Curriculum Vitae
Xavier Tolsa Domènech

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PERSONAL INFORMATION

Researcher unique identifier: ORCID 0000-0001-7976-5433
Date of birth: 2-11-1966
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EDUCATION

1998	PhD in Mathematics. Universitat Autònoma de Barcelona (UAB).
1995	PhD in Industrial Engineering. Universitat Politècnica de Catalunya.
1994	Degree in Mathematics. Facultat de Matemàtiques, Universitat de Barcelona (UB).
1990	Industrial Engineer. ETS Enginyers Industrials, Universitat Politècnica de Catalunya.

CURRENT POSITION

2003 -	ICREA Research Professor at the Universitat Autònoma de Barcelona. Institució Catalana de Recerca i Estudis avançats, Catalonia.

PREVIOUS POSITIONS

2001 - 2003	Ramón y Cajal researcher. Dept. of Mathematics, Universitat Autònoma de Barcelona.
2000 - 2001	Marie Curie Postdoctoral Fellow. Dept. of Mathematics, Université de Paris-Sud, France.
1999 - 2000	Postdoctoral Fellow. Dept. of Mathematics and Computer Science, Univ. of Göteborg, Sweden.
1994 - 1999	Assistant Professor. Dept. of Applied Mathematics and Analysis, Universitat de Barcelona.

INDIVIDUAL FELLOWSHIPS AND AWARDS

2024	**Premio Nacional de Investigación Julio Rey Pastor**, from the Spanish government.
2024	**Frontiers of Science Award** from the International Congress of Basic Sciences (Beijing) for the work *On the uniform rectifiability of AD-regular measures with bounded Riesz transform operator: the case of codimension 1* (Acta Math., 2014) joint with F. Nazarov and A. Volberg.
2021 - 2026	**ERC Advanced Grant** for the project "Geometric Analysis and Potential Theory".

2019	**Prize Rei Jaume I of Basic Research**, yearly awarded by Generalitat Valenciana and Fundació Valenciana d'Estudis Avançats to a top scientist carrying out basic research in Spain.
2013	Ferran Sunyer i Balaguer Prize, for the book "Analytic capacity, the Cauchy transform, and non-homogeneous Calderón-Zygmund theory", published by Birkhäuser-Verlag in 2014.
2013 - 2018	**ERC Advanced Grant** for the project "Geometric analysis in the Euclidean space".
2004	**Prize of the European Mathematical Society** for young researchers, awarded for the solution of Painlevé's problem.
2002	**Salem Prize**, awarded by Princeton University and the IAS of Princeton for the proof of the semiadditivity of analytic capacity and the solution of Painlevé's problem, open for more than 100 years.
2001 - 2003	Ramón y Cajal fellowship. Number 1 in Mathematics in the Ramón y Cajal program in 2001.
2000 - 2001	Marie Curie Postdoctoral Fellowship, at the Dept. of Mathematics of Université de Paris-Sud.
1999 - 2000	Postdoctoral Fellowship from the TMR network Harmonic Analysis (HARP), at the Dept. of Mathematics and Computer Science of Univ. of Göteborg.
1991 - 1994	Predoctoral grant from the Generalitat de Catalunya, at the Universitat Politècnica de Catalunya, for the PhD in Engineering.

P.I. OF FUNDED RESEARCH PROJECTS

2025 - 2029	Teoría geométrica de la medida, análisis armónico y EDPs, PID2024-160507NB-I00 (MICIU, Spain). 131.250 euros.
2022 - 2024	Anàlisi real i complexa, i equacions en derivades parcials, 2021-SGR-00071. (AGAUR, Generalitat de Catalunya). 40.000 euros.
2021 - 2026	**ERC Advanced Grant** "Geometric analysis and Potential Theory" (European Comission, agreement 101018680). 1.476.000 euros.
2021 - 2025	Singular integrals, geometric measure theory, and PDE. PID2020-114167GB-I00 (MICINN, Spain). 60.000 euros.
2017 - 2020	Anàlisi real i complexa, i equacions en derivades parcials, 2017-SGR-395 (AGAUR, Generalitat de Catalunya). 65.896 euros.
2017 - 2020	Análisis armónico, teoría geométrica de la medida y aplicaciones, MTM2016-77635-P (MINECO, Spain). 47.500 euros.
2013 - 2018	**ERC Advanced Grant** "Geometric analysis in the Euclidean space" (European Comission, agreement 320501). 1.105.000 euros.
2014 - 2016	Integrales singulares, teoria geométrica de la medida, y espacios de Sobolev, MTM2013-44304-P (MINECO, Spain). 35.812 euros.
2011 - 2013	Análisis geométrico en el espacio euclídeo, MTM2010-16232. 57.800 euros.
2008 - 2010	Las transformadas de Cauchy y de Riesz y la rectificabilidad, MTM2007-62817 (MEC, Spain). 65.400 euros.

PARTICIPATION IN EXCELLENCE NETWORKS AND GRANTS

2014 - 2018 Metric analysis for emergent technologies, ITN MAnET FP7-607643 (European Commission, FP7-PEOPLE-2013-ITN). PI: Giovanna Citti (Bologna). 3.663.975 Euros.

2001 - 2004 Classical Analysis, Operator Theory, Geometry of Banach Spaces, their Interplay and their Applications, European union HPRN-CT-2000-00116.

TOP 10 PUBLICATIONS (out of more than 100)

1. I. Fleschler, X. Tolsa, and M. Villa. *Carleson's ε^2 conjecture in higher dimensions.* **Invent. Math.** 241 (2025), no. 1, 207–307. Extension of Carleson ε^2 conjecture to higher dimensions.
2. M. Mourgoglou and X. Tolsa. *The regularity problem for the Laplace equation in rough domains.* **Duke Math. J.** 173 (9) (2024), 1731–1837. Solution of the regularity problem for the Laplace equation in chord-arc and rougher domains, posed by Carlos Kenig in in 1991.
3. X. Tolsa. *Unique continuation at the boundary for harmonic functions in C^1 domains and Lipschitz domains with small constant.* **Comm. Pure Appl. Math.** 76 (2), 2023, pp. 305-336. Solution of a problem posed by Fang-Hua Lin in 1991 in the particular case of Lipschitz domains with small constant (the original question, still open, is for general Lipschitz domains).
4. B. Jaye, X. Tolsa, and M. Villa. *A proof of Carleson's ε^2-conjecture.* **Ann. of Math.** (2) 194 (2021), no. 1, 97–161. This work solves the ε^2-conjecture regarding the characterization of tangent points of Jordan cuves, posed by Chris Bishop and Lennart Carleson around 1990.
5. J. Azzam, S. Hofmann, J.M. Martell, M. Mourgoglou, and X. Tolsa. *Harmonic measure and quantitative connectivity: geometric characterization of the L^p-solvability of the Dirichlet problem.* **Invent. Math.** 222 (2020), 881–993.
6. J. Azzam, M. Mourgoglou and X. Tolsa. *Mutual absolute continuity of interior and exterior harmonic measure implies rectifiability.* **Comm. Pure Appl. Math.** Vol. LXX (2017), 2121–2163. This work solves the so-called two-phase problem for harmonic measure posed by C. Bishop in 1992, assuming the CDC condition.
7. F. Nazarov, X. Tolsa and A. Volberg. *On the uniform rectifiability of AD-regular measures with bounded Riesz transform operator: the case of codimension 1.* **Acta Math.** 213:2 (2014), 237–321. Solution of the David-Semmes problem about Riesz transforms and rectifiability in codimension 1, proposed by David and Semmes around 1990.
8. X. Tolsa. *Bilipschitz maps, analytic capacity, and the Cauchy integral.* **Ann. of Math.** 162:3 (2005), 1241–1302. This work shows that analytic capacity is bilipschitz invariant modulo multiplicative estimates, solving a problem posed by J. Verdera in 1994.
9. J. Mateu, X. Tolsa and J. Verdera. *The planar Cantor sets of zero analytic capacity and the local $T(b)$ theorem.* **J. Amer. Math. Soc.** 16 (2003), 19–28.
10. X. Tolsa. *Painlevé's problem and the semiadditivity of analytic capacity.* **Acta Math.** 190:1 (2003), 105–149. This work proves the semiadditivity of analytic capacity (posed by Vituskkin in the 1960's) and gives a solution of the Painlevé problem (from the 1900's) about removable singularities for bounded analytic functions in terms of Melnikov's curvature of measures.

BOOK

- X. Tolsa, "Analytic capacity, the Cauchy transform, and non-homogeneous Calderón-Zygmund theory", Progress in Mathematics, Vol. 307, Birkhäuser-Verlag, 2014, 396 p.

10 SELECTED PLENARY ADDRESSES (about 4 per year in the last five years)

2026	**International Congress of Mathematicians**, Philadelphia. (**Plenary sp.**).
2025	International Congress of Basic Science, Beijing, July 2025.
2020	Analysis, Dynamics, Geometry and Probability (in honor of Chris Bishop). Simons Center for Geometry and Physics, Stony Brook, New York.
2019	Modern Aspects of Complex Analysis and Its Applications (in honor of Don Marshall and John Garnett). University of Washington, Seattle.
2017	Geometry, Analysis and Probability. Conference in honor of Peter Jones. Seoul, South Korea.
2016	Harmonic analysis, complex analysis, spectral theory and all that (in honor of A. Volberg). Bedlewo (Poland).
2013	26th Nordic and 1st European-Nordic Congress of Mathematicians (Lund, Sweden).
2007	Lars Ahlfors Centennial Celebration, Helsinki.
2006	**International Congress of Mathematicians**, Madrid. (Invited speaker).
2004	**Fourth European Congress of Mathematics**, Stockholm. (Invited sp.).

EDITORIAL WORK

2025 -	Member of the Editorial Board of "Nonlinear Analysis".
2024 -	Member of the Editorial Board of "Ars Inveniendi Analytica".
2019 -	Member of the Editorial Board of "Publicacions Matemàtiques".
2014 - 2016	Member of the Editorial Board of the **Journal of the European Mathematical Society.**
2012 -	Member of the Editorial Board of "Annales de la Faculté des Sciences de Toulouse. Mathématiques".
2003 -2005	Member of the scientific committee of the journal "Collectanea Mathematica".

DIRECTION OF PHD THESES

2024	Ignasi Guillén Mola	*Geometric properties of harmonic measures,* UAB.
2024	Josep M. Gallegos Saliner	*Boundary problems in elliptic PDEs on rough domains,* UAB.
2021	Damian Dabrowski	*Rectifiability of Radon measures,* UAB.
2019	Carmelo Puliatti	*Singular integrals, rectifiability and elliptic measure,* UAB.
2018	Petr Chunaev	*Singular integral operators and rectifiability,* UAB.
2016	Daniel Girela Sarrión	*Singular integrals and rectifiability,* UAB.
2015	Martí Prats i Soler	*Singular integral operators on Sobolev spaces on domains and quasiconformal mappings,* UAB.
2011	Albert Mas Blesa	*Variation for Riesz transforms and analytic and Lipschitz harmonic capacities*, UAB.
2009	Aleix Ruiz de Villa	*The C^1 harmonic capacity and the Riesz transforms*, UAB.

OTHER PUBLICATIONS

1. I. Fleschler, X. Tolsa, and M. Villa. *Faber-Krahn inequalities, the Alt-Caffarelli-Friedman formula, and Carleson's ε^2 conjecture in higher dimensions.* Preprint (2023). To appear in **Amer. Math. Soc.**
2. I. Guillén-Mola, M. Prats, and X. Tolsa. *The dimension of planar elliptic measures arising from Lipschitz matrices in Reifenberg flat domains.* Anal. Math. Phys. 15 (2025), no. 4, Paper No. 106, 79 pp.
3. X. Tolsa. *A counterexample regarding a two-phase problem for harmonic measure in VMO.* Potential Anal. 63 (2025), no. 3, 1499–1515.
4. D. Dabrowski and X. Tolsa. *The measures with L^2-bounded Riesz transform and the Painlevé problem.* Preprint (2022). To appear in **Memoirs Amer. Math. Soc.**
5. M. Mourgoglou, B. Poggi, and X. Tolsa. *Solvability of the Poisson-Dirichlet problem with interior data in L^p-Carleson spaces and its applications to the L^p-regularity problem.* Preprint (2022). To appear in **J. Eur. Math. Soc. (JEMS)**.
6. J. Gallegos, M. Mourgoglou, and X. Tolsa. *Extrapolation of solvability of the regularity and the Poisson regularity problems in rough domains,* J. Funct. Anal. 288 (2025), no. 1, Paper No. 110672.
7. X. Tolsa and T. Toro. *The two-phase problem for harmonic measure in VMO and the chord-arc condition.* Trans. Amer. Math. Soc. Ser. B 11 (2024) 1294–1315.
8. S. Bortz, B. Poggi, O. Tapiola, and X. Tolsa. *The A_∞ condition, ε-approximators, and Varopoulos extensions in uniform domains.* J. Geom. Anal. 34 (2024), no. 7, Paper 218.
9. X. Tolsa. *The dimension of harmonic measure on some AD-regular flat sets of fractional dimension.* Int. Math. Res. Not. IMRN, vol. 2024, no. 8 (2024), pp. 6579–6605.
10. O. Tapiola and X. Tolsa. *Connectivity conditions and boundary Poincaré inequalities.* Analysis & PDE 17-5 (2024), 1831–1870.
11. A. Molero, M. Mourgoglou, C. Puliatti, and X. Tolsa. *L^2-boundedness of gradients of single layer potentials for elliptic operators with coefficients of Dini mean oscillation-type.* Arch. Ration. Mech. Anal. 247 (2023), no. 3, Paper No. 38, 59 pp.
12. J. Mateu, L. Prat, and X. Tolsa. *Removable singularities for Lipschitz caloric functions in time varying domains.* Rev. Mat. Iberoam. 38, 2 (2022), 547–588.
13. J. Azzam, J. Garnett, M. Mourgoglou, and X. Tolsa. *Uniform rectifiability, elliptic measure, square functions, and ε-approximability via an ACF monotonicity formula.* Int. Math. Res. Not. IMRN(2023), no. 13, 10837–10941.
14. X. Tolsa. *The mutual singularity of harmonic measure and Hausdorff measure of codimension smaller than one.* Int. Math. Res. Not. IMRN. vol. 2021(18) (2021), 13783–13811,
15. L. Prat, C. Puliatti, and X. Tolsa. *L^2-boundedness of gradients of single layer potentials and uniform rectifiability.* Analysis & PDE 14 (2021), no. 3, 717–791.
16. X. Tolsa. *Jump formulas for singular integrals and layer potentials on rectifiable sets.* Proc. Amer. Math. Soc. 148(11) (2020), 4755–4767.
17. J. Azzam, X. Tolsa, and T. Toro. *Characterization of rectifiable measures in terms of α-numbers.* Trans. Amer. Math. Soc. 373 (2020), no. 11, 7991–8037.
18. B. Jaye, F. Nazarov, and M.C. Reguera, and X. Tolsa. *The Riesz transform of codimension smaller than one and the Wolff energy.* **Mem. Amer. Math. Soc.** 266 (2020), no. 1293.
19. M. Prats and X. Tolsa. *The two-phase problem for harmonic measure in VMO.* Calc. Var. Partial Differential Equations 59 (2020), no. 4, 102, 58 pp.

20. P. Chunaev, J. Mateu and X. Tolsa. *A family of singular integral operators which control the Cauchy transform.* Math. Z. 294 (2020), no. 3-4, 1283–1340.
21. A. Chang and X. Tolsa. *Analytic capacity and projections.* **J. Eur. Math. Soc.** (JEMS) 22 (2020), no. 12, 4121–4159.
22. J. Azzam, M. Mourgoglou, and X. Tolsa. *A two-phase free boundary problem for harmonic measure and uniform rectifiability.* Trans. Amer. Math. Soc. vol. 373, no. 6 (2020), 4359–4388.
23. M. Mourgoglou and X. Tolsa. *Harmonic measure and Riesz transform in uniform and general domains.* J. Reine Angew. Math. 758 (2020), 183–221.
24. J. Azzam, M. Mourgoglou, X. Tolsa, and A. Volberg. *On a two-phase problem for harmonic measure in general domains.* **Amer. J. Math.** 141(5) (2019), 1259–1279.
25. P.V. Paramonov and X. Tolsa. *On C^1-approximability of functions by solutions of second order elliptic equations on plane compact sets and C-analytic capacity.* Anal. Math. Phys. (2019), Vol. 9 (3), 1133–1161.
26. J. Azzam, M. Mourgoglou, X. Tolsa, and A. Volberg. *On a two-phase problem for harmonic measure in general domains.* **Amer. J. Math.** 141, No, 5 (2019), 1259–1279.
27. J.M. Conde-Alonso, M. Mourgoglou, and X. Tolsa. *Failure of L^2 boundedness of gradients of single layer potentials for measures with zero low density.* Math. Ann. 373 (2019), 253–285.
28. X. Tolsa. *Rectifiability of measures and the β_p coefficients.* Publ. Mat. 63 (2019), 491–519.
29. P. Chunaev, J. Mateu and X. Tolsa. *Singular integrals unsuitable for the curvature method whose L^2-boundedness still implies rectifiability.* J. Anal. Math. 138 (2019), no.2, 741–764.
30. J. Garnett, M. Mourgoglou and X. Tolsa. *Uniform rectifiability from Carleson measure estimates and ε-approximability of bounded harmonic functions.* **Duke Math. J.** Vol. 167 (2018), No. 8, 1473-1524.
31. B. Jaye, F. Nazarov and X. Tolsa. *The measures with an associated square function operator bounded in L^2.* Adv. Math. 339 (2018), 60–112.
32. H. Martikainen, M. Mourgoglou, and X. Tolsa. *Improved Cotlar's inequality in the context of local Tb theorems.* J. Funct. Anal. 274 (2018), no. 5, 1255-1275.
33. D. Girela-Sarrión and X. Tolsa. *The Riesz transform and quantitative rectifiability for general Radon measures.* Calc. Var. PDE 57 (2018), no. 1, 57:16 (63 p.).
34. J. Azzam, M. Mourgoglou, and X. Tolsa. *The one-phase problem for harmonic measure in two-sided NTA domains.* Analysis & PDE 10-3 (2017), 559–588.
35. X. Tolsa and A. Volberg. *On Tsirelson's theorem about triple points for harmonic measure.* Int. Math. Res. Notices (2018) 2018 (12): 3671-3683.
36. A. Mas and X. Tolsa. *L^p-estimates for the variation for singular integrals on uniformly rectifiable sets.* Trans. Amer. Math. Soc. 369, no. 11 (2017), 8239–8275.
37. J. Azzam, M. Mourgoglou and X. Tolsa. *Singular sets for harmonic measure on locally flat domains with locally finite surface measure.* Int. Math. Res. Notices (2017) 2017 (12): 3751–3773.
38. X. Tolsa. *Rectifiable measures, square functions involving densities, and the Cauchy transform.* **Mem. Amer. Math. Soc.** 1158 (2017).
39. J. Azzam, S. Hofmann, J.M. Martell, S. Mayboroda, M. Mourgoglou, X. Tolsa, and A. Volberg. *Rectifiability of harmonic measure.* **Geom. Funct. Anal. (GAFA).** 26(3) (2016), 703–728.

40. J. Azzam, S. Hofmann, J.M. Martell, S. Mayboroda, M. Mourgoglou, X.Tolsa and A. Volberg. *Harmonic measure is rectifiable if it is absolutely continuous with respect to the co-dimension-one Hausdorff measure.* C. R. Math. Acad. Sci. Paris 354 (2016), no. 4, 351–355.
41. V. Chousionis, J. Garnett and T. Le. *Square functions and uniform rectifiability.* Trans. Amer. Math. Soc. 368 (2016), no. 9, 6063–6102.
42. M.C. Reguera and X. Tolsa. *Riesz transforms of non-integer homogeneity on uniformly disconnected sets.* Trans. Amer. Math. Soc. 368 (2016), no. 10, 7045–7095.
43. V. Chousionis, L. Prat, and X. Tolsa. *Square functions of fractional homogeneity and Wolff potentials.* Int. Math. Res. Not. IMRN 2016, no. 8, 2295–2319.
44. J. Azzam and X. Tolsa. *Characterization of n-rectifiability in terms of Jones' square function: Part II.* **Geom. Funct. Anal. (GAFA).** October 2015, Vol. 25, Issue 5, 1371–1412.
45. X. Tolsa. *Characterization of n-rectifiability in terms of Jones' square function: Part I.* Calc. Var. PDE. Vol. 54(4) (2015), 3643–3665.
46. L. Prat and X. Tolsa. *Non-existence of reflectionless measures for the s-Riesz transform.* Ann. Acad. Scient. Fenn. Math., vol. 40 (2015), 957–968.
47. X. Tolsa. *Uniform measures and uniform rectifiability.* J. Lond. Math. Soc. (2) 92 (2015), no. 1, 1–18.
48. M. Prats and X. Tolsa. *A $T(P)$ theorem for Sobolev spaces on domains.* J. Funct. Anal. 268 (2015), no. 10, 2946–2989.
49. X. Tolsa and T. Toro. *Rectifiability via a square function and Preiss' theorem.* Int. Math. Res. Notices (2015), Vol. 2015, 4638–4662.
50. V. Chousionis and X. Tolsa *Strong and weak type estimates for singular integrals with respect to measures separated by AD-regular boundaries,* Int. Math. Res. Not. 2014(23) (2014), 6497–6522.
51. F. Nazarov, X. Tolsa and A. Volberg. *The Riesz transform, rectifiability, and removability for Lipschitz harmonic functions.* Publ. Mat. 58:2 (2014), 517–532.
52. A. Mas and X. Tolsa. *Variation for Riesz transforms and uniform rectifiability.* **J. Eur. Math. Soc.** 16(11) (2014), 2267–2321.
53. V. Chousionis, J. Mateu, L. Prat and X. Tolsa. *Capacities associated with Calderon-Zygmund kernels.* Potential Anal. 38 (2013), no. 3, 913–949.
54. X. Tolsa. *Regularity of C^1 and Lipschitz domains in terms of the Beurling transform.* J. Math. Pures Appl. (9) 100 (2013), no. 2, 137–165
55. K. Astala, A. Clop, X. Tolsa, I. Uriarte-Tuero and J. Verdera. *Quasiconformal distortion of Riesz capacities and Hausdorff measures in the plane,* **Amer. J. Math.** 135(1) (2013), 17–52.
56. X.Tolsa and I. Uriarte-Tuero. *Quasiconformal maps, analytic capacity, and non linear potentials.* **Duke Math. J.** 162 (2013), no. 8, 1503–1566.
57. V. Chousionis, L. Prat, J. Mateu and X. Tolsa. *Calderón-Zygmund kernels and rectifiability in the plane.* Adv. Math. 231 (2012), no. 1, 535–568.
58. A. Mas and X. Tolsa. *Variation and oscillation for singular integrals with odd kernel on Lipschitz graphs.* Proc. London Math. Soc. (3) 105 (2012) 49–86.
59. V. Cruz and X. Tolsa. *Smoothness of the Beurling transform in Lipschitz domains,* J. Funct. Anal. 262(10) (2012), 4423–4457.
60. X. Tolsa. *Mass transport and uniform rectifiability.* **Geom. Funct. Anal. (GAFA)** 22 (2012), no. 2, 478–527.

61. I. Prause, X. Tolsa and I. Uriarte-Tuero. *Hausdorff meaasure of quasicircles,* Adv. Math. 229 (2012), 1313–1328.

62. X. Tolsa. *Calderón-Zygmund capacities and Wolff potentials on Cantor sets,* J. Geom. Anal. 21:1 (2011), 195–223.

63. A. Ruiz de Villa and X. Tolsa. *Non existence of principal values of signed Riesz transforms of non integer dimension,* Indiana Univ. Math. J. 59:1 (2010), 115-130.

64. A. Mas, M. Melnikov and X. Tolsa. *A dual characterization of the C^1 harmonic capacity and applications,* **Duke Math. J.** 153:1 (2010), 1-22. See also erratum in Duke Math. J. 157:2 (2011), 421–423.

65. A. Ruiz de Villa and X. Tolsa. *Characterization and semiadditivity of the C^1 harmonic capacity,* Trans. Amer. Math. Soc. 362:7 (2010), 3641-3675.

66. D. Preiss, X. Tolsa and T. Toro. *On the smoothness of Hölder doubling measures,* Calc. Var. Partial Differential Equations 35(3) 2009, 339-363.

67. X. Tolsa. *Uniform rectifiability, Calderón-Zygmund operators with odd kernel, and quasiorthogonality,* Proc. London Math. Soc. 98(2) (2009), 393-426.

68. Albert Clop and X. Tolsa. *Analytic capacity and quasiconformal mappings with $W^{1,2}$ Beltrami coefficient*, Math. Res. Lett. 15 (2008), no. 4, 779–793.

69. X. Tolsa. *Principal values for Riesz transforms and rectifiability,* J. Funct. Anal. vol. 254(7) 2008, 1811-1863.

70. X. Tolsa. *Weighted norm inequalities for Calderón-Zygmund operators without doubling conditions,* Publ. Mat. 51 (2007), 397–456.

71. X. Tolsa. *Growth estimates for Cauchy integrals of measures and rectifiability,* **Geom. Funct. Anal. (GAFA)**, vol. 17 (2007), 605–643.

72. J. Garnett, L. Prat and X. Tolsa. *Lipschitz harmonic capacity and bilipschitz images of Cantor sets*, Math. Res. Lett. 13 (2006), no. 6, 865–884.

73. X. Tolsa and J. Verdera. *May the Cauchy transform of a non-trivial finite measure vanish on the support of the measure?* Ann. Acad. Sci. Fenn. Math. 31 (2006), no. 2, 479–494.

74. X. Tolsa. *Finite curvature of arc length measure implies rectifiability: a new proof,* Indiana Univ. Math. J. 54 (2005), 1075–1105.

75. M. Melnikov and X. Tolsa. *Estimate of the Cauchy integral over Ahlfors regular curves.* Operator Theory: Advances and Applications, vol. 158, Birkhäuser Verlag, 2005, pp. 159–176.

76. X. Tolsa. *L^2 boundedness of the Cauchy transform implies L^2 boundedness of all Calderón-Zygmund operators associated to odd kernels,* Publ. Mat. 48 (2004), 445–479.

77. X. Tolsa. *The semiadditivity of continuous analytic capacity and the inner boundary conjecture.* **Amer. J. Math.** 126 (2004), no. 3, 523–567.

78. J. Mateu and X. Tolsa. *Riesz transforms and harmonic Lip_1 capacity in Cantor sets,* Proc. London Math. Soc. 89(3) (2004), 676–696.

79. J. Mateu, X. Tolsa and J. Verdera, *On the semiadditivity of analytic capacity and planar Cantor sets,* Contemp. Math. 320 (2003), 259–278.

80. X. Tolsa. *The atomic space H^1 for non doubling measures in terms of a maximal operator,* Trans. Amer. Math. Soc. 355 (2003), 373-405.

81. X. Tolsa. *On the analytic capacity γ_+,* Indiana Univ. Math. J. 51(2) (2002), 317-344.

82. X. Tolsa. *Littlewood-Paley theory and the $T(1)$ theorem for non doubling measures,* Adv. Math. 164 (2001), 57-116.

83. X. Tolsa. *A proof of the weak (1,1) inequality for singular integrals with non doubling measures based on a Calderón-Zygmund decomposition,* Publ. Mat. 45 (2001), 163-174.

84. X. Tolsa. *BMO, H^1, and Calderón-Zygmund operators for non doubling measures,* Math. Ann. 319 (2001), 89-149.
85. X. Tolsa. *A $T(1)$ theorem for non doubling measures with atoms,* Proc. London Math. Soc. 82 (2001), 195-228.
86. X. Tolsa. *BMO, H^1, and Calderón-Zygmund operators for non doubling measures.* **Math. Ann.** 319 (2001), 89–149.
87. X. Tolsa. *Principal values for the Cauchy integral and rectifiability,* Proc. Amer. Math. Soc. 128 (2000), 2111-2119.
88. X. Tolsa. *L^2-boundedness of the Cauchy integral operator for continuous measures,* **Duke Math.** J. 98:2 (1999), 269-304.
89. X. Tolsa. *Cotlar's inequality without the doubling condition and existence of principal values for the Cauchy integral of measures,* J. Reine Angew. Math. 502 (1998), 199-235.
90. X. Tolsa and Miquel Salichs. *Convergence of Singular Perturbations in Singular Linear Systems,* Linear Algebra Appl. 251 (1997), 105-143.
91. X. Tolsa and Miquel Salichs. *Analysis of linear networks with inconsistent initial conditions*, IEEE Trans. Circuits Systems-I: Fund. Theory Appl., 40:12 (1993), 885-894.

PROCEEDINGS OF CONFERENCES

1. X. Tolsa. *Carleson's ε^2-conjecture in higher dimensions and Faber-Krahn inequalities.* Trends Math. Birkhäuser/Springer, Cham, 2025, 373–392.
2. X. Tolsa. *Calderón-Zygmund theory with non doubling measures,* Prague, 2011, 217-260, Nonlinear Analysis, Function Spaces and Applications Vol. 9 Inst. of Math., Academy of Sciences of the Czech Republic.
3. X. Tolsa. *Analytic capacity, rectifiability, and the Cauchy integral.* Proceedings of the International Congress of Mathematicians, Madrid, 2006, 459–476, Eur. Math. Soc., Zürich, 2006.
4. X. Tolsa. *Painlevé's poblem and analytic capacity.* Lecture notes of a minicourse given at El Escorial, 2004. Collect. Math. 2006, Vol. Extra, 89–125.
5. X. Tolsa. *Painlevé's poblem, analytic capacity and curvature of measures.* European Congress of Mathematics, 459–476, Eur. Math. Soc., Zürich, 2005.

DISSEMINATION PAPERS

1. X. Tolsa. *Rectificabilitat, funcions quadràtiques, i la conjectura ε^2 de Carleson.* Butl. Soc. Catalana Mat. 36 (2021), no.2, 181–197.
2. X. Tolsa. *Teoría geométrica de la medida e integrales singulares.* Gac. R. Soc. Mat. Esp. 17 (2014), no. 2, 361–382.
3. X. Tolsa. *Analytic capacity and Calderón-Zygmund theory with non doubling measures.* Lecture notes of a course given at the Universidad de Sevilla in December 2003. Seminar of Mathematical Analysis, 239–271, Colecc. Abierta, 71, Univ. Sevilla Sec. Publ., Seville, 2004.
4. X. Tolsa. *Singularitats de funcions analítiques, integrals singulars i conjunts fractals,* Butl. Soc. Catalana Mat. 17 (2002), no. 2, 75–90.

INVITED AND PLENARY TALKS IN CONFERENCES

- III Encuentro Conjunto RSME-UMA, Bariloche, Argentina, December 2025.
- Regularity of Free Boundary Problems, SchrÃ¶dinger Institute, Wien, October 2025.
- International Congress of Basic Science, Beijing, July 2025.
- Regularity aspects of elliptic and parabolic PDE, Aristotle University of Thessaloniki, July 2025.
- Regularity Theory for Free Boundary and Geometric Variational Problems V, Cervia, Italy, June 2025.
- Geometry of Measures and Free Boundaries 2024. In honor of Tatiana Toro (University of Washington in Seattle). July 2024.
- International Congress of Basic Science, Beijing, July 2024.
- Recent advances in Harmonic Analysis. Málaga, July 2024.
- Geometric Measure Theory and applications. Cortona, June 2024.
- Harmonic Analysis, PDEs, and GMT in Bilbao 2023 June 2023.
- Harmonic and Complex Analysis: modern and classical, Bar-Ilan University, Ramat Gan, Israel. June 2023.
- Conference in honor of S. Treil and A. Volberg, University of Würzsburg (Germany). June 2023.
- Workshop of the LMS Harmonic Analysis & PDE network, Warwick (UK). February 2023.
- Encontro Nacional SPM2022 (Tomar, Portugal). July 2022.
- Fractal and Related Fields IV. Porquerolles, France. September 2022.
- CBMS conference "Analysis, Geometry, and PDEs in a Lower-Dimensional World" (on-line participaction). Florida State University. May 2022.
- **Rajchman Zygmund Marcinkiewicz Conference**. Warsaw, Poland, October 2021.
- Workshop "Bounded mean oscillation" (on-line), Focus Program on Analytic Function Spaces and their Applications. Fields Institute, Toronto. October 2021.
- Geometric Measure Theory and applications. Cortona, Italy, September 2021.
- One world fractals and related fields (on-line conference). France. June 2020.
- Analysis, Dynamics, Geometry and Probability **(in honor of Chris Bishop)**. Simons Center for Geometry and Physics, Stony Brook, New York. March 2020.
- Spaces of Analytic Functions: Approximation, Interpolation, Sampling. Centre de Recerca Matemàtica, Barcelona. November 2019.
- Complex and Fourier Analysis, and Operator Theory. INdAM - Istituto Nazionale di Alta Matematica Francesco Severi. Città Universitaria "La Sapienza". September 2019.
- Modern Aspects of Complex Analysis and Its Applications **(in honor of Don Marshall and John Garnett)**. University of Washington, Seattle. August 2019.
- Harmonic Analysis in non-homogeneous settings and applications. Birmingham. June 2019.
- Harmonic Analysis and PDEs. Helsinki. June 2019.
- Complex analysis and operator theory. Saint Petersburg. May 2019.
- Conference "PDEs and Geometric Measure Theory". ETH Zürich, October 2018.
- CMI at 20. Analysis and Probability Workshop. Clay Mathematics Institute. Oxford, September 2018.
- Geometric Aspects of Harmonic Analysis (in honor of Fulvio Ricci), Cortona, Italy, 2018.

- Research Program in Harmonic Analysis. Park City Mathematics Institute (IAS Princeton), Utah, July 2018.
- Geometric Aspects of Harmonic Analysis **(in honor of Fulvio Ricci)**. Cortona, Italy, June 2018.
- Geometric Measure Theory and is Connections Conference. Helsinki, June 2018.
- Workshop on Real Harmonic Analysis and its Applications to PDE's and Geometric Measure Theory: on the occasion of the **60th birthday of Steve Hofmann.** ICMAT, Madrid, May 2018.
- Minicourse "Harmonic measure via blow up methods and monotonicity formulas". ICMAT (Madrid), May 2018.
- Harmonic Analysis of Elliptic and Parabolic Partial Differential Equations. CIRM, Marseille, April 2018.
- Harmonic Analysis and Geometric Measure Theory. CIRM, Marseille, October 2017.
- CIMPA2017 Research School - IX Escuela SANTALÓ: Harmonic Analysis, Geometric Measure Theory and Applications, Buenos Aires, August 2017. Minicourse of 4.5 h.: "The Riesz transform, rectifiabilty, and harmonic measure".
- Real Analysis, Harmonic Analysis, and Applications. Oberwolfach, July 2017.
- Recent Developments in Harmonic Analysis. MSRI, Berkeley, May 2017.
- Geometry, Analysis and Probability. **Conference in honor of Peter Jones.** Seoul, South Korea, May 2017.
- Spring School of Analysis. Bedlewo (Poland), March 2017. Minicourse of 6 h.: "The Riesz transform, rectifiabilty, and harmonic measure".
- ERC and Mathematics in Spain. ICMAT, Madrid, March 2017.
- **Congreso Bienal de la RSME.** Zaragoza, January 2017. Plenary speaker.
- Spaces of analytic functions and singular integrals. Chebyshev Laboratory, St. Petersburg, October 2016. Minicourse: "The Riesz transform, rectifiabilty, and harmonic measure".
- Journées du GdR Analyse Fonctionnelle, Harmonique et Probabilités. Toulouse, October 2016.
- Harmonic Analysis and its Applications. Matsumoto (Japan), August 2016. Minicourse: "The Riesz transform, rectifiabilty, and harmonic measure".
- Harmonic analysis, complex analysis, spectral theory and all that **(in honor of Alexander Volberg)**. Bedlewo (Poland), August 2016.
- International Conference on Harmonic Analysis and PDE's. El Escorial (Madrid), June 2016.
- NSF-CBMS Conference "Reflectionless measures, Wolff's potentials, and rectifiability", Fargo, North Dakota University (USA), July 2015.
- Frontiers of Singular Integrals, Finland, June 2015.
- Geometric measure theory, optimal mass transportation and PDE's, Sant Feliu de Guíxols (Catalonia), June 2015.
- LMS Network Meeting on Harmonic Analysis & PDEs, Birmingham (UK), March 2015.
- Oberwolfach workshop "Real Analysis, Harmonic Analysis and Applications", Oberwolfach (Germany), July 2014.
- Conference "Complex Analysis and Related Topics", Saint Petersburgh (Russia), April 2014.
- International Workshop "Advances in Nonlinear Analysis", Pittspurgh (USA). March 2014.

- **26th Nordic and 1st European-Nordic Congress of Mathematicians** (Lund, Sweden). June 2013. Plenary speaker.
- CSASC 2013 - Joint Mathematical Conference of the Catalan Mathematical Society, Slovenian Mathematical Society, Austrian Mathematical Society, Slovak Mathematical Society, and Czech Mathematical Society (Koper, Slovenia). June 2013.
- Harmonic Analysis, PDEs and Geometry (ICMAT, Madrid). May 2013.
- Interactions Between Analysis and Geometry Workshop IV: Quasiconformal Geometry and Elliptic PDEs (IPAM, Los Angeles, USA). May 2013.
- Workshop "Complex Analysis and Related Areas" (Màlaga). March 2013.
- ERC Workshop on Optimal Transportation and Applications (Pisa, Italy). November 2012.
- Indo-Spanish Conference on Geometry and Analysis (Madrid). September 2012.
- Harmonic and Complex Analysis and its Applications HCAA 2012 (Tenerife). March 2012.
- Weighted singular integral operators and non-homogeneous harmonic analysis. American Institute of Mathematics (Palo Alto, USA). October 2011.
- Real analysis, harmonic analysis, and applications. Oberwolfach (Germany). July 2011.
- Journée d'Analyse harmonique. Paris. January 2011.
- School on Nonlinear Analysis, Function Spaces and Applications 9 (NAFSA9). Trest, Czech Republic. September 2010. Minicourse of 3 h.: "Calderón-Zygmund theory for non-doubling measures".
- Harmonic Analysis and PDEs Workshop, Madrid. September 2010.
- Primera Trobada Matemática Catalano-Sueca, Barcelona. September 2010.
- CODY Fourth Year Conference: Conformal Methods in Analysis and Dynamics, Seillac (France). May 2010.
- XII Encuentros de Análisis Real y Complejo, Haro (La Rioja). April 2010.
- Conformal Structures and Dynamics (CODY). Third Year Conference, Bedlewo (Poland).
- Congreso de la Real Sociedad Matemàtica Española, Oviedo, February 2009. Plenary speaker.
- Conference on Harmonic Analysis and Related Topics, Sevilla, December 2008.
- Analysis, Operator Theory and Applications, Cancún, April 2008.
- **Lars Ahlfors Centennial Celebration**, Helsinki, August 2007. Plenary speaker.
- XIX Memorial Rubio de Francia, Universidad Autónoma de Madrid, June 2007.
- New trends in complex and harmonic analysis, Voss (Norway), May 2007.
- **International Congress of Mathematicians, Madrid, August 2006.** Invited speaker.
- Harmonic and Geometrical Analysis with Applications to Partial Differential Equations (Satellite Conference to the ICM 2006), Seville, August 2006.
- CEDYA 2005 (Congreso de Ecuaciones Diferenciales y Aplicaciones), Leganés (Madrid), September 2005. Invited speaker at the Approximation Theory session.
- Fabes Lectures 2004, Bilbao, September 2004.
- **Fourth European Congress of Mathematics**, Stockholm, July 2004. Invited Speaker.
- 7th International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial (Madrid), June 2004. Minicourse of 3 h.: *Painlevé's Problem and Analytic Capacity.*
- **XIX Nevalinna Colloquium**, Jyväskylä (Finland), June 2003. Plenary speaker.
- VIII Encuentros de Análisis Real y Complejo, Gandía (Valencia), May 2003.

- Deuxième Conference du Réseau Europèen "Analysis and Operators", Biarritz (France), May 2002. Minicourse (of 3 h.): *The semiadditivity of analytic capacity.*
- Spring 2002 Southern California Analysis and PDE's Seminar, University of California, San Diego (La Jolla), April 2002.
- 5^a Trobada Matemàtica, Societat Catalana de Matemàtiques, Barcelona, March 2002.
- Probability and Conformal Mappings, Mittag-Leffler Institute and Universidad de La Laguna, Tenerife, February 2002. Minicourse (of 2 h.): *The semiadditivity of analytic capacity.*
- **AMS-IMS-SIAM Summer Research Conference on Harmonic Analysis,** Mt. Holyoke College, South Hadley (Massachusetts, USA), July 2001.
- Encuentros de Anàlisis Real y Complejo, Baeza (Jaén, Spain), April 1999.
- III Encuentro de Anàlisis Real y Complejo, Jaca (Huesca, Spain), May 1997.

OTHER COMMUNICATIONS IN CONFERENCES

- PRIMA Congress 2022. Harmonic Functions And Laplace Eigenfunctions. Vancouver, Canada. December 2022.
- Barcelona Mathematical Days (on-line). PDE - Analysis session. Barcelona, October 2020.
- First Joint Meeting RSME-AMS, Sevilla, June 2003. Lecture at the Classical and Harmonic Analysis Session.
- Real Sociedad Matemàtica Española 2002, Puerto de la Cruz (Tenerife), January 2002. Minisymposium: "Análisis armónico y aplicaciones".
- Second Göteborg Conference in Harmonic Analysis and Partial Differential Equations, Göteborg (Sweden), May 2001.
- VI Encuentros de Anàlisi Real y Complejo, La Palma (Canarias), April 2000. Poster.
- Function Spaces, Interpolation Theory and related topics, Lund (Sweden), August 2000.
- 6^{th} International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial (Madrid), July 2000.
- PhD Euroconference on Complex Analysis and Holomorphic Dynamics, Platja d'Aro (Girona, Spain), June 2000.
- Real Sociedad Matemàtica Española 2000, Madrid, January 2000. Minisymposium "Anàlisi armónico no homogéneo".

RESEARCH VISITS AND INVITED TALKS IN SEMINARS

- Stay of two months in the Trimester Program "Interactions between Geometric measure theory, Singular integrals, and PDE", Hausdorff Institute of Mathematics (Bonn). January-March 2022.
- Stay of ten days in Stanford University invited by E. Malinnikova, with the talk *Harmonic measure and Hausdorff measures"* in the Analysis and PDE Seminar. December 2022.
- On-line seminar *The regularity problem for the Laplace equation and boundary Poincaré inequalities in rough domains.* Geometric analysis seminar hosted by A. Schikorra (Pittsburgh), S. Blatt (Salzburg), G. Wang (Freiburg), and P. Reiter (Chemnitz). June 2022.
- On-line seminar *The measures with L^2-bounded Riesz transform and the Painlevé problem for Lipschitz harmonic functions.* Seminar of Discrete Harmonic and Harmonic Analysis of the University of Würzburg. June 2021.

- On-line seminar *The measures with L^2-bounded Riesz transform and the Painlevé problem for Lipschitz harmonic functions.* Analysis Seminar of Princeton University. March 2022.
- On-line minicourse (3h.) *Square functions and rectifiability.* East China Normal University. Dept. of Mathematics. December 2020.
- On-line seminar *Unique continuation at the boundary for harmonic functions.* Univ. del País Vasco. June 2020.
- PDE Seminar via Zoom *Unique continuation at the boundary for harmonic functions.* ShanghaiTech University. July 2020.
- Monroe Lecture 2020. *Rectifiable sets, square functions, and a conjecture of Carleson.* Johns Hopkins Univ. March 2020.
- Stay of three weeks in the Research Program in Harmonic Analysis, at the Park City Mathematics Institute (IAS Princeton), Utah, July 2018.
- Stay of one month in the Program of Harmonic Analysis in the MSRI (Berkeley), May 2017.
- Colloquium *Rectifiability, the Riesz transform, and harmonic measure*, Univ. of Connecticut (USA), November 2015.
- Colloquium *Rectifiability, the Riesz transform, and harmonic measure*, Univ. of Stony Brook (USA), November 2015.
- Stay of research of 3 weeks in June 2015 in the Institut Henri Poincaré (Paris), for a research in pairs with Martell, Mayboroda, Hofmann and Volberg.
- Seminar in mathematical analysis, University of Warwick (UK), March 2015: *The David-Semmes problem and related results.*
- Colloquium of the Dept. of Mathematics of Uppsala University: *Cantor sets, rectifiability, and singular integrals*, September 2014 (2 days).
- Research visit of 3 weeks in July 2014 to the Hausdorff Research Institute for Mathematics (Bonn), Trimester Program *Harmonic Analysis and Partial Differential Equations.* Seminar talk: *Square functions and rectifiability.*
- Research visit of one month in July 2013 to the University of Washington, Seattle (USA), to do joint research with Tatiana Toro.
- Minicourse *Calderón-Zygmund theory in non-homogeneous spaces*, Universidad del País Vasco, 1 week in 2012.
- Seminar *Regularity of C^1 and Lipschitz domains in terms of the Beurling transform* and *The David-Semmes problem*, Kent State University Ohio (USA). Invited by Fedor Nazarov (4 weeks in 2012).
- Seminar *Distortion of Hausdorff measures and Riesz capacities by quasiconformal mappings in the plane.* Université Paul Sabatier (Toulouse, France). Invited by Steffanie Petermichl and Pascal Thomas. October 2009 (2 days).
- *The Cauchy transform, Menger curvature, and analytic capacity.* Minicourse in the Summer School of the European Training Network "Conformal Structures and Dynamics" in Warsaw. September 2009 (1 week).
- Seminar *Riesz tranforms and rectifiability.* University of Warwick (Coventry, England). Invited by David Preiss, June 2007 (1 week).
- Seminar *Uniform rectifiability, Calderón-Zygmund operators, and quasiorthogonality.* Washington University (Seattle). Invited by Tatiana Toro, February 2007 (2 weeks).
- Semester "Geometric methods in analysis and probability", Erwin Schrödinger Institute, Wien, June 2005 (12 days). Lecture: *Cauchy integrals of measures and rectifiability.*

- Seminar *Antisymmetric Calderón-Zgmund operators, analytic capacity and bilipschitz maps.* University College of London. Invited by Marianna Csörnyei, February 2005 (1 week).
- Seminar *L^2 boundedness of the Cauchy transform implies L^2 boundeness of all Calderón-Zygmund operators with sufficiently smooth odd kernel.* Université d'Orléans (France). Invited by Aline Bonami and Philippe Jaming, December 2004 (1 day).
- Seminar *L^2 boundedness of the Cauchy transform implies L^2 boundeness of all Calderón-Zygmund operators with sufficiently smooth odd kernel.* University of Helsinki. Invited by Pertti Mattila, November 2004 (1 week).
- Research Trimester on Harmonic Analysis, Centro di Ricerca Matematica Ennio De Giorgi, May 2004 (1 month). Minicourse of 2 h.: *Analytic capacity, the Cauchy transform, and curvature of measures.*
- *Bilipschitz maps, analytic capacity, and the Cauchy integral.* Analysis seminar of the Université Catholique de Louvain (Belgium). Invited by Thierry De Pauw, April 2004 (3 days).
- Minicourse (3 h.): *Capacidad analítica y teoría de Calderón-Zygmund con medidas no doblantes.* Universidad de Sevilla. Invited by Genaro López, November 2003 (1 week).
- Seminar *The semiadditivity of analytic capacity and continuous analytic capacity.* National University of Ireland (Maynooth). Invited by Anthony O'Farrell, November 2002 (1 week).
- *Removable singularities for bounded analytic functions and the semiadditivity of analytic capacity.* Analysis Seminar of Washington University. Invited by Don Marshall and Stephen Rhode. Seattle, April 2002 (3 days).
- *The semiadditivity of analytic capacity.* Analysis Seminar of UCLA, invited by J. Garnett. Los Angeles, April 2002 (1 month).
- *The semiadditivity of analytic capacity.* Analysis Seminar of Moscow State University, invited by A.G. Vitushkin; and Analysis Seminar of the Steklov Institute, invited by A.A. Gonchar. Moscow, March 2002 (2 weeks).
- *Removable singularities for bounded analytic functions and the semiadditivity of analytic capacity.* Analysis Seminar of the University College of London (England), November 2001. Invited by David Preiss (1 week).
- *La semiadditivité de la capacité analytique.* Functional Analysis Seminar of the Université Paris VI (France), October 2001. Invited by Alexander Volberg (1 day).
- *Singularités evitables pour les fonctions analytiques bornées et semiadditivité de la capacité analytique.* Analysis Seminar of the Université de Cergy-Pontoise (France), October 2001 (2 days).
- *Singularités evitables pour les fonctions analytiques bornées et semiadditivité de la capacité analytique.* Analysis Seminar of the Université de Picardie-Jules Verne (Amiens, France), October 2001. Invited by Pascal Auscher (1 day).
- *Pesos per operadors de Calderón-Zygmund, sense condicions doblants.* Analysis Seminar of the UB - UAB, 2001 (1 day).
- *Calderón-Zygmund theory without doubling conditions II ($T(1)$ Theorem, weights for CZO's).* Analysis Seminar of the Université de Cergy-Pontoise (France), February 2001 (1 day).
- *Calderón-Zygmund theory without doubling conditions I (BMO, H^1 and Calderón-Zygmund lemma).* Analysis Seminar of the Université de Cergy-Pontoise (France), January 2001 (1 day).
- *BMO, H^1, and Calderón-Zygmund operators with non doubling measures.* Analysis Seminar of the University of Trondheim (Norway). Invited by Yuri Lyubarskii (1 week).

- *BMO, H^1, y operadores de Calderón-Zygmund con medidas no doblantes.* Analysis Seminar "Rubio de Francia" of the Universidad de Zaragoza, March 2000. Invited by Jesús Bastero (3 days).
- *Nuevos espacios BMO y H^1 adecuados para operadores de Calderón-Zygmund con medidas no doblantes.* Analysis Seminar of the Universidad Autónoma de Madrid, December 1999. Invited by Carlos Pérez (1 week).
- *A $T(1)$ theorem for non doubling measures with atoms.* Analysis Seminar of the University of Jyvaskyla (Finland), May 1999. Invited by Pertti Mattila (2 months).
- Seminar *The analytic capacity γ_+.* Harmonic Analysis Seminar of the Université Paris-Sud (Orsay), January 1999. Invited by Guy David (1 week).

DISSEMINATION TALKS

- *Rectifiability, square functions, and a conjecture of Carleson*, Kick-Off Meeting for the Maria de Maeztu grant, CRM Barcelona, April 2022.
- *Conjunts rectificables, fractals, i funcions quadràtiques*, Colloquium of the Facultat de Matemàtiques de la Universitat de València, November 2019.
- *Conjunts rectificables, fractals, i funcions quadràtiques*, Inaugural lesson of the course of the Societat Catalana de Matemàtiques, November 2019.
- *Els problemes de Vitushkin i de Painlevé* (IV Cicle Ferran Sunyer i Balaguer, "Els set problemes del mileni"), Auditori de Caixa Sabadell, Sabadell, March 2005.
- *Singularitats evitables de funcions analítiques i conjunts de Cantor*, Lliçó inaugural del curs de la llicenciatura de matemàtiques de la UAB, October 2002.

MANAGERIAL ACTIVITIES

- Co-organizer of the research trimester "Interactions between Geometric measure theory, Singular integrals, and PDE", in the Hausdorff Institute of Mathematics, Bonn, January-April 2022.
- PI in the area of Analysis - PDE's of the Maria de Maeztu grant awarded to the CRM for the period 2022-2026.
- Member of the Program Committee of the Barcelona Analysis Conference 2019 (BAC19). June 2019.
- Member of the Scientific Committee of the Joint Meeting of the Catalan, the Royal Spanish and the Swedish Mathematical Societies, Umeå (Sweden), June 2017.
- President of the Scientific Committee of the Barcelona Analysis Conference 2016 (BAC16).
- Organizer of three minicourses on Geometric Analysis in the CRM, September 2015.
- PI in the area of Analysis - PDE's - Probabilities of the Maria de Maeztu grant awarded to the BGSMath for the period 2015-2019.
- Organizer of the parallel session "Geometric analysis and related topics", from the conference Barcelona Mathematical Days 2014, in November 2014.
- Member of the Scientific Committee of the **MFO (Oberwolfach)**, 2014-2017.
- Member of the Scientific Committee of the Barcelona Graduate School of Mathematics (BGSMath), 2013-2015.
- Member of the scientific committee of the "ICREA Conference on Approximation Theory and Fourier Analysis", in the CRM (Centre de Recerca Matemàtica), 2011.

- Member of the scientific committee of the analysis section of the **International Congress of Mathematicians 2010**.
- Coordinator of "Four Advanced Courses on Quasiconformal Mappings, PDE and Geometric Measure Theory", in the CRM, 2009.
- Coordinator of the research program "Harmonic Analysis, Geometric Measure Theory and Quasiconformal Mappings", in the CRM (Centre de Recerca Matemàtica), 2009.
- Coordinator of the Seminar of Mathematical Analysis of Barcelona, organized once per week by the UAB and the UB, from September 2003 until July 2007.
- Co-organizer of the Research program "Fourier Analysis, geometric measure theory, and applications" in the CRM (Centre de Recerca Matemàtica), held in April-July 2006. Organisers: J. Mateu, X. Tolsa, J. Verdera (UAB), and J.M. Martell, A. Ruiz, A. Vargas (UAM).

HOSTING AND TRAINING OF RESEARCHERS

- Currently directing 2 PhD students (Jaume Capdevila and Luis Lloret).
- Yingying Cai, Postdoctoral fellow. 2025-2026.
- Cole Jeznach, Postdoctoral fellow. 2024-2027.
- Tuomas Oikari, Postdoctoral fellow. 2023-2024.
- Michele Villa, Postdoctoral fellow at the UAB funded by ERC grant of X. Tolsa, 2022-2024.
- Olli Tapiola, Postdoctoral fellow at the UAB funded by ERC grant of X. Tolsa, 2021-2023.
- Bruno Poggi, Postdoctoral fellow at the UAB funded by ERC grant of X. Tolsa, 2021-2024.
- Michele Villa (Univ. of Edinburgh). Predoctoral fellow. May 2019 - July 2019.
- Alan Chang (Univ. of Chicago). Predoctoral fellow. October 2017 - December 2017.
- Martí Prats, Postdoctoral fellow at the UAB funded by ERC grant of X. Tolsa, 2017-2019.
- Giorgios Sakellaris, Postdoctoral fellow at the UAB funded by P-Sphere Cofund grant, from September 2017.
- Aapo Kauranen, Postdoctoral fellow at the UAB funded by BGSMath grant, 2017-2019.
- José Conde, Postdoctoral fellow at the UAB funded by ERC grant of X. Tolsa, 2015-2017.
- Michail Mourgoglou, Postdoctoral fellow at the CRM funded by ERC grant of X. Tolsa, 2014-2016.
- Jonas Azzam, Postdoctoral fellow at the UAB funded by ERC grant of X. Tolsa, 2014-2016.
- Albert Mas, Postdoctoral fellow at the UAB funded by ERC grant of X. Tolsa, 2013-2014.
- Mari Carmen Reguera, Postdoctoral fellow (Juan de la Cierva) at the UAB, 2012-2013.
- Vasilis Chousionis (Univ. Helsinki, CRM). Postdoctoral fellow at the CRM and at the UAB, 2010-2012.
- Vincent Feuvrier (Univ. Paris-Sud). Postdoctoral fellow at the CRM, 2009-2010.
- Dmitry Karp (Russian Academy of Sciences, Vladivostok). Postdoctoral fellow with an INTAS grant. September 2006 - December 2006.
- Yoshihiro Sawano (University of Tokyo). Predoctoral fellow. April 2005 - June 2005.
- Bruno Demange (Univ. Orleans). Predoctoral fellow at the UAB from an European TMR network in 2003-2004.

TEACHING

2025	Master course in Advanced Mathematics "Harmonic analysis and geometric measure theory", UAB-UB.
2025	Minicourse "Unique continuation at the boundary for harmonic functions and solutions of elliptic PDEs", School of Mathematical Sciences, Zhejiang University (China).
2023	Minicourse "Harmonic measure and free boundary problems", BGSMath (Barcelona).
2023	Minicourse "Introduction to harmonic measure", University of Jyväskylä (Finland).
2019 - 2020	Advanced course on "Singular integrals", BGSMath (CRM, Bellaterra).
2015	Advanced course on "Complex analysis, quasiconformal mappings and complex dynamics" (in collaboration with A. Clop i N. Fagella), BGSMath (Barcelona).
2008 - 2011	Master course in Advanced Mathematics "Ampliació d'anàlisi", UAB.
2005 - 2006	PhD course in Mathematics "Advanced harmonic analysis", UAB.
2004 - 2005	PhD course in Mathematics "Fourier analysis and geometric measure theory", UAB.
2003 - 2004	PhD course in Mathematics "Geometric measure theory", UAB.
2001 - 2003	Undergraduate course for students of Mathematics: Problem sessions of "Anàlisi I" and "Teoria de funcions", UAB.
2001	Undergraduate course for students of Mathematics "Anàlisi real i funcional", UAB.
1996 - 1998	Undergraduate course of students of Chemistry: Problem sessions of "Introducció al l'estadística, el càlcul numèric i la programació". For students of Chemical engineering, "Mètodes numèrics", UB.
1994 - 1998	Undergraduate courses for students of Mathematics: Problem sessions of "Anàlisi I", "Anàlisi II", "Anàlisi III", "Informàtica", "Mètodes numèrics", "Funcions analítiques", "Anàlisi Real", UB.