CV at August 2025

Full name: M. Teresa M-Seara Alonso.
Date of birth: 15 July 1961, Ourense, Spain.
Marital status: Married, 3 adult children.
Present Appointment: Full Professor.
Departament: Departament de Matemàtiques
University: Universitat Politècnica de Catalunya (UPC).
ORCID: 0000-0001-8421-8717.
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Academic qualifications

Bachelor inn Mathematics: U. B. 30 june 1984.
Master thesis: U. B. 27 January 1986.
PhD. in Mathematics: U. B. 11 October 1991.

Teaching:

Bachelor: Infinitessimal calculus, Differential equations, Numerical calculus, Dynamical systems, Finite elements, Real Analysis, Complex Analysis.
Master: Analyticity and integrability, Introduction to Resurgence Theory, Geometric and algebraic methods in Dynamical Systems, Asymptotic methods in Dynamical Systems, Qualitative and Quantitative methods in Dynamical Systems, Hamiltonian Systems.

Committees and responsibility positions:

President of the "Comité de Selecció i d'Avaluació del Personal Docent i Investigador at UPC" (CSAPDIU): 2016-2017 (member 2013-2017).
Director of the Departament de Matemàtica Aplicada I (UPC): 2009–2012.
Treasurer of the Catalan Mathematical Society: 2007–2011.
Scientific Committee of the Catalan Mathematical Society: from 2016
PI of the net of Dynamical Systems DANCE (http://www.dance-net.org/): 2014-2018.
Scientific Committee of the Barcelona Graduate School of Mathematics (BGSMATH): 2013–2016.
Executive advisory board of the "Centre de Recerca Matemàtica" 2022-2024.
Director of the Departament de Matemàtiques (UPC): 2024–

Research/evaluation Committees:

EMS Price 2024
French National Research Agency (ANR), 2021.
Ferran Sunyer i Balaguer price 2019-2020, Institut d'Estudis Catalans.
Emmy Noether price 2019 (president).
Antonio Valle price to young researchers2017-2019 (president 2018/2019).
Premi Evariste Galois of the Catalan Mathematical Society (president) 2016.
Comisión de acreditación nacional para el acceso al Cuerpo de Catedráticos de Universidad (prog. ACADEMIA, ANECA): 2013–2016.
Comité Asesor de la Comisión Nacional Evaluadora de la Actividad Investigadora (CNEAI) de Matemáticas y Física: 2012–2013.
SIAG-DS Advisory Committee (SIAM, Dynamical Systems): 2012/2013
AGAUR (Agència de Gestió d'Ajuts Universitaris i de Recerca): 2011, 2015.
Proyectos de Investigación de la Dirección General de Investigación y Gestión del Plan Nacional de I+D+i Ministerio de Ciencia e Innovación: 2011, 2017.
ANEP (Agencia Nacional de Evaluación y prospectiva): 2010, 2016.

The Netherlands Organisation for Scientific Research (NWO): Research grants to stimulate most promising research.

Research

Researcher ID: G-1702-2015 Orcid code: 0000-0001-8421-8717
Some quantitative data:

- **Publications: 70.**
  Publications in refereed journals: 66, among them 57 at 1st. quartile (32 at first decile) in the JCR classification. Other publications: 4.
  Main journals where I have published: Annales Scientifiques de l'Ecole Normale Supérieure (ASENS), Advances in Mathematics, Communications in Matematical Physics (CMP), Chaos, Communications in Pure and Applied Mathematics (CPAM), Discrete and Continuous Dynamical Systems (DCDS), Inventiones Mathematicae, Journal of Differential Equations (JDE), Journal of the European Mathematical Society (JEMS), Journal of Nonlinear Science (JNLS), Memoirs of the A.M.S., Nonlinearity, Physica D, Siam Journal of Applied Dynamical Systems (SIADS).
- **Preprints: 2**
- **Citations: 2878 (1195 since 2020, Google Scholar), 1464 (Scopus)**
- **h index: 29 (Google Scholar), 21 (Scopus)**
- **Invited International seminars: 47**
- **Plenary talks in International Conferences: 45**
- **Invited Advanced International Courses: 15**
- **Supervised Thesis: 12**
- **Current PhD. students: 1**
- **postdocs: 4**
- **Grants as PI: 19**
- **10 scientific committees and 37 organizing committees in International Conferences and advances courses.**

Awards and Prizes

- Barcelona Dynamical Systems Prize 2015, for the paper: Oscillatory motions for the restricted planar circular three body problem.
  M. Guàrdia, P. Martín, T. M. Seara.
  Inventiones Mathematicae. 203, 417-492, 2016.
- Eisenbud Professorship (Simons Foundation), fall 2018 at MSRI (U. Berkeley).
- Icrea academia award (Generalitat de Catalunya) 2019-2024
- Fellow of the Science division of the Catalan Academy (Institut d'Estudis Catalans), since 2024.
- Member of the scientific societies: SCM, SEMA, RSME

Editorial boards

- Siam Journal of Applied Dynamical Systems (SIADS): 2010-2021.
- Journal of Dynamics and Differential equations (JDDE).
- Nonlinearity.
- Nonlinear Differential Equations and Applications (NoDEA).
- SEMA-SIMAI Springer series 2016-2023

Actual grants

- Enfoque Riguroso y Computacional en el Estudio de las Variedades Invariantes con Aplicaciones a la Mecànica Celeste (RACIMCEL). PID2024-158570NB-I00. PI: I. Baldomá, T. M-Seara, 13 researchers, 210.000,00 €
- Dinámica, Atractores y Nolinealidad: Caos y Estabilidad. Red excelencia n° RED2022-134273-T. PI: J. Torregrosa, P. Yanguas, 15 researchers, 24.000 €
- Invariant Manifolds, Hamiltonian Systems and Dynamics in Neuroscience, Epidemiology and Atmosphere IMHNEA), PID2021-122954NB-I00. PI: T. M-Seara, I. Baldomá, 9 researchers, 338.800,00 Eur.

Scientific and Organizing committees

13 scientific committees and 42 organizing committees in International conferences. 3 organizing Committees of research semesters (CRM 2008, MSRI, Berkeley 2018, IAS Princeton 2016)

Since 2018:

- Co-organizer of the Special Year on Conformally Symplectic Dynamics and Geometry, Institute of Advanced Studies, Princeton 2026/27.
- Scientific Committee of the workshop: Conformal dynamics and geometry, Bordeaux, August 2025.
- Scientific Committee of the IMJ-PRG Summer School: Stability and rigidity in dynamical systems, beyond classical KAM theory, Paris, 10-21 June, 2024.
- Co-Organizer of the summer course: Jornades d'Introducció als Sistemes Dinàmics i les EDP (JISD) since 2002, with 20 editions. $https://www.crm.cat/jisd-2023/$
- Scientific committee of the School on conformal symplectic dynamics and related fields, CIRM, Marsella, 8-12 May, 2023
- Co-Organizer of the Internacional seminar: One World Dynamics Seminar, Online 2020-2022: $https://sites.google.com/view/oneworlddynamics/home$
- Co-organizer of the Cimpa School 2022: The N-Body Problem, Old and New, San Cristobal de las Casas, Chiapas, Mexico, 8-18 June 2022.
- Scientific Committee of the: CEDYA/CMA 2022, Zaragoza, Spain, 18-22 June 2022.
- Scientific Committee of the: Colloque International de Dynamique Hamiltonienne, París, France, 7-10 June 2021.
- Co-organizer of the international workshop: Connections for Women: Hamiltonian Systems, from topology to applications through analysis. MSRI; Berkeley, USA, 16-17 August 2018
- Co-organizer of the Scientific program: Hamiltonian Systems, from Topology ro Applications through Analysis. MSRI; Berkeley, USA, 13th August- 14 December 2018
- Co-organizer of the CIMPA school: Dynamical Systems and Applications: geometrical, topological and numerical aspects. Dangbo, Benin, 1-14 July 2018

Main publications in the last 5 years

- M. Guardia, J. Paradela, T. M-Seara.
  A degenerate Arnold diffusion mechanism in the Restricted 3 Body Problem. Preprint: $https://arxiv.org/abs/2302.06973$
  To appear in **Annales Scientifiques de l'Ecole Normale Supérieure**
- M. Guardia, J. Lamas, T.M- Seara.
  Oscillatory motions, parabolic orbits and collision orbits in the planar circular restricted three-body problem.
  Communications in Mathematical Physics 2025.
  DOI: 10.1007/s00220-025-05283-9

- O. M. L. Gomide, M. Guardia, T.M- Seara, Ch. Zeng.
  On small breathers of nonlinear Klein-Gordon equations via exponentially small homoclinic splitting.
  Inventiones mathematicae 2025.
  DOI: 10.1007/s00222-025-01327-y
- M. Aguarteles, I. Baldomá, T. M-Seara.
  A rigorous derivation of the asymptotic wavenumber of spiral wave solutions of the complex Ginzburg-Landau equation.
  Journal of the European Mathematical Society 2025.
- T.M-Seara, L.V.M.F Silva, J. Villanueva.
  On the boundedness of solutions of a forced discontinuous oscillator.
  Journal of differential equations 2024
  DOI: 10.1016/j.jde.2024.08.044
- I. Baldomá, T. M-Seara, R. Moreno.
  Splitting of Separatrices for Rapid Degenerate Perturbations of the Classical Pendulum.
  Siam Journal on Applied Dynamical Systems 2024
  DOI: 10.1137/23M1550992
- D. Reyner, C. Bonet, T. M-Seara, G. Huguet.
  Traveling waves in a model for cortical spreading depolarization with slow-fast dynamics.
  Chaos: An Interdisciplinary Journal of Nonlinear Science 2020.
  DOI: 10.1063/5.0160509
- S. W. Akingbade, M. Gidea, T. M-Seara.
  Arnold diffusion in a model of dissipative system.
  Siam J. on Applied Dynamical Systems 2023.
  DOI: 10.1137/22M1525508
- I. Baldomà, M. Capiński, M. Guardia, T. M-Seara.
  Breakdown of Heteroclinic Connections in the Analytic Hopf-Zero Singularity: Rigorous Computation of the Stokes Constant.
  J. of Nonlinear Science 2023.
  10.1007/s00332-022-09882-x
- T. M-Seara, M. Ollé, O. Rodriguez, J. Soler.
  Generalised analytical results on n-ejection-collision orbits in the RTBP. Analysis of bifurcations.
  J. of Nonlinear Science 2023.
  DOI: 10.1007/s00332-022-09873-y
- C. Bonet, T.M-Seara.
  Two regularizations of the grazing-sliding bifurcation giving non equivalent dynamics.
  J. Diff. Equations 2022
  DOI: 10.1016/j.jde.2022.05.028
- M. Capiński, M. Guardia, P. Martín,T. M-Seara, P. Zgliczyński.
  Oscillatory motions and parabolic manifolds at infinity in the planar circular restricted three body problem.
  J. Diff. Equations 2022.
  DOI: 10.1016/j.jde.2022.02.056
- M. Guardia, J. Paradela, T. M-Seara, C. Vidal.
  Symbolic dynamics in the restricted elliptic isosceles three body problem.
  J. Diff. Equations 2021.
  DOI: 10.1016/j.jde.2021.05.017
- T. M-Seara, J. Zhang.
  Oscillatory orbits in the restricted planar four body problem.

Nonlinearity 2020.
DOI: 10.1088/1361-6544/abaf5f

- A. Pérez-Cervera, T. M-Seara, G. Huguet.
  Global phase-amplitude description of oscillatory dynamics via the parameterization method
  Chaos: An Interdisciplinary Journal of Nonlinear Science 2020.
  DOI: 10.1063/5.0010149
- M. Gidea, R. de la Llave, T. M-Seara.
  A general mechanism of instability in Hamiltonian systems: Skipping along a normally hyperbolic invariant manifold
  Discrete and continuous dynamical systems 2020.
  DOI: 10.3934/dcds.2020166
- O. M. L. Gomide, M. Guardia, T. M-Seara.
  Critical velocity in kink-defect interaction models: rigorous results
  J. Diff. Equations 2020.
  DOI: 10.1016/j.jde.2020.02.030
- M. Gidea, R. de la Llave, T. M-Seara.
  A General Mechanism of Diffusion in Hamiltonian Systems: Qualitative Results
  Communications in Pure and Applied Mathematics 2019.
  DOI: 10.1002/cpa.21856
- A. Pérez-Cervera, T. M-Seara, G. Huguet.
  Phase-locked states in oscillating neural networks and their role in neural communication.
  Communications in Nonlinear Science and Numerical Simulation 2020.
  DOI: 10.1016/j.cnsns.2019.104992
- I. Baldomá, S. Ibañez, T. M-Seara.
  Hopf-Zero singularities truly unfold chaos
  Comm. in Nonlinear Science and Numerical Simulation 2020.
  DOI: 10.1016/j.cnsns.2019.105162
- A. Pérez-Cervera, T. M-Seara, G. Huguet.
  A Geometric Approach to Phase Response Curves and Its Numerical Computation Through the Parameterization Method
  J. of Nonlinear Sience 2019
  DOI: 10.1007/s00332-019-09561-4
- A. Delshams, V. Kaloshin, A. de la Rosa, T. M-Seara.
  Global Instability in the Restricted Planar Elliptic Three Body Problem.
  Comm. in Mathematical Physics 2019.
  DOI: 10.1007/s00220-018-3248-z

Preprints

- M. Guardia, P. Martín, J. Paradela, T. M-Seara. *Hyperbolic dynamics and oscillatory motions in the 3 Body Problem.* Preprint: *https* : *//arxiv.org/abs/*2207.14351