Curriculum

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Nombre: Martí Prats Soler

Date: June 29th 2021

Last name: Prats Soler
DNI: 47.728.003-J

First name: Martí

Birthdate: December 19th, 1983

Gender: Male

Current position

Institution: Universitat Autònoma de Barcelona
Faculty: Facultat de Ciències
Department: Departament de Matemàtiques
Address: Despatx C1/318, Edifici C Facultat de Ciències, 08193 Bellaterra (Barcelona)

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E-mail: marti.prats@uab.cat
Personal web page: https://mat.uab.cat/web/mprats/

Specialization (UNESCO code): 1202.13
Professional category: Professor agregat

Starting on: 29th January 2023

Research interests

Boundedness of Singular Integral Operators on domains. Sobolev spaces and related ones. Quasiconformal mappings. Geometric measure theory. Calderón Inverse problem. Free boundary problems. Harmonic measure.

Academic training

University degree	Institution	Date
Degree in mathematics	Universitat de Barcelona	July 2005
Certificat d'Aptitud Pedagògica (teaching certificate)	Universitat de Barcelona	March 2005
Graduate Certificate in Mathematics for Secondary Education	Universitat Pompeu Fabra	May 2010
Master in Advanced Mathematics	Universitat Autònoma de Barcelona	September 2011
Ph.D. in Mathematics	Universitat Autònoma de Barcelona	October 2015

Languages (A = average, B = good, C = very good)

Language	Spoken	Read	Written
Catalan	C	C	C
Spanish	C	C	C
English	B	C	B
French	A	A	A

Teaching experience

Subject: Mathematics in secondary school
Scope: Public high schools, 11 to 15 years old
Dates: 2006-2011

Lectures: General
Institution: Generalitat de Catalunya
Hours: 4 years and 5 months, full time

Subject: Mathematics for economists II
Scope: Degrees in economy and business management
Dates: Spring 2010

Lectures: Theory
Institution: UAB
Hours: 60

Subject: Statistics
Scope: Degree in food science
Dates: Fall 2012 and fall 2013

Lectures: Computer sessions
Institution: UAB
Hours: 63

Subject: Statistics in combined lab 3
Scope: Degree in biochemistry
Dates: Fall 2013

Lectures: Computer sessions
Institution: UAB
Hours: 7

Subject: Workshop in mathematics for engineers
Scope: various degrees
Dates: Fall 2018

Lectures: Theory
Institution: UAB
Hours: 7

Subject: Real variable functions
Scope: Degree in Mathematics
Dates: Annual, 2018-2019

Lectures: Practicum
Institution: UAB
Hours: 16

Subject: Calculus
Scope: Degree in aeronautical management
Dates: Spring 2019

Lectures: Theory
Institution: UAB
Hours: 15

Subject: Calculus
Scope: Degree in computer science
Dates: Spring 2019

Lectures: Practicum
Institution: UAB
Hours: 10

Subject: Multivariate calculus
Scope: Degree in Computational mathematics and data analysis
Dates: Spring 2019

Lectures: Practicum
Institution: UAB
Hours: 12

Subject: Calculus in several variables and optimization
Scope: Degree in Mathematics
Dates: Autumn 2020

Lectures: Practicum
Institution: UAB
Hours: 24

Subject: Calculus in one variable
Scope: Degree in Computational mathematics and data analysis
Dates: Autumn 2020

Lectures: Practicum
Institution: UAB
Hours: 12

Subject: Introducció al càlcul integral
Scope: Degree in Mathematics
Dates: Spring 2021

Lectures: Practicum
Institution: UB
Hours: 30

Subject: Integral calculus in several variables
Scope: Degree in Mathematics
Dates: Spring 2021

Lectures: Practicum
Institution: UB
Hours: 60

Subject: Harmonic analysis and signal theory	**Lectures:** Theory and practicum
Scope: Degree in Mathematics	**Institution:** UB
Dates: Spring 2022	**Hours:** 60
Subject: Complex Analysis	**Lectures:** Practicum
Scope: Degree in Mathematics	**Institution:** UB
Dates: Spring 2022	**Hours:** 15
Subject: Integral calculus in one variable	**Lectures:** Theory
Scope: Degree in Mathematics	**Institution:** UB
Dates: Spring 2022	**Hours:** 30
Subject: Differencial calculus in one variable	**Lectures:** Theory
Scope: Degree in Mathematics	**Institution:** UB
Dates: Autumn 2022	**Hours:** 30
Subject: Differential calculus in several variables	**Lectures:** Theory
Scope: Degree in Mathematics	**Institution:** UB
Dates: Autumn 2022	**Hours:** 30
Subject: Mathematical Analysis	**Lectures:** Practicum
Scope: Degree in Mathematics	**Institution:** UB
Dates: Autumn 2022	**Hours:** 30
Subject: Mathematics	**Lectures:** Practicum
Scope: Degree in Microbiology	**Institution:** UAB
Dates: Spring 2023	**Hours:** 30
Subject: Algebra	**Lectures:** Theory
Scope: Degree in Telecommunication Systems Engineering	**Institution:** UAB
Dates: Spring 2023	**Hours:** 30
Subject: Probability and Statistics	**Lectures:** Practicum
Scope: Degree in Artificial Intelligence	**Institution:** UAB
Dates: Spring 2023	**Hours:** 12
Subject: Mathematics	**Lectures:** Practicum
Scope: Degree in Genetics	**Institution:** UAB
Dates: Autumn 2023	**Hours:** 30
Subject: Calculus	**Lectures:** Practicum
Scope: Degree in Telecommunication Systems Engineering	**Institution:** UAB
Dates: Autumn 2023	**Hours:** 30

Courses on Teaching (other than the two mentioned in Academic Training section)

— Attended the 5h formation "Les matemàtiques entre la secundària i la universitat. La història de les matemàtiques" in UAB, 2018.

— Attended the 8h formation "Avaluació continuada en grans grups" in UAB, 2019.

— Attended the 8h formation "La supervisió de la tesi doctoral. Com prevenir i encarar problemes i incidents" in UAB, 2019.

— Attended the 10h formation "Utilitzant Teams per suport a la docència" in UAB, 2020.

— Attended the 18h formation "3r curs anual de l'aFFaC: la segregació escolar" in 2021

— Attended the 6h formation "Jornades Docents Facultat de Matemàtiques i Informàtica" in UB, 2022

Other teaching activities

Dissemination activities

— Dissemination: Teacher in summer camp "Campus Científicos de Verano 2010".

— Dissemination: 4h session entitled "Seccions Còniques" in the program Bojos per les Matemàtiques in seasons 2014-15, 2015-16 and 2016-17, UAB.

— Dissemination: Two sessions (1:15h each) entitled "Matemagia" in the program Semana de la Ciencia 2016, UAM.

— Dissemination: Regular publication of Bits in Notícies de la SCM since 2018.

— Dissemination: Publication of articles in volumes 1, 4, 6 and 9 of PLACER, a journal on literature available online, see http://lamordidaliteraria.com/placer/

— Dissemination: Workshop entitled "Complex dynamics put simple" within the program "Matikka-akatemia" (mathematics academy) for high-school students in Aalto University (02-10-2019)

Research activity

Publication list

(See the attached document for the impact factor and citations)

Title: *A T(P) theorem for Sobolev spaces on domains*
Authors: MP and Xavier Tolsa   **Id:** http://dx.doi.org/10.1016/j.jfa.2015.01.007
Journal: Journal of Functional Analysis **268** (2015), 2946–2989.

Title: *Sobolev regularity of the Beurling transform on planar domains*
Authors: MP   **Id:** http://dx.doi.org/10.5565/PUBLMAT6121701
Journal: Publicacions Matemàtiques **61** (2017), 291–336.

Title: *A T(1) theorem for fractional Sobolev spaces on domains*
Authors: MP and Eero Saksman   **Id:** http://dx.doi.org/10.1007/s12220-017-9770-y
Journal: Journal of Geometric Analysis **27(3)** (2017), 2490–2538.

Title: *Sharp bounds for composition with quasiconformal mappings in Sobolev spaces*
Authors: Marcos Oliva and MP   **Id:** http://dx.doi.org/10.1016/j.jmaa.2017.02.016
Journal: JMAA **451(2)** (2017), 1026–1044.

Title: *Beltrami equations in the plane and Sobolev regularity*
Authors: MP   **Id:** http://dx.doi.org/10.3934/cpaa.2018018
Journal: Commun. Pur. Appl. Anal. **17(2)** (2018), 319–332.

Title: *Characterization for stability in planar conductivities*
Authors: Daniel Faraco and MP   **Id:** https://doi.org/10.1016/j.jde.2018.01.013
Journal: J. Differential Equations **264** (2018), 5659–5712.

Title: *Sobolev regularity of quasiconformal mappings on domains*
Authors: MP   **Id:** https://doi.org/10.1007/s11854-019-0031-9
Journal: J. Anal. Math. **138(2)** (2019), 513–562.

Title: *Measuring Triebel-Lizorkin fractional smoothness on domains in terms of first-order differences*
Authors: MP   **Id:** http://dx.doi.org/10.1112/jlms.12225
Journal: JLMS **100(2)** (2019), 692–716.

Title: *The two-phase problem for harmonic measure in VMO*
Authors: MP and Xavier Tolsa   **Id:** https://doi.org/10.1007/s00526-020-01760-2
Journal: Calc. Var. **59, 102** (2020), 1–58.

Title: *Minimizers for the thin one-phase free boundary problem*
Authors: M. Engelstein, AK, MP, GS, YS   **Id:** https://doi.org/10.1002/cpa.22011
Journal: CPAM **74(9)** (2021), 1971–2022.

Title: *Global smoothness of quasiconformal mappings in the Triebel-Lizorkin scale*
Authors: Kari Astala, MP and Eero Saksman   **Id:** https://arxiv.org/abs/1901.07844
Journal: preprint (2023), 1–48.

Title: *Triebel-Lizorkin regularity and bi-Lipschitz maps: composition operator and inverse function regularity*
Authors: MP   **Id:** https://arxiv.org/abs/2007.10070
Journal: preprint (2023), 1–34.

Positions obtained by public contest

Position	Institution	Dates
Professor agregat (professor)	UAB	Since 2023
Professor lector (associate professor)	UB	2021-2023
Juan de la Cierva with Xavier Tolsa	UAB	2020-2021
Postdoc with Kari Astala (ERC funded)	Aalto Yliopisto	2019-2020
Postdoc with Guy David (Simmons collaboration on localization of waves) *	Université Paris Sud	2019-2021
Postdoc with Xavier Tolsa (ERC funded)	UAB	2017-2019
Postdoc with Daniel Faraco (ERC funded)	UAM-ICMAT	2015-2017
Ph.D. student with FI-DGR grant	UAB	2012-2015
Associate lecturer (L04)	Facultat d'Economia - UAB	2010
Mathematics teacher at secondary school	Generalitat de Catalunya	2006 - 2011

* Resigned for personal reasons

Participation on research projects

Project title: EDPs i mecánica de fluidos (PID2021-125021NA-I00)
From: 09/2022   **to:** 12/2025   **PI:** Xavier Ros Oton i Javier Gómez Serrano

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Project title: Varias variables complejas y distribución óptima de puntos (PID2021-123405NB-I00)
From: 09/2022   **to:** 12/2025   **PI:** Joaquim Ortega Cerdà

Project title: Integrales singulares, teoría geométrica de la medida y EDP's (PID2020-114167GB-I00)
From: 09/2021   **to:** 12/2024   **PI:** Xavier Tolsa Domènech

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Project title: Teoria de Funcions i Equacions en Derivades Parcials (2021-SGR-00087)
From: 01/2022   **to:** 12/2024   **PI:** Maria Carmen Cascante Canut

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Project title: Anàlisi real i complexa, i equacions en derivades parcials (2021-SGR-00071)
From: 01/2022   **to:** 12/2024   **PI:** Xavier Tolsa Domènech

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Project title: Singular integrals, harmonic measure and free boundary problems (JdC)
From: 07/2020   **to:** 02/2021   **PI:** Xavier Tolsa Domènech

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Project title: Quasiconformal Methods in Analysis and Applications (QUAMAP)
From: 01/2019   **to:** 06/2020   **PI:** Kari Astala

Project title: Geometric analysis in the euclidean space (320501)
From: 10/2017   **to:** 09/2019   **PI:** Xavier Tolsa Domènech

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Project title: Geometric function theory, inverse problems and fluid dynamics (307179)
From: 11/2015   **to:** 09/2017   **PI:** Daniel Faraco

Project title: Geometric analysis in the euclidean space (320501)
From: 05/2013   **to:** 10/2015   **PI:** Xavier Tolsa Domènech

Project title: Anàlisi real i complexa i equacions en derivades parcials (2017 SGR 395)
From: 12/2018   **to:** ongoing   **PI:** Xavier Tolsa Domènech

Project title: Grup d'anàlisi harmònica i complexa (2014 SGR 75)
From: 01/2014   **to:** 12/2016   **PI:** Joan Orobitg Huguet

Project title: Análisis armónico, teoría geométrica de la medida y aplicaciones (MTM-2016-77635-P)
From: 10/2017   **to:** 08/2019   **PI:** Xavier Tolsa Domènech

Project title: Integrales singulares, teoría ... de la medida y espacios de Sobolev (MTM2013-44304-P)
From: 2013   **to:** 10/2015   **PI:** Xavier Tolsa Domènech

Project title: Análisis geométrico en el espacio euclídeo (MTM2010-16232)
From: 03/2012   **to:** 2013   **PI:** Xavier Tolsa Domènech

Stays in research centers (other than the working place)

Institution: IMUS   **Subject:** Doc-course Complex Analysis and Related Areas
City: Sevilla - Málaga   **Country:** Spain   **Date:** 2013   **Term:** 6 weeks

Institution: Helsingin Yliopisto   **Subject:** Pre-doctoral stay
City: Helsinki   **Country:** Finland   **Date:** 2014   **Term:** 13 weeks

Institution: Helsingin Yliopisto   **Subject:** Research meeting
City: Helsinki   **Country:** Finland   **Date:** 2016   **Term:** 1 weeks

Institution: Helsingin Yliopisto   **Subject:** Research meeting
City: Helsinki   **Country:** Finland   **Date:** 2017   **Term:** 2 weeks

Institution: ICMAT   **Subject:** Research program
City: Madrid   **Country:** Spain   **Date:** 2018   **Term:** 2 weeks

Institution: PCMI   **Subject:** Research program
City: Park City, Utah   **Country:** USA   **Date:** 2018   **Term:** 3 weeks

Contributions in conferences

Conference: Doc-Course Complex Analysis and Related Areas   **Duration:** 20'
Venue: Sevilla - Málaga   **Date:** February 4th to March 15th, 2013

Conference: Summer School T(1) and T(b) theorems and applications   **Duration:** 2h
Venue: Kopp, Bonn, Alemania   **Date:** July 21st to 26th, 2013

Conference: II Congreso de Jóvenes Investigadores   **Duration:** 30'
Venue: Sevilla   **Date:** September 16th to 20th, 2013

Conference: Encuentros de Análisis Real y Complejo   **Duration:** 30'
Venue: Girona   **Date:** May 22nd to 24th, 2014

Conference: School on Nonlinear Analysis, Function Spaces and Applications   **Duration:** 30'
Venue: Třešt', República Checa   **Date:** June 9th to 15th, 2014

Conference: Barcelona Analysis Conference   **Duration:** 30'
Venue: Barcelona, Spain   **Date:** September 5th to 9th, 2016

Conference: III Encuentros de problemas inversos   **Duration:** 50'
Venue: Madrid, Spain   **Date:** March 23rd, 2017

Conference: Applied Inverse Problems conference   **Duration:** 25'
Venue: Hangzhou, China   **Date:** March 29th, 2017

Conference: Congreso de Jóvenes Investigadores RSME   **Duration:** 25'
Venue: València, Spain   **Date:** September 5th, 2017

Conference: Barcelona Analysis Conference   **Duration:** 25'
Venue: Barcelona, Spain   **Date:** June 27th, 2019

Conference: Workshop on Analysis, singular integrals and PDEs, HIM   **Duration:** 50'
Venue: Bonn, Germany   **Date:** February, 2022

Talks on seminars

— Talk on the $T(P)$ theorem in Seminari d'Anàlisi de Barcelona (7-10-2013).

— Talk entitled "Quasiconformal mappings with Beltrami coeficient in Sobolev spaces of domains" in the Geometrisen analyysin seminaari from Helsingin Yliopisto (23-09-2014) and Jyväskylä Analysis Seminar (26-11-2014).

— Talk entitled "Characterization for stability in planar conductivities" in the Inverse Problems seminar from Jyväskylän Yliopisto (13-03-2017) and Functional Analysis seminar from Helsingin Yliopisto (16-03-2017).

— Talk entitled "Stability of Calderón's inverse problem in 2D" in Seminari d'Anàlisi de Barcelona (26-06-2017).

— Talk entitled "El problema del vendedor ambulante" in Seminario Junior UAM-ICMAT (27-09-2017) and in Seminari de Doctorands UAB (22-06-2018).

– Talk entitled "Measuring Triebel-Lizorkin fractional smoothness on domains in terms of first-order differences" in GAFA seminar from Helsinki University (03-10-2019) and in Seminar on analysis and geometry from Aalto University (09-10-2019).

– Talk entitled "Thin one-phase free boundary problem" in Seminar on analysis and geometry from Aalto University (29-01-2020, 13-02-2020).

– Talk entitled "The two-phase problem for harmonic measure in VMO" in harmonic analysis seminar from Helsinki University (06-03-2020), in seminario de análisis y aplicaciones UAM-ICMAT (12-03-2021) and in Oberseminar Discrete Harmonic and Harmonic Analysis from University of Würzburg (08-06-2021).

– Talk entitled "Riemann mapping and regularity in the Sobolev and Triebel-Lizorkin scale" in IMUS virtual seminar Complex Analysis and Operator Theory (01-06-2021).

* all these merits can be checked online

Scientific formation

— Attended the 48h courses in the Park City Mathematics Institute Research Program on Harmonic Analysis by S. Hofmann, E. Malinikova, C. de Lellis, S. Jitomirskaya, Z. Shen, G. David, A. Naber, C. Smart, organized by the Institute of Advanced Studies in Utah 2018.

— Attended the 12h courses of the School on Real Harmonic Analysis and its Applications to Partial Differential Equations and Geometric Measure Theory by S. Hofmann, X. Tolsa and T. Toro organized by ICMAT in Madrid 2018.

— Attended the 18h Tutorial course on Applied Inverse Problems by G. Uhlmann, W. Symes and F. Natterer organized by Zheijiang University in Hangzhou, China 2017.

— Attended the 60h course Quasiconformal mappings and Complex Dynamics by N. Fagella, X.Tolsa, A. Clop and J. Ortega-Cerdà organized by BGSMath in Barcelona 2014-15.

— Attended the 27h courses of School on Nonlinear Analysis, Function Spaces and Applications by G. Alberti, K. Astala, M. Bulicek, A. Cianchi, C. Perez and A. Seeger organized by Charles University in Trest, Czech Republic 2014.

— Attended the 60h course Partial Differential Equations by X. Cabré organized by BGSMath in Barcelona 2013-14.

— Attended the 25h course T(1) and T(b) theorems and applications by C. Thiele organized by Bonn University in Kopp, Germany 2013.

— Attended the 56h course Complex Analysis and Related Areas by A. Aleman, W. Bergweiler, M.D. Contreras, S. Díaz-Madrigal, D. Girela, E. Saksman, C. Pérez, L. Rodríguez-Piazza, J.A. Peláez, X. Tolsa, A. Vasiliev and D. Vukotic organized by IMUS in Sevilla 2013.

Other activities of scientific character

Title: Coordinator in the 49th International Mathematical Olympiad
Activity: Olympiad   **Scope:** International   **Date:** July 2008

Title: Tribunal of the XLV Olimpiada Matemática Española
Activity: Olympiad   **Scope:** Spain   **Date:** March 2009

Title: Tribunal of the local stage of the XLVI Olimpíada Matemàtica Espanyola
Activity: Olympiad   **Scope:** Catalonia   **Date:** December 2009

Title: Coordinator in the 52nd International Mathematical Olympiad
Activity: Olympiad   **Scope:** International   **Date:** July 2011

Directed PhD Theses

Title: TBA

Candidate: Ignasi Guillén
University: UAB
Faculty: Matemàtiques
Date: Beginning on September 2020

Other activities

Awards

— Extraordinary Award and Excellence Program in the degree of mathematics of the Universitat de Barcelona.

— Winning awards during four years in Cangur (scope Catalan Countries).

— Golden medal in the Olimpiada Matemática Española, and participation in 42nd International Mathematical Olympiad (2001).

— Silver medal in Olimpiada Española de Física (2001) winning the special award to the best resolution of an experimental problem.

— Silver and bronze medals in Olimpiada Iberoamericana de Matemática Universitaria (2003 y 2004 respectively).