

CONTACT INFORMATION	Universitat de Barcelona Departament de Matemàtiques i Informàtica Gran Via de Les Corts Catalanes 585 08007 Barcelona	xros@icrea.cat www.ub.edu/pde/xros
POSITIONS	ICREA & Universitat de Barcelona ICREA Research Professor & Catedràtic d'Universitat Departament de Matemàtiques i Informàtica 09/2020 - present	
	Universität Zürich Assistant Professor Institut für Mathematik 09/2017 - 08/2020	
	University of Texas at Austin R. H. Bing Instructor Department of Mathematics 08/2014 - 08/2017	
EDUCATION	Ph.D. in Mathematics Universitat Politècnica de Catalunya Advisor: Xavier Cabré Extraordinary PhD Award (UPC) 09/2011 - 06/2014	
	Master in Mathematics Universitat Politècnica de Catalunya Évariste Galois Prize (SCM) to the best Master's Thesis 09/2010 - 06/2011	
	Degree in Mathematics Universitat Politècnica de Catalunya Ranked 1st, finishing the 5 years degree in 4 years. 09/2006 - 06/2010	
HONORS AND AWARDS	<ul style="list-style-type: none"> • Highly Cited Researcher 2025 (The list is based on citation data (and other metrics) over the previous 11 years. Only 65 mathematicians were selected.) • Premi Nacional de Recerca al Talent Jove 2024 (This is the most important prize for young researchers in Catalunya. Awarded annually to a researcher under 40 years, working in any area of knowledge.) • PI of the ERC Consolidator Grant ‘SSNSD’ (2024 - 2029) (Awarded amount: 1,682,500 €) • Premio Nacional de Investigación para Jóvenes en Matemáticas y Tecnologías de la Información y las Comunicaciones 2023 (Awarded annually to a Spanish mathematician or computer scientist under 40 years. The prize, given by the Spanish Government, comes with a monetary award of 30,000 €.) • Frontiers of Science Awards 2023 (for the papers [32] and [36] below) (International prize awarded to 86 papers in all areas of Mathematics published in 2018–2022. Given by the government of China at the International Congress of Basic Science.) • Ferran Sunyer i Balaguer Prize 2023 	

(Awarded for the book “*Integro-Differential Elliptic Equations*”, with X. Fernández-Real. The prize comes with a monetary award of 15,000 €.)

- ‘Académico Correspondiente’ of the Spanish **Royal Academy of Sciences**
(Elected on October 2022. Youngest member of the Academy.)
- **Stampacchia Gold Medal 2021**
(International prize awarded every three years to a mathematician whose age does not exceed 35 in recognition of outstanding contributions to the Calculus of Variations.)
- **Premio Investigación Científica 2019** from the Fundación Princesa de Girona
(Awarded annually to a young Spanish scientist under 35 years. The prize is given by the King of Spain, and comes with a monetary award of 20,000 €.)
- PI of the **ERC Starting Grant** ‘ELLIPTICPDE’ (2019 - 2024)
(Awarded amount: 1,335,250 €)
Youngest awardee of ERC Starting Grant 2018 (among all panels in all sciences)
- PI of SNSF Research Project (04/2018 - 08/2020)
(Awarded amount: 200,000 CHF)
- **Antonio Valle Prize 2017** from the Spanish Society of Applied Mathematics
(Awarded annually to the best researcher under 34 years. At age 29, I became the youngest winner of the award ever.)
- **J. L. Rubio de Francia Prize 2017**, Royal Spanish Mathematical Society (RSME)
(Awarded annually to a young mathematician from Spain or residing in Spain. It is the highest distinction given by the RSME, and one of the most important prizes in Mathematics in Spain.)
- PI of the NSF Analysis Grant DMS-1565186 (07/2016 - 08/2017)
(Awarded amount: \$103,617)
- Vicent Caselles Prize 2015 from the RSME and the BBVA Foundation
(Spanish award to the best PhD theses in Mathematics)

BOOKS

- [1] *Integro-Differential Elliptic Equations*,
X. Fernandez-Real, X. Ros-Oton,
Progress in Mathematics 350, Birkhäuser, 2024.
- [2] *Regularity Theory for Elliptic PDEs*,
X. Fernandez-Real, X. Ros-Oton,
Zürich Lectures in Advanced Mathematics. EMS books, 2022.

ARTICLES AND PREPRINTS

- [3] Dimension of the singular set in the parabolic obstacle problem,
A. Martínez-Sánchez, X. Ros-Oton,
in preparation.
- [4] Regularity of Lipschitz free boundaries for weak solutions to Alt-Caffarelli type problems,
J. Domingo, X. Ros-Oton,
in preparation.
- [5] The fractional Laplacian in Lipschitz domains: Dahlberg theorem and L^2 solvability,
R. Colombo, X. Fernandez-Real, X. Ros-Oton,
in preparation.
- [6] The Neumann problem for the fractional Laplacian: optimal regularity via Mellin transform,
S. Dipierro, X. Ros-Oton, E. Valdinoci, M. Weidner,

- preprint arXiv (2025).
- [7] Higher regularity in nonlocal free boundary problems,
B. Barrios, X. Ros-Oton, M. Weidner,
preprint arXiv (2025).
 - [8] Optimal regularity for kinetic Fokker-Planck equations in domains,
X. Ros-Oton, M. Weidner,
preprint arXiv (2025).
 - [9] Extinction rates for nonradial solutions to the Stefan problem,
G. Fioravanti, X. Ros-Oton, C. Torres-Latorre,
Trans. Amer. Math. Soc. (2025), to appear.
 - [10] Positive solutions to general semilinear overdetermined boundary problems,
A. Enciso, P. Hidalgo-Palencia, X. Ros-Oton,
preprint arXiv (2024).
 - [11] Regularity for the Boltzmann equation conditional to pressure and moment bounds,
X. Fernández-Real, X. Ros-Oton, M. Weidner,
Comm. Math. Phys. 406 (2025), 175.
 - [12] C^∞ regularity in semilinear free boundary problems,
D. Restrepo, X. Ros-Oton,
Math. Ann. 392 (2025), 3397-3446.
 - [13] L^p estimates for the Laplacian via blow-up,
J. Lewenstein-Sanpera, X. Ros-Oton,
J. Differential Equations 441 (2025), 113478.
 - [14] Improvement of flatness for nonlocal free boundary problems,
X. Ros-Oton, M. Weidner,
J. Eur. Math. Soc. (2025), to appear.
 - [15] Regularity for nonlocal equations with local Neumann boundary conditions,
X. Ros-Oton, M. Weidner,
Anal. PDE (2025), to appear.
 - [16] Optimal regularity for nonlocal elliptic equations and free boundary problems,
X. Ros-Oton, M. Weidner,
preprint arXiv (2024).
 - [17] Schauder and Cordes-Nirenberg estimates for nonlocal elliptic equations with singular kernels,
X. Fernandez-Real, X. Ros-Oton,
Proc. Lond. Math. Soc. 129 (2024), e12629, 47pp.
 - [18] Obstacle problems for nonlocal operators with singular kernels,
X. Ros-Oton, M. Weidner,
Ann. Sc. Norm. Super. Pisa Cl. Sci. (2025), to appear.
 - [19] Semiconvexity estimates for nonlinear integro-differential equations,
X. Ros-Oton, C. Torres-Latorre, M. Weidner,
Comm. Pure Appl. Math. 78 (2025), 592-647.
 - [20] Regularity theory for nonlocal obstacle problems with critical and subcritical scaling,
A. Figalli, X. Ros-Oton, J. Serra,
preprint arXiv (2023).

- [21] Optimal regularity and fine asymptotics for the porous medium equation in bounded domains,
T. Jin, X. Ros-Oton, J. Xiong,
J. Reine Angew. Math. 809 (2024), 269-300.
- [22] Optimal regularity for the fully nonlinear thin obstacle problem,
M. Colombo, X. Fernandez-Real, X. Ros-Oton,
J. Eur. Math. Soc. 27 (2025), 3793-3840.
- [23] Optimal regularity for supercritical parabolic obstacle problems,
X. Ros-Oton, C. Torres-Latorre,
Comm. Pure Appl. Math. 77 (2024), 1724-1765.
- [24] Global Schauder theory for minimizers of the $H^s(\Omega)$ energy,
M. M. Fall, X. Ros-Oton,
J. Funct. Anal. 283 (2022), 109523, 50pag.
- [25] The singular set in the Stefan problem,
A. Figalli, X. Ros-Oton, J. Serra,
J. Amer. Math. Soc. 37 (2024), 305-389.
- [26] Non-symmetric stable operators: regularity theory and integration by parts,
S. Dipierro, X. Ros-Oton, J. Serra, E. Valdinoci
Adv. Math. 401 (2022), 108321, 100pag.
- [27] New boundary Harnack inequalities with right hand side,
X. Ros-Oton, C. Torres-Latorre
J. Differential Equations 288 (2021), 204-249.
- [28] Stable cones in the thin one-phase problem,
X. Fernandez-Real, X. Ros-Oton
Amer. J. Math. 146 (2024), 631-685.
- [29] Sharp quantitative stability for isoperimetric inequalities with homogeneous weights,
E. Cinti, F. Glaudo, A. Pratelli, X. Ros-Oton, J. Serra,
Trans. Amer. Math. Soc. 375 (2022), 1509-1550.
- [30] Characterizing compact coincidence sets in the thin obstacle problem,
S. Eberle, X. Ros-Oton, G. Weiss,
Nonlinear Anal. 211 (2021), 112473.
Special issue on “Free boundary problems”.
- [31] The Neumann problem for the fractional Laplacian: regularity up to the boundary,
A. Audrito, J.-C. Felipe-Navarro, X. Ros-Oton,
Ann. Sc. Norm. Super. Pisa Cl. Sci. 24 (2023), 1155-1222.
- [32] Generic regularity of free boundaries for the obstacle problem,
A. Figalli, X. Ros-Oton, J. Serra,
Publ. Math. Inst. Hautes Études Sci. 132 (2020), 181-292.
- [33] Free boundary regularity for almost every solution to the Signorini problem,
X. Fernandez-Real, X. Ros-Oton,
Arch. Rat. Mech. Anal. 240 (2021), 419-466.
- [34] The Dirichlet problem for nonlocal elliptic operators with $C^{0,\alpha}$ exterior data,
A. Audrito, X. Ros-Oton,
Proc. Amer. Math. Soc., 148 (2020), 4455-4470.

- [35] Obstacle problems for integro-differential operators: higher regularity of free boundaries,
N. Abatangelo, X. Ros-Oton,
Adv. Math. 360 (2020), 106931, 61pp.
- [36] Stable solutions to semilinear elliptic equations are smooth up to dimension 9,
X. Cabré, A. Figalli, X. Ros-Oton, J. Serra,
Acta Math. 224 (2020), 187-252.
- [37] On global solutions to semilinear elliptic equations related to the one-phase free boundary problem,
X. Fernandez-Real, X. Ros-Oton,
Discrete Contin. Dyn. Syst. A 39 (2019), 6945-6959.
Special issue Dedicated to Luis Caffarelli on the Occasion of his 70th Birthday.
- [38] Higher-order boundary regularity estimates for nonlocal parabolic equations,
X. Ros-Oton, H. Vivas
Calc. Var. Partial Differential Equations 57 (2018), 111.
- [39] Structure and regularity of the singular set in the obstacle problem for the fractional Laplacian,
N. Garofalo, X. Ros-Oton,
Rev. Mat. Iberoam. 35 (2019), 1309-1365.
- [40] The obstacle problem for the fractional Laplacian with critical drift,
X. Fernandez-Real, X. Ros-Oton,
Math. Ann. 371 (2018), 1683-1735.
- [41] The boundary Harnack principle for nonlocal elliptic equations in non-divergence form,
X. Ros-Oton, J. Serra,
Potential Anal. 51 (2019), 315-331.
- [42] Free boundary regularity in the parabolic fractional obstacle problem,
B. Barrios, A. Figalli, X. Ros-Oton,
Comm. Pure Appl. Math. 71 (2018), 2129-2159.
- [43] On the regularity of the free boundary for the p -Laplacian obstacle problem,
A. Figalli, B. Krummel, X. Ros-Oton,
J. Differential Equations 263 (2017), 1931-1945.
- [44] The structure of the free boundary in the fully nonlinear thin obstacle problem,
X. Ros-Oton, J. Serra,
Adv. Math. 316 (2017), 710-747.
- [45] Obstacle problems for integro-differential operators: regularity of solutions and free boundaries,
L. Caffarelli, X. Ros-Oton, J. Serra,
Invent. Math. 208 (2017), 1155-1211.
- [46] Boundary regularity estimates for nonlocal elliptic equations in C^1 and $C^{1,\alpha}$ domains,
X. Ros-Oton, J. Serra,
Ann. Mat. Pura Appl. 196 (2017), 1637-1668.
- [47] Regularity theory for general stable operators: parabolic equations,
X. Fernandez-Real, X. Ros-Oton,
J. Funct. Anal. 272 (2017), 4165-4221.
- [48] Infinite speed of propagation and regularity of solutions to the fractional porous medium equation in general domains,
M. Bonforte, A. Figalli, X. Ros-Oton,
Comm. Pure Appl. Math. 70 (2017), 1472-1508.

- [49] Global regularity for the free boundary in the obstacle problem for the fractional Laplacian,
B. Barrios, A. Figalli, X. Ros-Oton,
Amer. J. Math. 140 (2018), 415-447.
- [50] A one-dimensional symmetry result for a class of nonlocal semilinear equations in the plane,
F. Hamel, X. Ros-Oton, Y. Sire, E. Valdinoci,
Ann. Inst. H. Poincaré Anal. Non Linéaire 34 (2017), 469-482.
- [51] Pohozaev identities for anisotropic integro-differential operators,
X. Ros-Oton, J. Serra, E. Valdinoci,
Comm. Partial Differential Equations 42 (2017), 1290-1321.
- [52] The Dirichlet problem for nonlocal operators with singular kernels: convex and non-convex domains,
X. Ros-Oton, E. Valdinoci,
Adv. Math. 288 (2016), 732-790.
- [53] Regularity theory for general stable operators,
X. Ros-Oton, J. Serra,
J. Differential Equations 260 (2016), 8675-8715.
- [54] Boundary regularity for fully nonlinear integro-differential equations,
X. Ros-Oton, J. Serra,
Duke Math. J. 165 (2016), 2079-2154.
- [55] Nonlocal problems with Neumann boundary conditions,
S. Dipierro, X. Ros-Oton, E. Valdinoci,
Rev. Mat. Iberoam. 33 (2017), 377-416.
- [56] Boundary regularity for the fractional heat equation,
X. Fernández-Real, X. Ros-Oton,
Rev. Acad. Cienc. Ser. A Math. 101 (2016), 49-64.
- [57] Local integration by parts and Pohozaev identities for higher order fractional Laplacians,
X. Ros-Oton, J. Serra,
Discrete Contin. Dyn. Syst. A 35 (2015), 2131-2150.
- [58] Regularity for the fractional Gelfand problem up to dimension 7,
X. Ros-Oton,
J. Math. Anal. Appl. 419 (2014), 10-19.
- [59] Nonexistence results for nonlocal equations with critical and supercritical nonlinearities,
X. Ros-Oton, J. Serra,
Comm. Partial Differential Equations 40 (2015), 115-133.
- [60] The extremal solution for the fractional Laplacian,
X. Ros-Oton, J. Serra,
Calc. Var. Partial Differential Equations 50 (2014), 723-750.
- [61] Sharp isoperimetric inequalities via the ABP method,
X. Cabré, X. Ros-Oton, J. Serra,
J. Eur. Math. Soc. 18 (2016), 2971-2998.
- [62] The Pohozaev identity for the fractional Laplacian,
X. Ros-Oton, J. Serra,
Arch. Rat. Mech. Anal. 213 (2014), 587-628.

- [63] The Dirichlet problem for the fractional Laplacian: regularity up to the boundary,
X. Ros-Oton, J. Serra,
J. Math. Pures Appl. 101 (2014), 275-302.
- [64] Sobolev and isoperimetric inequalities with monomial weights,
X. Cabré, X. Ros-Oton,
J. Differential Equations 255 (2013), 4312-4336.
- [65] Regularity of stable solutions up to dimension 7 in domains of double revolution,
X. Cabré, X. Ros-Oton,
Comm. Partial Differential Equations 38 (2013), 135-154.
- [66] Existence of periodic solutions with nonconstant sign in a class of generalized Abel differential equations,
J. M. Olm, X. Ros-Oton,
Discrete Contin. Dyn. Syst. A 33 (2013), 1603-1614.
- [67] On a factorization of Riemann's ζ function with respect to a quadratic field and its computation,
X. Ros-Oton,
Rev. Acad. Cienc. Ser. A Math. 106 (2012), 419-427.
- [68] Periodic solutions with nonconstant sign in Abel equations of second kind,
J. M. Olm, X. Ros-Oton, T. M. Seara,
J. Math. Anal. Appl. 381 (2011), 582-589.
- [69] Stable inversion of Abel equations: application to tracking control in DC-DC nonminimum phase boost converters,
J. M. Olm, X. Ros-Oton, Y. B. Shtessel,
Automatica J. IFAC 47 (2011), 221-226.
- [70] Approximate tracking of periodic references in a class of bilinear systems via stable inversion,
J. M. Olm, X. Ros-Oton,
Discrete Contin. Dyn. Syst. Ser. B 15 (2011), 197-215.

EXPOSITORY
PAPERS,
SHORT NOTES,
BOOK CHAPTERS

- [71] Mirando hacia el futuro: Problemas de frontera libre,
X. Ros-Oton,
La Gaceta de la RSME 24 (2021), 399-416.
- [72] Regularitat i singularitats en problemes de frontera lliure,
X. Ros-Oton, J. Serra,
Butlletí de la SCM 35 (2020), 155-176.
- [73] Understanding singularities in free boundary problems,
X. Ros-Oton, J. Serra,
Matematica, Cultura e Società 4 (2019), 107-118.
Special volume in honor of Alessio Figalli.
- [74] Free boundaries and obstacle problems: an overview,
X. Ros-Oton,
SeMA J. 75 (2018), 399-419.
- [75] Boundary regularity, Pohozaev identities, and nonexistence results,
X. Ros-Oton,
Chapter 9 in 'Recent developments in the Nonlocal Theory', De Gruyter, 2018.

- [76] Nonlocal elliptic equations in bounded domains: a survey,
X. Ros-Oton,
Publ. Mat. 60 (2016), 3-26.
- [77] Euclidean balls solve some isoperimetric problems with nonradial weights,
X. Cabré, X. Ros-Oton, J. Serra,
C. R. Math. Acad. Sci. Paris 350 (2012), 945-947.
- [78] Fractional Laplacian: Pohozaev identity and nonexistence results,
X. Ros-Oton, J. Serra,
C. R. Math. Acad. Sci. Paris 350 (2012), 505-508.

RESEARCH
PROJECTS
AS PI

AEI Generación de Conocimiento project (Spain)	09/2025 - 09/2028
Project: “ <i>PDE in Physics and Analysis</i> ”	
PIs: X. Ros-Oton & A. Clop	
Awarded amount: 116,250 €	
AEI Redes de Investigación	01/2025 - 12/2026
Project: “ <i>Network on nonlocal PDE and applications</i> ”	
PI and coordinator: X. Ros-Oton (UB)	
Local coordinators: Diego Cordoba (ICMAT), Joan Mateu (UAB), Fernando Quirós (UAM), Jose A. Cañizo (UGR), Begoña Barrios (ULL), Xavier Cabré (UPC), Miguel Escobedo (UPV), Francisco Gancedo (US), Jose M. Mazón (UV), Óscar Angulo (UVa).	
Awarded amount: 28,000 €	
DFG-AEI bilateral German-Spanish project	01/2025 - 12/2027
Project: “ <i>Transcending boundaries in Analysis through nonlocality</i> ”	
M. Kassmann (German PI); X. Ros-Oton (Spanish PI); R. Frank; M. Bonforte	
Awarded amount (total): 576,260 €	
Awarded amount at the UB: 175,000 €	
ERC Consolidator Grant 2023	10/2024 - 09/2029
Project: “ <i>Stable solutions and non-standard diffusions: PDE questions arising in Mathematical Physics</i> ”	
PI: X. Ros-Oton	
Awarded amount: 1,682,500 €	
AEI Generación de Conocimiento project (Spain)	09/2022 - 05/2026
Project: “ <i>PDE and Fluid Mechanics</i> ”	
PIs: X. Ros-Oton & J. Gómez-Serrano	
Awarded amount: 205,700 €	
ERC Starting Grant 2018	01/2019 - 09/2024
Project: “ <i>Regularity and singularities in elliptic PDE’s: beyond monotonicity formulas</i> ”	
PI: X. Ros-Oton	
Awarded amount: 1,335,250 €	
SNSF Research Project (Switzerland)	04/2018 - 08/2020
Project: “ <i>Integro-differential elliptic equations</i> ”	
PI: X. Ros-Oton	
Awarded amount: 200,000 CHF	

Start-up Grant J. L. Rubio de Francia

10/2017 - 09/2020

BBVA Foundation

PI: X. Ros-Oton

Amount: 35,000€

NSF Analysis Grant DMS-1565186 (USA)

07/2016 - 08/2017

Project: “*Regularity theory for elliptic equations and free boundaries*”

PI: X. Ros-Oton

Awarded amount: \$103,617

EDITORIAL WORK

- Editor for *Analysis & PDE* (2025 - present)
- Editor for *Rev. Mat. Iberoam.* (2023 - present)
- Editor for *Calc. Var. PDE* (2020 - 2023)
- Editor for *Disc. Cont. Dyn. Syst. A* (2023 - 2025)
- Editor for *Nonlinear Analysis* (2020 - 2023)
- Editor for *Collectanea Math.* (2021 - 2025)
- Scientific Committee for *Rev. Acad. Cienc. Ser. A Math.* (2022 - present)

ORGANIZATION OF CONFERENCES

- *MFO workshop: Partial Differential Equations*
Organizers: A. Fraser, T. Lamm, C. Mantoulidis, X. Ros-Oton.
Oberwolfach, July 2027 (TBC).
- *Thematic Programme “Analysis of Free Boundary Problems”*
Organizers: X. Fernández-Real, C. Jeznach, X. Ros-Oton, X. Tolsa.
CRM (Barcelona), Fall 2026.
- *Conference on Nonlinear PDEs (on the occasion of Xavier Cabré 60th birthday)*
Organizers: X. Ros-Oton, T. Sanz-Perela, J. Serra, J. Solà-Morales.
Barcelona, July 2026.
- *Mathematics for Machine Learning*
Organizers: J. Bruna, X. Ros-Oton, D. Ruiz-Balet.
Centre de Recerca Matemàtica, Barcelona, January 2026.
- *Thematic Programme “Free Boundary Problems”*
Organizers: U. Stefanelli (main organizer), S. Dipierro, J. Fischer, M. Novaga,
E. Rocca, X. Ros-Oton, E. Valdinoci.
Erwin Schrödinger Institute (Vienna), September–December 2025.
- *MFO workshop: Partial Differential Equations*
Organizers: A. Fraser, X. Ros-Oton, F. Schulze.
Oberwolfach, July 2025.
- *PDE in Barcelona*
Organizers: X. Ros-Oton, T. Sanz-Perela.
Universitat de Barcelona, May 2025.
- *MFO–RIMS Tandem workshop: Nonlocality in Analysis, Probability and Statistics*
Organizers: K. Bogdan, A. Kohatsu-Higa, X. Ros-Oton, R. Schilling.

Oberwolfach–Kyoto, March 2022.

- *PDEs and Geometric Measure Theory*
Organizers: A. Figalli, X. Ros-Oton, J. Serra.
Zürich, October 2018.

MENTORING

PhD students

- *Joan Domingo*, 2024–present
- *Alejandro Martínez*, 2024–present
- *Clara Torres Latorre*, 2020–2024.
PhD Thesis: ‘Regularity theory for obstacle problems and boundary Harnack inequalities’
(Vicent Caselles Prize 2024 for her PhD thesis)
- *Teo Kukuljan*, 2019–2022.
PhD Thesis: ‘Higher regularity of free boundaries in obstacle problems’

Postdocs

- *Pablo Hidalgo*, 2025-2027.
- *Marvin Weidner*, 2022-2025.
- *Philipp Zimmermann*, 2023-2025.
- *Juan Carlos Cantero*, 2023-2024.
- *Bruno Vergara*, 2019-2022.
- *Alessandro Audrito*, 2019-2020.
- *Nicola Abatangelo*, 2018-2019.

Other

- *Jack Thompson*, visiting PhD student, Fall 2022 and Fall 2023.
- *Giorgio Tortone*, visiting postdoc, Spring 2020.
- *Juan Carlos Felipe*, visiting PhD student, Fall 2019.
- *Xavier Fernandez-Real*, PhD Reading Courses 2015-2016.

Undergraduate & Master students

- *Pau Mac an Mhaolair Guasch*, Bachelor’s Degree Thesis, Spring 2026.
- *Andrea Rocca*, visiting Master student (Pisa), Fall 2025.
- *Santiago Reyes*, visiting Master student (ENS Paris), Spring 2025.
- *Marianna Gioiosa*, visiting Master student (Trento), Spring 2025.
- *Ricard Sanchez*, Bachelor’s Degree Thesis, Spring 2025.
- *Joan Domingo*, Master’s Thesis, Spring 2024.
- *Jan Lewenstein*, Bachelor’s Degree Thesis, Fall 2023.
- *Simon Le Bouëdec*, visiting Master student (ENS Rennes), Spring 2023.
- *Joan Domingo*, Bachelor’s Degree Thesis, Spring 2023.

- *Marcos Llorca*, Master's Thesis (UAM, coadvised with M. Medina), Spring 2023.
- *Joaquim Duran*, Beca de col·laboració, Fall 2022.
- *Maëlle Labeille*, visiting Master student (ENS Lyon), Spring 2022.
- *Gerard Castro*, introduction to research project, Summer 2022.
- *Matías Viner*, introduction to research project, Summer 2022.
- *Clara Torres Latorre*, Master's Thesis, Spring 2020.
(Évariste Galois Prize 2021 for her Master's thesis)
- *Xavier Fernandez-Real*, Bachelor's Degree Thesis, Summer 2014.
(Évariste Galois Prize 2016 for his work under my supervision)

INVITED TALKS
AT CONFERENCES

- *Nonlinear diffusion and related PDEs in (non) Euclidean settings*
BIRS, Banff (Canada), September 2026.
- *Bilbao-Barcelona Analysis and PDE meeting*
Bilbao, September 2025.
- *Regularity Theory for Free Boundary and Geometric Variational Problems V*
Rimini (Italy), June 2025.
- *Nonlocal Equations - Analysis and Numerics*
Bielefeld, March 2025.
- *Regularity and geometric aspects of nonlinear PDEs*
Milano, January 2025.
- *14th AIMS Conference on Dynamical Systems, Differential Equations and Applications*
Plenary talk.
New York University at Abu Dhabi, December 2024.
- *PDEs in Tenerife: from theory to applications*
Universidad de la Laguna, October 2024.
- *13th Oxbridge PDE Conference*
University of Oxford, March 2024.
- *New trends in Nonlinear PDEs, Physics and Geometry*
BIRS Granada, January 2024.
- *Workshop on Degenerate and Singular Diffusion*
ICMAT, Madrid, October 2023.
- *Meeting on Nonlocal PDEs and Applications*
ICMAT, Madrid, September 2023.
- *Nonlinear Analysis and its applications in Geometry*
China (online), July 2023.
- *Nonlinear PDEs*
ICMAT, Madrid, July 2023.
- *Meeting on nonlinear evolution PDEs, fluid dynamics and transport equations*
Majorana Center, Erice (Sicily), May 2023.
- *Geometric PDE Workshop*
University of Warwick, UK, December 2022.
- *Geometric aspects of nonlinear PDE*
Institut Mittag-Leffler (Stockholm), October 2022.

- *Partial differential equations and related functional inequalities*
Accademia dei Lincei (Rome), September 2022.
- *BSM – BGSMath Junior Meeting*
Plenary talk.
Barcelona – Berlin, September 2022.
- *O. Ladyzhenskaya centennial conference on PDEs*
Keynote speaker.
St. Petersburg (online), July 2022.
- *Probability/PDE Interactions: Interface Models and Particle Systems*
CIRM Marseille, April 2022.
- *Deterministic and stochastic fractional differential equations and jump processes*
Isaac Newton Institute for Mathematical Sciences, UK, February 2022.
- *Workshop: PDE's in presence in Rome*
Rome, February 2022.
- *Computation, Analysis and Applications of PDEs with Nonlocal and Singular Operators*
National University of Singapore, February 2022.
- *15th International Conference on Free Boundary Problems*
Plenary talk.
Berlin, September 2021.
- *Regularity Theory for Free Boundary and Geometric Variational Problems*
CIRM, Trento (Italy), September 2021.
- *New Trends in Nonlinear Diffusion: a Bridge between PDEs, Analysis, and Geometry*
BIRS-CMO workshop in Oaxaca, September 2021.
- *SIAM Annual Meeting 2021*
Minisymposium on Nonlocal Problems.
Spokane (USA), July 2021.
- *Geometric and functional inequalities and recent topics in nonlinear PDEs*
Online conference, March 2021.
- *2020 Fields Medal Symposium*
The Fields Institute, Toronto, October 2020.
- *Recent Progress in Nonlocal Modeling, Analysis, and Computation (NMAC20)*
Online conference, June 2020.
- *IMI Workshop in PDEs*
UCM, Madrid, February 2020.
- *Workshop in Analysis & Probability*
Plenary talk.
Cardiff (Wales), December 2019.
- *Workshop in honor of Alessio Figalli*
UPC, Barcelona, November 2019.
- *ICIAM 2019*
Special session on “Analysis of nonlinear operators”.
Valencia, July 2019.
- *ICIAM 2019*
Special session on “Trends in nonlocal PDEs”.
Valencia, July 2019.

- *Barcelona Analysis Conference 2019*
Plenary talk.
Universitat de Barcelona, June 2019.
- *Biennial Conference of the Royal Spanish Mathematical Society*
Plenary talk.
Santander (Spain), February 2019.
- *Winter meeting on nonlocal PDEs and applications*
Universidad Autónoma de Madrid, December 2018.
- *Fields Medal day (Swiss Mathematical Society)*
Colloquium talk on the work of Alessio Figalli.
Bern, October 2018.
- *Nonlocal interactions: Dislocations and beyond*
University of Bath, June 2018.
- *Maxwell Symposium in PDEs*
International Centre for Mathematical Sciences (Edinburgh), December 2017.
- *Conference on Partial Differential Equations*
KTH Stockholm, December 2017.
- *Mathematical approaches to complex systems: Statistical mechanics and PDEs*
Convento da Arrábida (Portugal), July 2017.
- *XXV Congreso de Ecuaciones Diferenciales y Aplicaciones*
Plenary talk on the occasion of the Antonio Valle Prize 2017.
Cartagena (Spain), June 2017.
- *2016-17 Warwick EPSRC Symposium: Non-local equations and fractional diffusion*
Warwick University, May 2017.
- *Fall Meeting of the American Mathematical Society*
Special session on ‘New developments in the analysis of nonlocal operators’.
Minneapolis, October 2016.
- *3rd Conference on Nonlocal Operators and PDEs*
Plenary talk.
Conference Center of the Polish Academy of Sciences (Będlewo, Poland), June 2016.
- *Nonlocal Variational Problems and PDEs*
Pacific Institute of Mathematical Sciences (Vancouver), June 2016.
- *Recent trends on elliptic nonlocal equations*
Fields Institute (Toronto), June 2016.
- *Spring Meeting of the American Mathematical Society*
Special session on ‘Fractional calculus and nonlocal operators’.
East Lansing (Michigan), March 2015.
- *10th AIMS Conference on Dynamical Systems, Differential Equations and Applications*
Special session on ‘Geometric variational problems’.
Madrid, July 2014.
- *10th AIMS Conference on Dynamical Systems, Differential Equations and Applications*
Special session on ‘Nonlocal problems and related topics’.
Madrid, July 2014.
- *Recent Advances in Nonlocal and Nonlinear Analysis, Theory and Applications*
ETH Zürich, June 2014.

- *Meeting on PDEs and Applications*
Girona, June 2014.
- *Workshop on Non-Standard Diffusions*
Austin, May 2014.
- *Workshop on Partial Differential Equations and applications*
Pisa, February 2014.
- *Workshop on Nonlinear equations*
Universidad Carlos III Madrid, October 2013.
- *Congress of young researchers of the Real Sociedad Matemática Española*
Special session on PDEs.
Sevilla, September 2013.
- *Conference of young researchers of the Societat Catalana de Matemàtiques*
Special session on Analysis and PDEs.
Barcelona, October 2012.
- *Barcelona-Boston-Tokyo Number Theory Congress in Memory of Fumiyuki Momose*
Barcelona, May 2012.

INVITED TALKS
AT SEMINARS,
COLLOQUIUMS

- *Goethe-Universität Frankfurt*. Colloquium, October 2025.
- *University of Vienna*. Colloquium, September 2025.
- *Bocconi University, Milano*. Analysis & Applied Mathematics seminar, May 2025.
- *Institute of Photonic Sciences, ICFO*. Colloquium, July 2024.
- *Universidade Federal Fluminense*. PDE seminar, February 2023.
- *Universitat Autònoma de Barcelona*. Colloquium, November 2022.
- *Paris-Lodron University Salzburg*. Colloquium, November 2022.
- *St. Petersburg State University*. V. I. Smirnov Seminar on Mathematical Physics (online), November 2022.
- *Hong Kong University of Science and Technology*. PDE seminar, October 2022.
- *ICREA Colloquium*. Barcelona, October 2022.
- *University of Utah*. Applied Mathematics seminar, September 2022.
- *University of Helsinki*. Geometric and Functional Analysis seminar, March 2022.
- *Sapienza Università di Roma*. Analysis seminar, February 2022.
- *Corona Seminar: Inequalities on Function Spaces*. online seminar, February 2022.
- *Universidad de La Laguna*. Analysis seminar, December 2021.
- *ETH Zürich*. Analysis seminar, September 2021.
- *Indian Institute of Technology, Delhi*. PDE online seminar, June 2021.
- *Universidad de Valladolid*. Colloquium. March 2021.
- *PDE's: Italia & España*. Online seminar, December 2020.
- *Stanford University*. Geometry seminar (online), December 2020.
- *University of Warwick*. Analysis Seminar. November 2020.
- *Indian Institute of Technology, Kanpur*. PDE webinar, November 2020.
- *University of Western Australia*. PDE Seminar (online), September 2020.
- *ShanghaiTech University*. PDE Seminar (via Zoom). April 2020.
- *Universidad Carlos III de Madrid*. Colloquium. February 2020.
- *École Polytechnique Fédérale de Lausanne*. Analysis Seminar. May 2019.

- *University of Washington*. Analysis Seminar. April 2019.
- *Universitat Autònoma de Barcelona*. Analysis Seminar. November 2018.
- *Universitat de Barcelona*. Colloquium IMUB. November 2018.
- *Universität Zürich*. Videoseminar Berkeley / Bonn / Paris-Nord / Zürich. October 2018.
- *Wuhan Institute of Physics & Mathematics, Chinese Academy of Sciences*. July 2018.
- *Wuhan University*. July 2018.
- *University of Texas at Austin*. Analysis seminar. May 2018.
- *University of Houston*. PDE seminar. April 2018.
- *Universitat Politècnica de Catalunya*. Colloquium FME-UPC. April 2018.
- *Universidad Autónoma de Madrid*. PDE seminar. March 2018.
- *Instituto de Ciencias Matemáticas*. PDE's & Fluid Mechanics seminar. March 2018.
- *ETH / Universität Zürich*. Zürich Graduate Colloquim. February 2018.
- *Institut des Hautes Études Scientifiques*. Séminaire *Laurent Schwartz*. January 2018.
- *Universität Basel*. Analysis seminar. December 2017.
- *Universidad Autónoma de Madrid*. Colloquium. October 2017.
- *Massachusetts Institute of Technology*. PDE/Analysis seminar. April 2017.
- *ETH Zürich*. Analysis seminar. March 2017.
- *École Polytechnique Fédérale de Lausanne*. Colloquium. March 2017.
- *Courant Institute, New York University*. Analysis seminar. February 2017.
- *Universitat Politècnica de Catalunya*. PDE Seminar. December 2016.
- *Hausdorff Center for Mathematics (Bonn)*. December 2016.
- *University of California Los Angeles*. Analysis seminar. December 2016.
- *Universität Zürich*. November 2016.
- *Rice University*. Colloquium. November 2016.
- *University of Texas at Austin*. Analysis seminar. October 2016.
- *Columbia University*. Analysis seminar. February 2016.
- *Michigan State University*. Analysis seminar. October 2015.
- *University of Copenhagen*. Analysis and Geometry seminar. June 2015.
- *African Institute of Mathematical Sciences (Senegal)*. PDE seminar. June 2015.
- *University of Chicago*. PDE seminar. February 2015.
- *Universidad del País Vasco (UPV/EHU)*. Analysis seminar. May 2014.
- *Universität Basel*. Analysis seminar. December 2013.
- *Università di Roma Tor Vergata*. PDE seminar. November 2013.
- *Universitat Politècnica de Catalunya*. PDE seminar. April 2013.
- *Basque Center for Applied Mathematics*. PDE seminar. February 2013.

ADVANCED COURSES

- *Cortona Summer School 2027*.
15h minicourse on ‘Regularity for the Boltzmann equation via nonlocal operators’.
July 2027.
- *Barcelona Graduate School of Mathematics*.
20h minicourse on ‘An introductory course on the Boltzmann equation’, together
with G. Estrada.
May 2026.
- *Warsaw Summer School on Evolutionary PDEs*.

8h minicourse on ‘Stable solutions to nonlinear elliptic PDE’.
July 2025.

- *Spring School and Workshop on Spectral Theory, Fourier Analysis and PDE* (BCAM, Bilbao).
3h minicourse on ‘Regularity for the Boltzmann equation’.
May 2025.
- *Summer School JAE Intro* (ICMAT, Madrid).
6h minicourse on ‘Stable solutions to nonlinear elliptic PDE’.
July 2024.
- *Summer School JISD2024*.
6h minicourse on ‘Integro-differential elliptic equations’.
July 2024.
- *Barcelona Graduate School of Mathematics*.
20h minicourse on ‘Harmonic measure and free boundary problems’, together with X. Tolsa.
November 2023.
- *Barcelona Introduction to Research Summer Program*.
6h minicourse on ‘Analysis and PDE’, together with J. Gómez-Serrano.
July 2022.
- *Hypatia Summer School* (Barcelona).
6h minicourse on ‘Free boundary problems’.
June 2022.
- *Summer School at the Hausdorff Institute* (Bonn).
Minicourse on ‘Regularity of free boundaries’.
June – July 2021.
- *Workshop on Nonlocal Operators with Applications to Jump Processes* (Dresden).
8h online Minicourse on ‘Boundary regularity for nonlocal operators’.
October 2020.
- *Concentration period on GMT and PDE* (Seattle).
6h online Minicourse on ‘Regularity theory for free boundary problems’.
August 2020.
- *CIME summer school “Geometric Measure Theory and Applications”* (Italy).
6h Minicourse on ‘Regularity of free boundaries in obstacle problems’.
September 2019.
- *African Institute for Mathematical Sciences* (Senegal).
4h Minicourse on ‘Free boundary problems’.
February 2019.
- *Huazhong University of Science and Technology* (China).
16h Minicourse on ‘Nonlocal PDE’.
July 2018.

TEACHING

Universitat de Barcelona

- *Partial Differential Equations*
(Master course, 45 hours)

Fall 2024, Fall 2025

Universität Zürich

- *Topics on Elliptic PDE's* Fall 2019, Fall 2017
(PhD course, 56 hours)
- *Integro-differential elliptic equations* Fall 2018
(PhD course, 56 hours)

University of Texas at Austin

- *Differential Equations with Linear Algebra* Spring 2017
- *Nonlocal Elliptic Equations* Fall 2016
(PhD course, 42 hours)
- *Multivariable Calculus* Spring 2016
- *Differential Calculus for Science* Fall 2015
- *Differential and Integral Calculus* Spring 2015
- *Differential Calculus* Fall 2014

Universitat Politècnica de Catalunya

- *Advanced Partial Differential Equations* Spring 2014
(Master course, 30 hours)
- *Functional Analysis* Spring 2013

SCIENTIFIC AND ADMINISTRATIVE RESPONSIBILITIES

- Consejo Científico Asesor of the *Fundación Gadea por la Ciencia* (2025–present)
(The foundation aims to: 'improve the development of science and its impact on society')
- Consell Assesor of the *Fundació Episteme* (2020–present)
(The foundation aims to: 'promote debate and research on the Catalan education system')
- Member of the committee to design the Strategic Plan 2025-2030 for the CRM.
- Academic Committee member to design the new Bachelor Degree in Mathematics at UB, 2023–2025.
- Academic Committee member to design the new Master in Mathematics UB–UAB, 2022–2023.
- Member of the Hiring Committee for the following positions: tenure-track professor at UB (2021); tenured professor at UAB (2022); tenure-track professor at UB (2022); tenure-track professor at UB (2023); 2 tenure-track positions at UPC (2023); tenure-track position at UB (2025); 9 tenure-track positions at UPC (2025).
- Member of the Faculty Board at the School of Mathematics, UB (2021 - present)
- Creator and organizer of the *Barcelona Introduction to Research* Summer Program, 2022, 2023 and 2024.
- Co-Organizer of the IMUB Colloquium (2022 - present)
- Co-Organizer of the U. Zürich Seminar on *PDE & Math. Physics* (2018 - 2020)
- Co-Organizer of the Basel-Zürich Seminar in Analysis (2019 - 2020)
- Reviewer of research proposals for different national science agencies: DFG (Germany); NCN (Poland); FONDECYT (Chile); NWO (Netherlands).

- Scientific Committee member for the Biennial Conference of the Royal Spanish Mathematical Society 2021
- President of the Scientific Committee for the Barcelona Analysis Conference 2024
- Jury member for the Stampacchia Gold Medal 2024
- Jury member for the Premio Nacional de Investigación 2024
- Evaluation committee member for the 'Ramón y Cajal program' 2023
- Jury member for the Premi Nacional de Recerca 2026
- President of the committee of the Catalan Mathematical Olympiad (2020 - present)

SCIENCE
OUTREACH
& MEDIA

- Public lecture at the BBVA Foundation.
Title: '*Las ecuaciones que mueven el mundo*'
Madrid, April 2018.
- Interview for the newspaper 'El Español' (April 2018)
- Video-Interview for 'SwissInfo' (August 2018)
- Interview for the newspaper 'El Periódico' (October 2019)
- Interview for the newspaper 'elDiario.es' (November 2019)
- Interview for the newspaper 'El Punt Avui' (December 2019)
- Interview for the newspaper 'El País' (January 2020)
- Public lecture for high school students.
INS Joan Miró, Cornellà, January 2020.
- Interview for 'Els Matins de TV3' (October 2020)
- Interview for 'BTV Notícies' (July 2021)
- Interview for 'Onda Cero' (July 2021)
- Interview for the newspaper 'La Vanguardia' (August 2021)
- Interview for 'Cadena SER' (August 2021)
- Interview for 'El Mundo' (September 2021)
- Interview for 'RAC1' (September 2021)
- Interview for 'Ona Mediterrània' (October 2021)
- Inaugural Lecture of the 2021-22 academic year
Facultat de Matemàtiques i Informàtica, UB (October 2021)
- *Quanta Magazine* has written an outreach article for the general public about our work on the Stefan problem (October 2021)
www.quantamagazine.org/mathematicians-prove-melting-ice-stays-smooth-20211006
- Commencement Speech for the 'Batxillerat CiMs-Cellex' (November 2021)
- Interview for 'Dong-A Science Magazine', South Korea (December 2021)
- Photo-Interview for 'ABC – XLSemanal' (December 2021)
- Interview for 'ATRESMEDIA – Buscando Vocaciones' (June 2022)
- Masterclass at #HACKSTEM22, organized by Siemens Gamesa and Spanish Startups,

Bilbao (June 2022)

- Public science talk, Real Academia de Ciencias, Madrid (January 2023)
- Bientat Ciutat i Ciència, CCCB, Barcelona (February 2023)
- Public lecture for the “Cicle: Els grans interrogants de la ciència”, Olot (March 2023)
- Interview for ‘Dong-A Science Magazine’, South Korea (April 2023)
- Inaugural Lecture for the 2023/24 ‘ESTALMAT’ program, Madrid (September 2023)
- ICFO Colloquium, Institute of Photonic Sciences, Barcelona (July 2024)
- Public lecture for the “Universitat de l’Experiència”, Barcelona (November 2024)
- Interview for La Vanguardia (December 2024)
- Interview for Diari Ara (March 2025)
- Public lecture for high school winners of the Mathematics, Physics, and Informatics Olympiads, IEC Barcelona (May 2025)

CITATIONS

- More than 2600 citations in *MathSciNet*; more than 5000 in *Google Scholar*.
- Highly Cited Researcher 2025 (Clarivate)
- One of the most cited mathematicians of my generation.
(Source: MathSciNet and Math Genealogy Project; see <http://mathcitations.github.io>)