



## CURRICULUM VITAE ABREVIADO (CVA)

**IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.**

<b>Part A. PERSONAL INFORMATION</b>		<b>CV date</b>	08.09.2024
First name	Patricia		
Family name	de la Presa		
Gender (*)	Female	Birth date)	16/01/1963
ID number			50774745Z
e-mail	pmpresa@ucm.es	URL Web	
Open Research and Contributor ID (ORCID)(*)	0000-0002-9456-8320		

(\*) Mandatory

### A.1. Current position

Position	Full Profesor (Catedrática)		
Initial date	02.04.2020		
Institution	Complutense University of Madrid		
Departament/Center	Institut of Applied Magnetism		
Country	Spain	Teleph. number	+34 913007173
Key words	Magnetism, magnetic nanoparticles, magnetic materials		

### A.2. Previous positions (research activity interruptions, art. 45.2.c))

Period	Position/Institution/Country/Interruption cause
2009-2020	Associate Professor/ Complutense University of Madrid/ Spain
2004-2009	Ramón y Cajal researcher fellow/ Complutense University of Madrid/ Spain
2000-2004	Postdoctoral contract/ Bonn University/ Germany
1998-2000	DAAD fellowship / Goettingen University/ Germany

### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Physics	Universidad Nacional de La Plata, Argentina	1997
Graduate in Physics	Universidad Nacional de La Plata, Argentina	1991

## Part B. CV SUMMARY

Publications: 107 articles of the JCR. Citations: >3000. H index: 26/28 (WoS/Google).

Patricia de la Presa is full Professor at the University Complutense of Madrid. She is Director of the group Applied Magnetism and Magnetic Nanostructures, which was awarded the EXCELLENCE by the Spanish Research State Agency (Agencia Estatal de Investigación - AEI) - a prestigious recognition as a leading research group in Spain. She is also Academic Secretary of the Institute of Applied Magnetism (IMA), one of the best valued institutes inside and outside the UCM. Prof. de la Presa obtained her PhD in Physics by Universidad Nacional de La Plata, Argentina in 1997. She has taken up two postdoctoral stays in Germany at the Universities of Goettingen and Bonn in the period 1998-2004. Later on, she joined IMA through

Ramón y Cajal program and, in 2009, she was promoted the professorship in the area of Condensed Matter Physics at the UCM.

The researcher presents a strong scientific activity and a high productivity in the field of magnetic materials and their applications, specially focused on the studies of calorimetric properties of magnetic nanoparticles subjected to radiofrequency fields for different applications, such as magnetic hyperthermia, drug transport, and catalysis. She has published 100 peer-reviewed articles and received more than 2000 citations (h-index=24). In addition to the published articles, she has participated in numerous international conferences and seminars by means of invited and oral talks.

She has participated in total 30 competitive research projects of national and international calls, being the coordinator of ten national projects and several projects with companies. At present, she is the principal researcher of three national projects. She also belonged to the “RADIOMAG ACTION COST - Multifunctional Nanoparticles for Magnetic Hyperthermia and Indirect Radiation Therapy” international network for hyperthermia conformed by 26 European groups. Recently, she has been awarded with the project “Plastic Wastes for Alternative Fuels”, in collaboration with Massachusetts Institute of Technology (MIT) and financed by INDITEX, for the development of magnetic nanoparticles for catalytic recycling of plastic wastes for fuels.

Prof. de la Presa has also supervised 4 PhD students as well as 22 Master's theses, and currently supervises 3 ongoing PhD theses. She has an excellent track record in training and mentoring overseas postdoctoral researchers supervising about 24 researchers coming from Argentina, Algeria, Brazil, Canada, France, Germany, Hungary, México, Nigeria, Iran, and Tunisia.

## **Part C. RELEVANT MERITS** *(sorted by typology)*

### **C.1. Publications** *(most relevant of the 5 last years)*

1. “Ball milling and annealing effect in structural and magnetic properties of copper ferrite by ceramic synthesis”, M.A. Cobos, J.A. Jiménez, I. Llorente, P. de la Presa, A. Hernando, J. Alloys Compds. 1006, 176206 (2024)
2. “Real-time monitoring of breath biomarkers using magnonic wireless sensor based on magnetic nanoparticles”, J.D. Aguilera, D. Arranz, A. Peña, P. Marín, M.C. Horrillo, P. de la Presa, D. Matatagui, Sensing and Bio-Sensing Research 43, 100629 (2024).
3. “Towards the Standardization of Photothermal Measurements of Iron Oxide Nanoparticles in Two Biological Windows”, D. Arranz, R. Weigand and P. De la Presa, Nanomaterials 13, 450 (2023).
4. “Transition from AFM Spin Canting to Spin Glass-AFM Exchange as Particle Size Decreases in LaFeO<sub>3</sub>”, D Alshalawi, JM Alonso, AR Landa-Cánovas, P de la Presa, Nanomaterials 13, 1657 (2023).
5. “Real-time monitoring of breath biomarkers with a magnetoelástico contactless gas sensor: a proof of concept”, A Peña, J. D. Aguilera, D Matatagui, P de la Presa, C Horrillo, A Hernando and P Marín, Biosensors 12, 871 (2022).

6. "Coexistence of Two Spin Frustration Pathways in the Quantum Spin Liquid  $\text{Ca}_{10}\text{Cr}_7\text{O}_{28}$ ", DR. Alshalawi, JM. Alonso, AR. Landa-Cánovas and P de la Presa. *Inorganic Chemistry*, 61, 16228–16238 (2022).
7. "Time-dependent AC magnetometry and chain formation in magnetite: the influence of particle size, initial temperature and the shortening of the relaxation time by the applied field", I. Morales, R. Costo, N. Milles, J. Carrey, A. Hernando, P. De la Presa, *Nanoscale Adv.* 3, 5801 (2021).
8. "Whither Magnetic Hyperthermia? A Tentative Roadmap" I. Rubia-Rodríguez, E. Santana-Otero, S. Spassov, et al., *Materials* 14, 706 (2021).
9. "Colossal heating efficiency via eddy currents in amorphous microwires with nearly zero magnetostriction" I Morales, D Archilla, P de la Presa, A. Hernando, P. Marín, *Sc. Reports* 10, 602 (2020)
10. "Magnetic phase diagram of nanostructured zinc ferrite as a function of inversion degree  $\delta$ ". MA Cobos, P de la Presa, I Llorente J. M. Alonso, A. García-Escorial, P. Marín, A. Hernando, J. A. Jiménez, *Phys Chem C* 123, 17472 (2019).

## C.2. Research projects

1. *Nano-analytical breath tool to detect early-stages of asthma and diabetes - NanoScanBreath*. PDC2022-133039-I00 – AEI: 2022-2024. IP: **P de la Presa/ P Marín**. Funding: 143.750,00 €.
2. *Plastic waste upcycling by radiofrequency fields and magnetic nanoparticles - RyFCycling* TED2021-129688B-C21 – AEI: 2022-2024. IP: **P. de la Presa/ P. Marín**. Funding: 207.402,50 €.
3. *Nano and microstructured magnetic materials integrated into miniaturized and intelligent analytical system for detecting diseases through exhaled breath - MATMAGSEN*. PID2021-123112OB-C21– MICIIN 01.09.2022 al 31.08.2025. IP: P. Marín/ **P. de la Presa**, Funding: 157.300,00 €
4. *Desarrollo de materiales magnéticos y sensores para aplicaciones biomédicas - MAGBIOSENS*. RTI2018-095856-B-C21 – MICIIN 01.01.2019 al 30.06.2021. IP: **P. de la Presa/P Marín**. Funding: 145.200,00 €
5. *Soluciones del Nanomagnetismo a los retos sociales - NANOMAGCOST-CM*. P2018/NMT-4321 – CM. 01.01.2019 al 31.12.2022. IP: P. Marín. Funding: 60.000,00 €.
6. *Multifunctional Nanoparticles for Magnetic Hyperthermia and Indirect Radiation Therapy (RADIOMAG)*, TD1402 COST Action. 01.07.2016 al 31.12.2018. IP: **P. de la Presa**
7. "Nanopartículas y nanoestructuras magnéticas funcionales para la activación térmica y control in-situ de procesos físicos y químicos (NANOTER)" - MAT2015-67557-C2-1-P– MICINN, del 1.01.2016 al 31.12.2018. IP: P Marín/**P. de la Presa**. Funding: 171.941-€.

## C.3. External evaluator for research agencies

- Agencia Nacional de Promoción Científica y Tecnológica, MCyT FONCyT – Argentina:
- Plan Gallego de Investigación, Desarrollo e Innovación Tecnológica, Xunta de Galicia, España
- Proyectos de Investigación en Ciencias Básicas, Universidad de Los Andes, Colombia

- Pegasus Short Project - Research Foundation Flanders (FWO), Bélgica
- COST Action, European Cooperation in Science and Technology.
- Agencia Estatal de Investigación, España.
- Universidad King Abdulaziz, Jedda, Arabia Saudí.
- Dutch Research Council (NWO), Países Bajos.

#### C.4. Contracts, technological or transfer merits

##### C4.1 Contract with companies

1. *"Magnetic materials for high-frequency fields"* Fundación Para La Investigación, Desarrollo y Aplicación De Materiales Compuestos (FIDAMC), from 28.04.2022 to 28.09.2022. IP: **P de la Presa**. Funding: 19.211,65€
2. *"Research in Electromagnetic Fields and Health"* Red Eléctrica Company, from 01.12.2022 to 31.12.2022. IP: Pilar Marín. Funding: 50.000,00 €.
3. *"Materiales magnéticos geoméricamente frustrados"* Agregaduría Cultural de Arabia Saudí, from el 30.10.2019 to 31.03.2023. IP: **P de la Presa**. Funding: 64.090,67 €
4. *"Plastic Wastes for Alternative Fuels"* Financed by MISTI-Spain Program (MIT (USA), IMA-UCM (Spain), URJC (Spain)), from 01.01.2019 to 31.08.2020: IP (UCM), **P de la Presa**. Funding: 22.300,00 U\$D
5. *"Force work, proprioception and tendon muscle rehabilitation using magnetic fields in its repulsion phase"* Sport SL. IP: Pilar Marín. Funding: 11.495,00 €.
6. *"Magnetic Properties Characterization"*, TECNALIA Research and Innovation, from 03.04.2017 to 03.04.2020. Principal Researcher (IP): **P de la Presa**
7. *"Realización de ensayos en el laboratorio de Eurobaliza"*, Agreement IMA-CEDEX from 1.01.2013 to 15.03.2014. Principal Researcher (IP): **P de la Presa / A Hernando** - Funding: 340.000,00 €

##### C4.2 Patents

1. *"Differential calorimeter and method for measuring the specific absorption rate of magnetic colloids subjected to electromagnetic fields"* G. Rivero, M. Multigner, I Molinas, P Cabrera, F. Giacomone, P. de la Presa. ES2520590B2. Publication Date: 23.04.2015
2. *"Device for the measurement of the evolution of the mass of a cellular culture "in situ" based on a magnetoelastic sensor"* G. Rivero, P. Crespo, J. Spottorno, P. de la Presa, M. Multigner, J. Valdés, MA Villanueva, M. Cañete. ES 2325482 B1. Date: 20.12.2011

##### C4.3 Scientific Societies

1. Secretary of the Spain Chapter of the IEEE Magnetic Society 2023-up to day.
2. Scientific Coordinator of the "Network of the Argentine Scientific Research Community in Spain" RCICAE 2024.
3. Royal Spain Society of Physics 2007-up to day.
4. Spain Club of Magnetism 2010 – up to day.