Part A. PERSONAL INFORMATION

		CV date	15/02/2022

First and Family name	ROSA PARDO		
Researcher codes	WoS Researcher ID *(*)*	H-1101-2017	
	SCOPUS Author ID*(*)*	8204935800	
	Open Researcher and Contributor ID (ORCID) **	0000-0003-1914-9203	

A.1. Current position

Name of University/Institution	UNIVERSIDAD COMPLUTENSE DE MADRID (UCM)		
Current position	Profesora Titular	From	14/07/89
Key words	Partial Diffferential Equations		

A.2. Education

PhD	University	Year
Mathematics	UCM	1988
Degree in Mathematics	UCM	1981

I am 'Profesora Titular' at the Applied Mathematics and Mathematical Analysis Department, UCM, since 1989, accredited as 'Catedrática' (Full Professor) the 02/06/2023. Since 11/17/2016, I am **PI** of the Research group UCM-GR17-920894, CADEDIF (Asymptotic Behavior and Dynamics of Differential Equations), valuated as **EXCELLENT** by the State Research Agency of Spain (**AEI**). I've been the **Project Coordinator** of a research project between 5 Universities: **UB, UBA, UCM, UNAM, USP**, with 23 researchers, since September 2019 to December 2021. In 2017, I managed a grant of the **CHAIRS of EXCELLENCE PROGRAM** of the Community of Madrid. I've been invited to participate in the Summer Program of the Mathematical Sciences Research Institute (MSRI), funded by the National Science Foundation (NSF), and the National Security Agency (NSA) of USA, in June 2022.

A.3. JCR articles, h Index, thesis supervised…

5 Six-year period of research with positive assessment (avowed by Spanish CNEAI): (1988--1992, 1993--1999, 2001--2008, 2010—2015, 2016--2021)
Total citations: **376** Web of Science, **463** Scopus, **805** Google Scholar, **397** MathSciNet
Average citations/year during the last 5 years: **33'6** Web of Science, **37** Scopus, **69** Google Scholar.
Publications **D1:8, Q1: 17**
Total Publications: **49** Web of Science (**41** indexed in the Core collection), **43** Scopus, **88** Google Scholar, **52** MathSciNet
Index h=**12** Web of Science, **13** Scopus, **17** Google Scholar, **12** MathSciNet
PhD of Sergio Hoyas Calvo at UCM, 'Theoretical and numerical study of a Benard-Marangoni convection problem' Directors: H. Herrero, A. Mancho, R. Pardo, 2003.

Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

In February 1984, I started working as an Assistant Professor at the UCM. In July 1989, I got a position as a permanent Professor (Profesor Titular) in the Department of Applied Mathematics at UCM. Since 11/17/2016, I am **PI** of the Research group UCM-GR17-920894, CADEDIF (Asymptotic Behavior and Dynamics of Differential Equations), valuated as EXCELLENT by the State Research Agency of Spain (AEI). - Transfer. Funding Entities: Community of Madrid -UCM. Number of Researchers: 13. **PI: R. Pardo**, R. Ferreira.

I've been the **Project Coordinator** of a research project between 5 Universities: UB (Spain), UBA (Argentina), UCM (Spain), UNAM (Mexico), USP (Brazil), with 23 researchers and funded by the Universities, September 2019 to December 2021. In 2017 I've been in charge of the management of a

grant of the CHAIRS of EXCELLENCE PROGRAM of the Community of Madrid, designed to attract first rate research talent for a short term incorporation (6 months) into research groups.

In 2003, I co-supervised the PhD at UCM of Sergio Hoyas Calvo, joint with Prof. H. Herrero and Prof. A. Mancho: Theoretical and numerical study of a Benard-Marangoni convection problem.

Research stays from 2011: Harvey Mudd College, USA. (August 2010 - June 2011), Complutense del Amo Grant, (Visiting Professor), and also 01/26/2018, 02/10/2018; National University of Colombia, at Bogotá, Medellín and Manizales (June 2012, July 2015, July 2017, June 2019), (Invited Professor at the II, III, and IV WORKSHOP on NON-LINEAR ANALYSIS for PDE's). Univ. Sergio Arboleda, Bogotá, Colombia. (July 2015); University of Rome, La Sapienza, Rome, Italy 06/02/2017-02/10/2017; Swarthmore College, Philadelphia, Pennsylvania, USA, 06/09/2018 - 06/15/2018; University of Littoral Côte d' Opale ULCO, Calais, France, 06/17/2019 - 06/28/2019 and 06/20/2022 - 06/26/2022. Instituto de Matemáticas, Universidad Nacional Autónoma de México (UNAM). 10/02/2020 -- 19/02/2020.

Scientific trajectory.

My research interests focus in the mathematical analysis of Nonlinear Partial Differential Equations, mainly on elliptic and parabolic equations. To classify nonlinearities for which existence or not of solutions of elliptic equations   is an open problem. For power like non-linearities, surprising phenomena not fully understood appears. It is known that for the critical Sobolev exponent the semilinear elliptic problem has no solution in balls, on the contrary it has a solution in rings. In more general domains, same conclusion can be reached for star-shaped domains versus non-contractible domains. For the p-Laplacian operator, this critical exponent also coincides with the respective critical Sobolev exponent.

A-priori bounds, combined with topological degree plays a fundamental role. I am currently working on the study of a priori bounds in subcritical elliptic problems in collaboration with Professors. A. Castro, Harvey Mudd College, USA, N. Mavinga Swarthmore College, USA, L. Damascelli, Universita di Roma Tor Vergata, Italy, M. Cuesta, ULCO, France, M. Clapp, UNAM, Mexico, and M. Chhetri, University of North Carolina at Greensboro, USA.

Part C. RELEVANT MERITS

C.1. Publications (since 2015)

1. M. Cuesta; R. Pardo Bifurcation for indefinite-weighted p-Laplacian problems with slightly subcritical nonlinearity. Math. Nachr. 297 (2024), no. 11, 3982–4002.
2. Bandyopadhyay, Shalmali; Chhetri, Maya; B.B. Delgado; Mavinga, Nsoki; R. Pardo Bifurcation and multiplicity results for elliptic problems with subcritical nonlinearity on the boundary. J. Differential Equations 411 (2024), 28–50. 35J65 (35B32 35J15 35J61)
3. R. Pardo L∞ a-priori estimates for subcritical p-laplacian equations with a Carathéodory non-linearity. Rev. R. Acad. Cienc. Exactas Fís. Nat. Ser. A Mat. RACSAM 118 (2024), no. 2, Paper No. 66, 21 pp. (Reviewer: Siegfried Carl) 35B45 (35A23 35J92)
4. B.B. Delgado; R. Pardo Resonant solutions for elliptic systems with Neumann boundary conditions. Electron. J. Differential Equations 2023, no. 2, Special issue, 109–124. 35J57 (35B32 35J15 35J61)
5. **R. Pardo.** L∞(Ω) a priori estimates for subcritical semilinear elliptic equations with a Carathéodory non-linearity, *J. Fixed Point Theory Appl.* 25, 44 (2023)
   Q1 43/329, IF: 1.8 (JCR 2022, MATH)
6. M. Cuesta; **R. Pardo** Positive solutions for slightly subcritical elliptic problems via Orlicz spaces. *Milan J. Math.* 90 (2022), no. 1, 229–255.
   Q2 115/332, IF: 1.182 (JCR 2021, MATH)
7. S. Bandyopadhyay, M. Chhetri, B. B. Delgado, N. Mavinga, **R. Pardo**. Maximal and minimal weak solutions for elliptic problems with nonlinearity on the boundary. *Electronic Research Archive*, 2022, 30(6): 2121-2137.

Q1 46/332, IF: 1.604 (JCR 2021, MATH)

8. M. Chhetri, N. Mavinga, **R. Pardo**. Bifurcation from infinity with oscillatory nonlinearity for Neumann Problems. Electron. *J. Diff. Eqns., Special Issue* 01 (2021), pp. 279–292.
   Q2, 106/ 330, IF: 1.282 (JCR 2020, MATH)

9. N. Mavinga, **R. Pardo**. Equivalence between uniform L^{p^*} *a priori* bounds and uniform L∞ *a priori* bounds for subcritical p-laplacian equations. *Mediterr. J. Math*. 18 (2021), 13.
   Q1, 79/ 325, IF: 1.216 (JCR 2019, MATH)

10. Monica Clapp, **Rosa Pardo**; Angela Pistoia, Alberto Saldaña. A solution to a slightly subcritical elliptic problem with non-power nonlinearity. *Journal of Differential Equations*, Vol. 275, 418-446, 2021.
    D1, 19/ 325, IF: 2.192 (JCR 2019, MATH)

11. **R. Pardo** and A. Sanjuán. Asymptotics for radial solutions of elliptic equations approaching critical growth. *Electron. J. Diff. Eqns*, Vol. 2020 (2020), No. 114, pp. 1-17.
    Q2, 157/ 325, IF: 1.659 (JCR 2019, MATH)

12. D. López-García, and **R. Pardo**. A mathematical model for the use of energy resources: A singular parabolic equation. *Mathematical Modelling and Analysis*, Vol 25, N. 1, 88--109, 2020.
    Q2, 83/ 313, IF: 1.038 (JCR 2018, MATH)

13. A. Castro, J. Cossio, S. Herrón, **R. Pardo**, and C. Vélez. Infinitely many radial solutions for a sub-super critical p-Laplacian problem. *Ann. Mat. Pura Appl.* (2020) 199:737--766.
    Q1, 55/ 313, IF: 1.268 (JCR 2018, MATH)

14. A. Castro, N. Mavinga and **R. Pardo**. Equivalence between uniform $L^{2^*}(\Omega)$ a-priori bounds and uniform L∞(Ω) a-priori bounds for subcritical elliptic equations. *Topological Methods in Nonlinear Analysis,* Vol. 53, N. 1, 2019, 43--56.
    Q1, 179/ 310, IF: 0.645 (JCR 2017, MATH)

15. L. Damascelli, **R. Pardo**, A priori estimates for some elliptic equations involving the p-Laplacian. *Nonlinear Analysis: Real World Applications* 41 (2018) 475–496.
    Q1, 43/ 255, IF: 1.659 (JCR 2016, MATH, APPLIED)

16. A. Castro, **R. Pardo**, Infinitely many stability switches in a problem with sublinear oscillatory boundary conditions. *Journal of Dynamics and Differential Equations (JDDE)*, Vol 29, N. 2, (2017), 485–499.
    Q1, 46/ 312, IF: 1.110 (JCR 2015, MATH)

17. N. Mavinga and **R. Pardo**, Bifurcation from infinity for reaction-diffusion equations under nonlinear boundary conditions. *Proceedings of The Royal Society of Edinburgh: Section A Mathematics,* Vol. 147, N. 3, (2017), 649-671.
    Q1, 61/ 312, IF: 0.983 (JCR 2015, MATH)

18. N. Mavinga, **R. Pardo**, A priori bounds and existence of positive solutions for semilinear elliptic systems, *Journal of Mathematical Analysis and Applications* Vol. 449, N. 2, (2017), 1172–1188.
    Q1, 56/ 312, IF: 1.014 (JCR 2015, MATH)

19. A. Castro, **R. Pardo**, A priori estimates for positive solutions to subcritical elliptic problems in a class of non-convex regions. *Discrete and Continuous Dynamical System, SeriesB*, Vol. 22, N. 3, (2017), 783–790.
    Q1, 62/ 254, IF: 1.227 (JCR 2015, MATH, APPLIED)

20. **R. Pardo**, A. Martínez-González, V. . Pérez-García, Nonlinear ghost waves accelerate the progression of high-grade brain tumors, *Communications in Nonlinear Science and Numerical Simulation* (2016).
    E1, 5/257, IF: 2.866 (JCR2014, MATH, APPLIED).

21. J. Arrieta, **R. Pardo**, A. Rodriguez-Bernal. Asymptotic behavior of degenerate logistic equations. *Journal of Differential Equations,* 259 (2015), 6368-6398.
    E1, 16/310, IF: 1.680 (JCR 2014, MATH).

22. A. Castro, **R. Pardo**. A priori bounds for positive solutions of subcritical elliptic equations. *Revista Matemática Complutense,* (2015) 28: 715–731.
    Q2, 110/310, IF:0.705 (JCR 2014, MATH).

C.2. Research projects and grants

Participation in 26 research projects, 1 of them as Project Coordinator, 1 of them as PI, 1 of them as the manager. Among them, from 2014:

PID2022-137074NB-I00, Asymptotic dynamics and perturbations in PDE (DAPEDIF). September 1, 2024 - August 31, 2026.Funding Entity: Spanish Ministry of Science and Innovation. Number of Researchers: 6, Amount   75.000 euros. PI: J. Arrieta.

2022 Summer Research in Mathematics (SRiM) at Mathematical Science Research Institute (MSRI), Berkeley, California, USA. Subcritical Superlinear Elliptic Problems. Funding Entity: National Science Foundation (NSF), the National Security Agency (NSA), Microsoft Research, Johnson Cha, Priscilla Chou, and Kristin Laute, USA.   5/06/2022 - 18/06/2022. Number of Researchers: 5, Amount estimated 25.000$.

PID2019-103860GB-l00, June 2020 - December 2023. Linear and Nonlinear aspects in Partial Differential Equations. Asymptotic Dynamics and Perturbations. Funding Entity: Spanish Ministry of Science and Innovation. Number of Researchers: 6, Amount   55.660 \EUR. PI: J. Arrieta.

II Research Collaboration Fund 2019 (UIU). Differential Equations, Dynamical Systems, and Control. Funding Entities: UB, UBA, UCM, UNAM, USP. Since September 2019 to December 2021. Number of Researchers: 23. **PI: R. Pardo (UCM**), A. Carvalho (USP), L. de Teresa (UNAM) A. Jorba (UB), J. Rossi (UBA). Amount 10.000 euros. **PROJECT COORDINATOR: R. Pardo**.

UCM-GR17-920894, CADEDIF (Asymptotic Behavior and Dynamics of Differential Equations). External evaluation of the UCM Research Groups by the State Research Agency (AEI). Valuation: EXCELLENT - Transfer. Funding Entities: Community of Madrid -UCM. Number of Researchers: 13. Amount 1.750 \EUR 2019; 1.750 \EUR 2020; 1.750 \EUR, 2021.. **PI: R. Pardo**, R. Ferreira, since 11/17/2016.

CHAIRS of EXCELLENCE PROGRAM, order 3973/2016, of 12/20/2016, of the Community of Madrid, designed to attract first rate research talent for a short term incorporation into research groups (BOCM: 09-01-2017). Reference 2016-T3 / IND-1174, granted to A. Castro. Funding Entities: Community of Madrid -UCM. BOCM: 09-01-2017. From 11 February 2017 to 11 August 2017. Amount 50.000 euros. Manager: **R. Pardo.**

MTM2016-75465-p, "Equations in Partial Derivatives: Asymptotic Dynamics and Perturbations." Funding Entity: Ministry of Economy and Competitiveness. January 2017 - December 2019. Number of Researchers: 4'5, Amount 52.272 euros. PI: J. Arrieta.

MTM2012-31298, "Equations in Partial Derivatives: Nonlinear Dynamics, Perturbations and Applications" Financing Entity: Ministry of Economy and Competitiveness. January 2013-December 2015 (Extended until March 2017). Number of Researchers: 12, Amount: 74.000 euros. PI: J. Arrieta.

Institutional responsibilities

Head of the   Applied Mathematics Department at the UCM from 11/03/2016 until 11/07/2017, date on which the department was fused, and the Department of Applied Mathematical and Mathematical Analysis was created.
Head of the Departmental Section of Applied Mathematics at the Faculty of Chemistry of the UCM, from March 27, 2007 to August 31, 2010 (3 years and 5 months).

Secretary of the **SEMA** (Spanish Society of Applied Math), 09/23/1999 – 10/20/2004.

Memberships of scientific societies: Membership of **EMS** (European Mathematical Society), of **RSME** (Real Sociedad Matemática Española) and of **SEMA (**Sociedad Española de Matemática Aplicada).
Referee of 15 scientific journals in WoS. Member of 3 **Editorial Boards**.
28 Contributions to scientific congress, among them 5 as Invited speaker to an international congress, 15 Invited conferences.