynamical Systems - A*, 34, no. 12, 4997-5043 (2014).
30. “Remarks on the geometric properties of the SQG sharp fronts and  $\alpha$ -patches” (with A. Castro, D. Córdoba & A. Martín Zamora), *Discrete and Continuous Dynamical Systems - A*, 34, no. 12, 5045-5059 (2014).
31. “On turning waves for the inhomogeneous Muskat problem: a computer-assisted proof” (with R. Granero-Belinchón), *Nonlinearity*, vol. 27, n. 6, 1471-1498, (2014). Featured article.
32. “Finite time singularities for water waves with surface tension” (with A. Castro, D. Córdoba, C. Fefferman & F. Gancedo), *Journal of Mathematical Physics*, 53, 115622 (2012). Special issue “Incompressible Fluids, Turbulence and Mixing”.

33. “Finite time singularities for the free boundary incompressible Euler equations” (with A. Castro, D. Córdoba, C. Fefferman & F. Gancedo), *Annals of Mathematics*, 178, no. 3, 1061-1134 (2013).
34. “Splash Singularity for Water Waves” (with A. Castro, D. Córdoba, C. Fefferman & F. Gancedo), *Proceedings of the National Academy of Sciences (PNAS)* 109, num. 3, 733-738, (2012).
35. “The Bounded Confidence Model Of Opinion Dynamics” (with J.-Y. Le Boudec & C. Graham), *Mathematical Models and Methods in Applied Sciences (M3AS)* 22, num. 2, 1150007-1–1150007-46, (2012).
36. “Comment on Mixing Beliefs Among Interacting Agents” (with J.-Y. Le Boudec), *Advances in Complex Systems* Vol. 15, No. 7, 1250028-1–1250028-7, (2012).

Other publications (educational)

1. “Combinatorial Games: Following John H. Conway (in Spanish)” (with L. Hernández-Corbato), in *Matemáticas para estimular el talento III*, pp. 223-245. Sociedad Andaluza de Educación Matemática THALES, Granada. Pérez, A.; Sánchez, M. (Eds.), ISBN: 978-84-15641-06-03, (2014).
2. “XXVII Olimpiada Iberoamericana de Matemáticas” (with M. Castrillón), *La Gaceta de la RSME.*, Vol. 15 (4), 772-775, (2012).
3. “XXVI Olimpiada Iberoamericana de Matemáticas” (with M. Castrillón), *La Gaceta de la RSME.*, Vol. 14 (4), 798-801, (2011).

## Students

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### Postdocs

- Bruno Vergara, Brown. 2022-currently
- Jaemin Park, UB. 2021-2022  
*Next position: ERC Postdoc at University of Basel*
- Claudia García, UB. 2021-2022  
*Next position: Assistant Professor at Universidad Autónoma de Madrid*
- Eduardo García-Juárez, UB. 2020-2021  
*Next position: Marie Curie Individual Fellow at Universitat de Barcelona*  
*Host: Javier Gómez-Serrano*

### PhD students

- Maria Prat-Colomer, Brown. 2024-
- Alvaro Carballeira, Brown. 2024-
- Jungkyoung Na, Brown (co-advised with Benoit Pausader). 2023-
- Joel Dahne, Uppsala (co-advised with Jordi-Lluís Figueras and Warwick Tucker). 2019-2024  
*Next position: Dunham Jackson Instructor at U. Minnesota*
- Jia Shi, Princeton (co-advised with Charles Fefferman). 2017-2022  
*Next position: C. L. E. Moore instructor at MIT*
- Bruno Vergara. Princeton / ICMAT. Visiting Graduate Student. Spring 2018, Spring 2019

### Masters students

- \* Maria Prat-Colomer, UPC (co-advised with Tere M. Seara). 2023-2024

## Undergraduate students

- \* Joana Pech-Alberich. Brown / UPC. Double degree thesis. 2022-
- \* Gerard Castro-López. Brown / UPC. Double degree thesis. 2023-2024
- Zen Tamura. Brown. Summer intern Summer 2023
- Maria Prat-Colomer, UB. Introduction to Research Student Summer 2022
- \* Kimberly Hou, Princeton. Summer intern Summer 2020
- \* Ryan Arbon - Mohammed Mannan - Michael Psenka -  
Seyoon Ragavan, Princeton. Junior paper (as a 4-person team) Spring 2020
- Jeff Kim, Princeton. Junior paper Spring 2020
- \* Gonzalo Cao. Princeton / UPC. Double degree thesis. 2019-2020
- \* Gerard Orriols. Princeton / UPC. Double degree thesis. 2018-2019
- Joseph Obiajulu, Princeton. Senior thesis. 2016-2017
- Yuan Wang, Princeton. Senior thesis. 2016-2017

## High school students

- \* Sean Kim. Seoul International School. 2024-

\*: publishable results.

## Invited Talks at Conferences and Workshops

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- Developments in the Mathematical Sciences Symposium (DIMS 2025)  
Max Planck Institute Leipzig June 2025
- Particles, Fluids and Patterns  
Gran Sasso Science Institute, L'Aquila June 2025
- Singularities and Asymptotic Patterns in Fluids and Evolutionary PDEs  
Banff International Research Station Granada May 2025
- MPS Workshop on Computation in Mathematics  
Simons Foundation February 2025
- Singularities in Fluids and General Relativity. Singapore December 2024
- Joint meeting of the New Zealand, Australian and AMS  
Special Session in mathematical fluid dynamics December 2024
- Computer-assisted proofs in nonlinear analysis  
CRM Montréal September 2024
- Fluid Dynamics, Geometry and Computer Science in Interaction  
CRM Barcelona September 2024
- Joint Meeting AMS-UMI. Special Session  
Recent Developments on Evolution PDE. Palermo, Italy July 2024
- Recent Advances in Nonlinear Partial Differential Equations  
University of Minnesota May 2024
- PDEs of incompressible fluid flows, computer assisted proofs  
and neural networks. University of Minnesota April 2024
- AMS Spring Southeastern Sectional Meeting. Special Session  
PDEs in Incompressible Fluid Mechanics. Florida State University March 2024
- **(Plenary Talk)** Mathematics and Machine Learning 2023, Caltech December 2023

- 50 years of Mountain Pass Theorem  
SISSA, Trieste November 2023
- Infinite Dimensional Geometry and Fluids  
Banff International Research Station November 2023
- Fluid Equations, A Paradigm for Complexity  
Banff International Research Station October 2023
- AI to Assist Math Reasoning: Follow-up  
National Academy of Sciences, Washington DC September 2023
- Numerical methods for spectral problems: theory and applications  
Kushiro, Hokkaido, Japan August 2023
- ICIAM 2023. Parallel Session  
Computer-assisted proofs in differential equations, Tokyo August 2023
- AI to Assist Mathematical Reasoning: A Workshop  
National Academy of Sciences (virtual) June 2023
- Computer assisted proofs for stability analysis of nonlinear waves  
AIM Workshop, San Jose June 2023
- Free Boundary Problems: Lecture Series and Recent Advances  
Columbia University, New York May-June 2023
- Frontiers in Applied & Computational Mathematics  
New Jersey Institute of Technology May 2023
- Recent Advances in Mathematical Fluid Dynamics, Duke University  
Minicourse 4 hours on Computer-assisted proofs May 2023
- Multiscale methods and analysis for dispersive PDEs and applications to quantum materials  
IMS Singapore February 2023
- Computational Differential Geometry and its Applications in Physics  
Simons Center for Geometry and Physics, Stony Brook November 2022
- Computational mathematics in computer assisted proofs  
AIM Workshop, San Jose (online) September 2022
- Semester Program on "Harmonic Analysis and Convexity"  
Minicourse 3 hours, ICERM September 2022
- Mathematics Meets Data Science, Barcelona September 2022
  
- SIAM Conference on Nonlinear Waves and Coherent Structures. Special Session  
Computer assisted theorems in dynamics, Bremen August 2022
- Barcelona Introduction to Mathematical Research Summer Program, UB-CRM Barcelona  
Minicourse 3 hours on Analysis and PDE July 2022
- Hypatia 2022 Graduate Summer School, CRM Barcelona  
Minicourse 5 hours on Fluid Mechanics June 2022
- Mathematics of Fluids, CIEM, Castro Urdiales May 2022
- Fluid Fair Workshop, Sevilla April 2022
- Workshop on Recent developments in incompressible fluid dynamics  
IAS, Princeton April 2022
- 12th IMACS International Conference on Nonlinear Evolution Equations & Wave Phenomena  
Special Session: Nonlinear PDEs modeling fluids and other nonlinear systems  
University of Georgia March 2022
- International Workshop on Reliable Computing and Computer-Assisted Proofs (ReCAP 2022)  
Waseda University, Japan (online) March 2022

- Semester Program on "Hamiltonian Methods in Dispersive and Wave Evolution Equations"  
Numerics, Modeling, and Experiments in Wave Phenomena, ICERM September 2021
- Semester Program on "Hamiltonian Methods in Dispersive and Wave Evolution Equations"  
Minicourse 6 hours, ICERM September 2021
- New Mechanisms for Regularity, Singularity, and Long Time Dynamics  
in Fluid Equations, Banff International Research Station (Online) July 2021
- Thematic Program on Mathematical Hydrodynamics:  
Workshop on Free Surface Hydrodynamics, Fields Institute (virtual) October 2020
- AMS Fall Eastern Sectional Meeting. Special Session  
Conservation Laws and Nonlinear Wave Equations, Penn State (virtual) October 2020
- **(Plenary Talk)** V Congress of Young Researchers RSME, Castellón, Spain January 2020
- PDE's in fluid mechanics, CIEM, Castro Urdiales  
Minicourse 3 hours September 2019
- Summer school on fluid mechanics at the ICMAT, Madrid  
Minicourse 3 hours June 2019
- Scientific Computing Across Scales:  
Extreme events and criticality in fluid mechanics, Fields Institute April 2019
- Workshop: Rigorous Computational Dynamics  
in Infinite Dimensions, CRM Montréal April 2019
- AMS Spring Sectional Meeting. Special Session  
Stability and Singularity in Fluid Dynamics. University of Hawaii March 2019
- 12th AIMS Conference. Special Session  
Nonlinear and nonlocal evolution PDEs, Taipei July 2018
- **(Plenary Talk)** XVIII Spanish-French School  
Jacques-Louis Lions about Numerical Simulation  
in Physics and Engineering. Univ. Las Palmas de Gran Canaria June 2018
- Workshop "MathFluids", University of Seville June 2018
- AMS Spring Sectional Meeting. Special Session  
Nonlinear and Stochastic PDE and Applications. Northeastern University April 2018
- FRG-PDE Meeting, Princeton University October 2017
- 2017 Fall Program on Analysis of PDE, Fudan University October 2017
- 2017 Mathematical Congress of the Americas. Special Session  
Incompressible Fluid Dynamics, Montréal July 2017
- XXV Congreso de Ecuaciones Diferenciales y Aplicaciones (CEDYA).  
Special Session: Computational Dynamical Systems, Cartagena June 2017
- AMS Spring Eastern Sectional Meeting. Special Session  
Hydrodynamic and Wave Turbulence, Hunter College, CUNY May 2017
- AMS Spring Western Sectional Meeting. Special Session  
Analysis on the Navier-Stokes and related PDEs, Washington State University April 2017
- Semester Program on "Singularities and Waves In Incompressible Fluids"  
Dynamics of Small Scales in Fluids, ICERM February 2017
- V Congreso Latinoamericano de Matemáticos. Thematic Session  
Fluid dynamics, non linear and dispersive PDEs, Barranquilla, Colombia July 2016
- 11th AIMS Conference. Special Session  
Vortex Dynamics and Geometry, Orlando July 2016
- Analysis of PDEs of Fluid Mechanics, Rice University May 2016



- Thematic Program on Multiscale Scientific Computing  
Extreme events and criticality in fluid mechanics, Fields Institute January 2016
- Second International ACCA-JP/UK Workshop, Kyoto January 2016
- Clay Research Conference and Workshops  
Water Waves and Related Fluid Models, Oxford October 2015
- ICIAM 2015. Parallel Session  
Extreme Behaviour in Flow Models, Beijing August 2015
- AMS Spring Western Sectional Meeting  
Special Session on Waves and Fluids, Las Vegas April 2015
- AMS Fall Western Sectional Meeting. Special Session  
Nonlinear PDE I, San Francisco October 2014
- 10th AIMS Conference. Special Session  
Rigorous and Numerical Methods, Madrid July 2014
- AMS Fall Central Sectional Meeting  
Special Session on Fluid Mechanics, St. Louis October 2013
- Rigorous computation for infinite dimensional nonlinear dynamics  
AIM Workshop, Palo Alto August 2013
- Congress of Young Researchers RSME, Soria, Spain September 2011
- Workshop for Young Researchers in Mathematics 2010, Madrid September 2010
- II Seminario sobre actividades para estimular  
el talento precoz en Matemáticas, Madrid March 2009

### Seminars and Colloquia

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- ENS Paris-Sorbonne-University of Paris May 2025
- Princeton University March 2025
- Caltech December 2024
- Universidad de Granada June 2024
- University of Michigan March 2024
- UMass Amherst March 2024
- Carnegie Mellon University March 2024
- Tulane University February 2024
- Harvard University February 2024
- Rutgers University November 2023
- NYU May 2023
- Yale University April 2023
- Georgia Tech April 2023
- National University of Singapore February 2023
- New Jersey Institute of Technology November 2022
- Princeton University October 2022
- Boston University October 2022
- ICREA Colloquium October 2022
- Universitat Politècnica de Catalunya July 2022
- Universidad de Cantabria May 2022
- One World PDE Seminar May 2022

• MIT	April 2022
• Joint Colloquium ICMAT-UAM-UCM-UC3M	March 2022
• UC San Diego	March 2022
• Rutgers University	February 2022
• Spectral geometry in the clouds (Laval)	June 2021
• Uppsala University	May 2021
• Universitat de Barcelona	April 2021
• University of Bath	March 2021
• Penn State University	March 2021
• Wave Turbulence Seminar (Simons Collaboration)	December 2020
• Virtual Maxwell Analysis Seminar (Edinburgh)	November 2020
• CRM - CAMP (Montréal)	July 2020
• Shanghai Tech	July 2020
• Université de Rennes	January 2020
• Tulane University	October 2019
• Princeton University	September 2019
• University of Minnesota (2 talks)	February 2019
• Brown University	February 2019
• Georgia Tech	February 2019
• University of Toronto	January 2019
• Duke University	January 2019
• Brown University	November 2018
• Georgia Tech	February 2018
• UPenn	November 2017
• UIC	October 2017
• Uppsala University	June 2017
• Heriot-Watt University	April 2017
• University of Pittsburgh	January 2017
• Ohio State University	April 2016
• Columbia University	March 2016
• Brown University	November 2015
• UW Madison	November 2015
• Universidad de Sevilla	September 2015
• Princeton University	April 2014
• UPenn	February 2014
• Rutgers University	November 2013
• Universidad Autónoma de Madrid (Minicourse 3 hours)	April 2013
• Instituto de Ciencias Matemáticas	March 2013
• Instituto de Ciencias Matemáticas (Minicourse 6 hours)	February 2013
• Uppsala University	October 2012
• Universidad Autónoma de Madrid	April 2011
• CSIC (National Research Council, Madrid)	October 2009

## Teaching experience (University)

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- *At Brown University*
  - Math 0200 (Multivariable Calculus: Physics/Engineering) Spring 2024
  - Math 2221 (Graduate Real Analysis) Fall 2023
  - Math 1010 (Analysis: Functions of One Variable) Spring 2023
  - Math 1110 (Ordinary Differential Equations) Fall 2021
  - Math 2370 (Graduate PDE) Fall 2020
- *At Universitat de Barcelona*
  - Introduction to Fluid Mechanics (Graduate) Spring 2022
- *At Princeton University*
  - Math 972 (Junior Seminar: Spectral geometry) Spring 2020
  - Math 215 (Honors Analysis) Fall 2019
  - Math 330 (Complex Analysis with Applications) Spring 2019
  - Math 215 (Honors Analysis) Fall 2018
  - Math 104 (Calculus II) - two sections, course head Fall 2017
  - Math 104 (Calculus II) - two sections, course head Fall 2016
  - Math 104 (Calculus II) - precepts Spring 2016
  - Math 981 (Junior Seminar: Computer-assisted proofs in analysis) Spring 2016
  - Math 202 (Linear Algebra) - precepts Fall 2015
  - Math 321 (Numerical Methods) Fall 2015
  - Math 204 (Advanced Linear Algebra) Spring 2015
  - Math 104 (Calculus II) - two sections Fall 2014
  - Math 202 (Linear Algebra) - two sections Spring 2014
  - Math 103 (Calculus I) Fall 2013
- *At Universidad Autónoma de Madrid*
  - Mathematics I Fall 2011
- *At Universitat Politècnica de Catalunya (Barcelona)*
  - Problem Workshop II Spring 2006, Spring 2007, Spring 2008
  - Problem Workshop I Fall 2005, Fall 2006, Fall 2007

## Activities Organization and Service

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- International Commission, Royal Spanish Mathematical Society 2024 -
- Graduate Admissions Committee, Brown 2022/2023, 2023/2024
- Tamarkin Assistant Professor Committee, Brown 2021/2022, 2022/2023, 2023/2024 (Chair)
- Graduate Admissions Committee, Princeton 2016/2017, 2017/2018, 2018/2019, 2019/2020
- Director of Graduate Studies, Princeton 2016 - 2020
  
- Co-organizer of the CRM Barcelona Colloquium 2023 -
- Co-organizer of the PDE Seminar, Brown 2021 - 2022
- Co-organizer of the ONEPAS (Virtual) Seminar 2020 - 2021
- Co-organizer of the Analysis of Fluids Seminar, Princeton 2015 - 2020
- Co-organizer of the Colloquium, Princeton 2019

- Organizer of the "What's Happening in Fine Hall" Seminar, Princeton 2016 - 2019
- Scientific Committee of the *Barcelona Analysis Conference* June 2024
- Scientific Commission of the *Biennial Conference of the Spanish Royal Society* January 2024
- Co-organizer of a Parallel Session at the *Mathematical Congress of the Americas 2025* July 2025
- Co-organizer of the ICERM Conference *Harmonic Analysis and Convexity Reunion* December 2024
- Co-organizer of the *Mathematics and Machine Learning Program* Partial differential equations week, Harvard October 2024
- Co-Organizer of a Parallel Session at the *Equadiff 2024* June 2024
- Co-Organizer of a Parallel Session at the *10th International Congress on Industrial and Applied Mathematics* August 2023
- Co-organizer of the ICERM Semester Program *Harmonic Analysis and Convexity* Fall 2022
- Co-organizer of a Parallel Session at the *Mathematical Congress of the Americas 2021* July 2021
- Organizer of a Parallel Session at the *XII Americas Conference on Differential Equations and Nonlinear Analysis* December 2019
- Co-Organizer of the First Multidisciplinary Week (UAM, Madrid) July 2010
- PhD Defense Committee of Matt Hernandez (Princeton, 2017), Jaemin Park (Georgia Tech, 2021), Teo Kukuljan (UB, 2022), Patrick Flynn (Brown, 2023).
- Reader of the PhD Thesis of In-Jee Jeong (Princeton, 2017), Bruno Vergara (UAM, 2019), Joonhyun La (Princeton, 2019), Claudia García (Granada-Rennes, 2020).
- Advisor of: 6 First Year students, 1 Second Year student (Brown, 2023/2024); 6 Second Year students (Brown, 2024/2025).
- Referee for: *Advances in Mathematics*, *Annales de l'Institut Henri Poincaré C*, *Annali SNS Pisa*, *Annals of Mathematics*, *Annals of PDE*, *Archive for Rational Mechanics and Analysis*, *Asymptotic Analysis*, *Bulletin of the LMS*, *Communications in Mathematical Physics*, *Communications in Mathematical Sciences*, *Communications on Pure and Applied Mathematics*, *Discrete and Continuous Dynamical Systems*, *Duke Mathematical Journal*, *Forum of Mathematics: Pi*, *International Mathematics Research Notices*, *Inventiones Mathematicae*, *Journal de Mathématiques Pures et Appliquées*, *Journal of Differential Equations*, *Journal of Functional Analysis*, *Journal of Mathematical Analysis and Applications*, *Journal of Nonlinear Science*, *Journal of the American Mathematical Society*, *Journal of the European Mathematical Society*, *Monatshefte für Mathematik*, *Nonlinear Analysis: TMA*, *Nonlinearity*, *PNAS Nexus*, *Proceedings of the AMS*, *Publications Mathématiques de l'IHES*, *RACSAM*, *Rendiconti del Circolo Matematico di Palermo*, *Revista Matemática Iberoamericana*, *SIAM Journal on Applied Dynamical Systems*, *SIAM Journal on Mathematical Analysis*, *SIAM Journal on Scientific Computing*, *Transactions of the AMS*.
- External Referee for the "Programme for Postdoctoral Talent Attraction" (UAM).
- NSF Panelist (x3). NWO (Dutch Agency) External Reviewer. ANEP (Spain) External Reviewer. ERC Starting Grant Reviewer. SNF Ambizione Grant Reviewer.

## Outreach

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- Panelist at the Barcelona Introduction to Mathematical Research 2024 July 2024
- Co-Organizer of the Barcelona Introduction to Mathematical Research 2022 July 2022
- Panelist, Brown University “Graduate school panel” Fall 2021, 2022
- Lecturer at the Smartick Mathematics and Technology Summer Camp for girls July 2017
- Lecturer at the BarcelonaTech  
Math Summer Camp (UPC) July 2015, 2016, 2017, 2018, 2019, 2021
- Lecturer at the JAE School of Mathematics (ICMAT, Madrid) July 2013, 2019
- Deputy Leader of the Spanish delegation at the  
Iberoamerican Mathematical Olympiad September 2011, 2012
- Evaluator at the Spanish Mathematical Olympiad March 2010, 2011, 2012, 2013
- Problemsetter and Evaluator at the ACM ICPC -  
Southwestern Europe Regional Contest October 2009, 2010, 2011
- Deputy Leader of the Spanish delegation at the  
International Olympiad in Informatics August 2007, 2009
- Problemsetter and Evaluator at the Spanish Olympiad in Informatics June 2007
- Problem Selection Committee for the  
Assablée générale de 'Le Kangourou sans frontières' June 2006
- Trainer for the Spanish (and International) Math. Olympiad 2004-2007
- Selection Committee, interviewer and teacher of the ESTALMAT  
(Stimulus of the Mathematical Talent) Project 2003 - 2013, 2018

## Languages

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- Spanish: Mother tongue.
- English: Certificate in Advanced English obtained in 2009.
- German: Zentrale Mittelstufenprüfung obtained in 2003. German University Entrance Exams (Abitur) passed with a 1.8 grade in a scale between 1.0 (best) and 6.0 (worst).
- French: Intermediate.
- Catalan: Intermediate.