MINISTERIO DE CIENCIA E INNOVACIÓN

CURRICULUM VITAE (CVA)

AGENCIA ESTATAL DE INVESTIGACIÓN

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

CV date	2023, March 21st

Part A. PERSONAL INFORMATION

First name	Paloma		
Family name	Fernández Sánchez		
Gender (*)	Female	Birth date (dd/mm/yyyy)	
DNI			
e-mail	arana@ucm.es	http://piloto.fis.ucm.es/paloma/	
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-0780-803X		

(*) Mandatory

A.1. Current position

Position	Professor (CU)		
Initial date	November 2007		
Institution	Universidad Complutense		
Department/Center	Materials Physics	Faculty of Physics	
Country	Spain	Teleph. number	+34 913944550
Key words	Characterization of optoelectronic materials, defects, oxides, nanomaterials, semiconductors		

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
1986-1990	Ayudante/ U. Complutense/ Promotion to TU
1990-2007	Profesor Titular /U. Complutense/ Promotion to CU

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Lic. Physics	Complutense/ Spain	1985
PhD Physics	Complutense/ Spain	1989

(Include all the necessary rows)

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

I joined the Department of Materials Physics in 1986 as an assistant professor and since 2007 I am a professor in the knowledge area of Materials Science and Metallurgical Engineering.

Along my career I have worked in different materials, although during the last years I am focused on oxides for optoelectronics, photocatalysis and sensing.

I belong to the FINE-UCM research group, of which currently I am codirector.

Scientific contributions and leadership in this field

- I have published around 160 papers, more than 150 indexed. Of these, around 80% belong to Q1 of the corresponding area, and more than 90% to T1. My current index h is 27, with i10 of 81, and circa 3000 cites. I have made more than 160 contributions to national and international Congresses (most of them, almost 90). Of the contributions made more than 50 have been oral communications and more than 20 guests or plenary.
- Throughout these years I have participated in a total of 16 national projects, 5 international projects (two of them personnel training networks) and 6 international cooperation projects.

FERNANDEZ SANCHEZ PALOMA - DNI

- Chair of several international conferences (EUROMAT 2009 and 2021; FIMPART 2018; NANO2022)

Academic appointments and leadership in this field

- Academic Secretary of Departamento de Física de Materiales, January 1993 to June 2010.
- Representative of Departamento Física de Materiales in the Academic Commission (Facultad de Ciencias Físicas), November 2018 to July 2010
- Responsible for the Physics and Chemistry Section (Máster de Formación de Profesorado de E.S.O. y Bachillerato, Formación Profesional y Enseñanzas de Idiomas de la Universidad Complutense (since 2011)
- President of the Spanish Materials Society (January 2007-December 2016)
- Vicepresident of the Federation of European Materials Societies (FEMS) (2016-2017)
- President of the Federation of European Materials Societies (FEMS) (2018-2019)

Education and Outreach activities and leadership in this field

- Member of the Permanent Commission of the Projects ENCIENDE and ACIERTAS for the promotion of Science at School -Confederación de Sociedades Científicas de España (COSCE) since 2011.
- Responsible for Materials Education symposia in FEMS-EUROMAT editions since 2015
- Member of Advisory Board of International Materials Education Symposium (Granta & Cambridge University)
- Participation in Materials Week (SOCIEMAT-UPM) 2013 and 2014 Editions
- Leader of Complutense Team in AMASE (ERASMUS+ Project): Advanced Materials in Education (Budget 53204€ Period:2022-2024)
- Education and Outreach in Materials Science, SOCIEMAT 2019

Review work for evaluation agencies and international organizations

- Evaluator of the INTAS program of the European Union
- Member of the panel of experts of the Fundación Telefónica for the Nanotechnology group of the "We create the future" project
- Member of the panel of experts of the Ministry of Industry, Tourism and Trade through the OPTI Foundation for the "STUDY OF PROSPECTIVE ON THE INDUSTRIAL APPLICATIONS OF NANOTECHNOLOGIES IN SPAIN IN THE HORIZON 2020"
- Area Coordinator of the Evaluation Agency for the Quality of the University System of Castilla y León (Calls 2008 and 2009)
- Evaluation of projects in various calls of the ANEP and AVAP agencies
- Project evaluation for the Ministry of Science, Technology and Productive Innovation of the Argentine Republic
- Member of the ANECA Subcommittee for the elaboration of the MECES (Materials Engineering)
- Evaluation of Projects in the Call for aid for the promotion of scientific, technological and innovation culture (FECYT 2015)
- Member of the Materials Technology Panel (AVAP)

Young researchers training

I have supervised 8 Doctoral Theses (2 of them in progress), of which Manuel Herrera Zaldívar received the National Award of the UNAM (Mexico) and Belén Sotillo the Extraordinary Doctorate Award (UCM).

- Manuel Herrera Zaldívar is currently the leader of a research group at CICESE-UNAM (México)
- Ana I. Urbieta Quiroga is Assistant Professor (TU) at U. Complutense
- Belén Alemán Llorente is Head of R+D+i in Artificial Intelligence at 1millionbot

- Belén Sotillo Buzarra is Assistant (Ayudante Doctor) at U. Complutense
- Rocío Ariza García is postdoc at Leuven University (KUL)
- Fernando Pavón Martínez is Secondary School teacher

I have also directed (in the theme of the project) 5 Degree Thesis (Materials Engineering), 12 Degree Thesis (Physical Sciences) and 9 Master's Thesis (Applied Physics and Nanophysics). Some of them have got support for PhD studies in other institutions and others have got support to go on with PhD under my supervision (Dr. Belén Sotillo and Dr. Rocío Ariza; Micaela Rodríguez and Juan Francisco Ramos, PhD still in progress).

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

C.1. Indexed papers (10 selected from the last 10 years)

1. ***Selective Electrochemical Conversion of Carbon Dioxide to Formic Acid on Oxide-Derived Sn_xZn bimetallic Catalysts***; Jiwon Kim, Jae Yong Park, Jin Wook Lim, Won Seok cho, Kisoo Kim, Paloma Fernández and Jong-Lam Lee; ACS Appl. Energy Mater. 2022, 5, 11042−11051
2. ***Fabrication and Characterization of ZnO: CuO composites for their application in sensing processes;*** D.J. Ramos, B.Sotillo, A. Urbieta, P.Fernández; *IEEE Sensors Journal*, vol. 21, no. 3, pp. 2573-2580, 1 Feb.1, 2021
3. ***Growth by thermal evaporation of organized ensembles of ZnO structures on femtosecond laser induced periodic structures on silicon;*** B. Sotillo, J. Siegel, R. Ariza, J. Solis, P. Fernández; *Nanomaterials* **2020**, *10*(4), 731
4. ***Influence of yttrium doping on the structural, morphological and optical properties of nanostructured ZnO thin films grown by spray pyrolysis;*** O. Bazta, A. Urbieta, J. Piqueras, P. Fernández, M. Addou, J.J. Calvino, A.B. Hungría; Ceramics International 45 (6) (2019) 6842-6852
5. ***Luminescence and gas sensing properties of ZnO obtained from the recycling of alkaline batteries***; Carlos Sardá, Germán Escalante, Irene García-Díaz, Félix A. López, Paloma Fernández; Journal of Materials Science DOI: 10.1007/s10853-017-1667-4
6. ***Optical spectroscopy characterization of Cu doped ZnO nano- and microstructures grown by vapour-solid method;*** S. Señorís, B. Sotillo, A. Urbieta and P. Fernández; Journal of Alloys and Compounds, DOI: 10.1016/j.jallcom.2016.06.088
7. ***Light guiding and optical resonances in ZnS microstructures doped with Ga or In;*** B. Sotillo, P. Fernández, and J. Piqueras; Journal of Materials Chemistry C, 3, 10981-10989, 2015; **Seleccionado por la revista como "Hot Paper"**
8. ***Controlling plasma distributions as driving forces for ion migration during fs laser writing;*** T.T. Fernandez, J. Siegel, J. del Hoyo, B. Sotillo, P. Fernández, and J. Solis; J. Phys D: Appl. Phys. **48** (2015) 155101; *** Selected for cover**
9. ***Influence of Indium doping in the morphology of ZnS nanostructures grown by a vapor-solid method;*** B.Sotillo, Y. Ortega, P. Fernández and J. Piqueras; CrystEngComm, **15**, (2013) 7080-7088; *** Selected for Crystal Clear CrystEngComm blog**
10. ***Thermal growth and luminescence of wurtzite ZnS nanowires and nanoribbons;*** B. Sotillo, P. Fernández and J. Piqueras; J. Crys. Growth **348** (2012) 85-90

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

I have sent circa 200 contributions to national and international conferences, almost half as oral contributions, 25 invited and 2 plenaries. For this summary, considering the space

restrictions, I only indicate my participation at conferences as organizer during the last ten years

- NANO2022: Conference chair
- Member of Scientific Committee de EUROMAT 2015, 2017, 2019, 2023
- EUROMAT 2013, Chair of the Managing Committee (Sevilla 2013) and Member of Scientific Committee
- EUROMAT 2021: Conference Chair
- EUROMAT Symposium organizer : 2015, 2017, 2019
- Member of the permanent committee TEAM (Collaboration Academics) and member of editorial board Materials and Devices edited by CA
- Member of Managing Committee CARIBMAT 2016 and 2018
- FIMPART 2017 Conference co-chair
- TEAM 2017 Conference co- chair
- Member of the Scientific Committee Congreso Iberoamericano de Materiales, Argentina 2014

And the international communications sent during the last year 2022

Nano 2022; 6 - 10 junio 2022, Sevilla, España

- Niobium oxide nanowires grown by thermal oxidation for sensing applications; B. Sotillo, M. Olavarría, P. Fernández; Poster
- Optical resonant modes and waveguiding behavior in Li and RE codoped ZnO nanostructures; A. Urbieta, R. Ariza, F. Pavón, P. Fernández; Poster
- Selective growth of ZnO nanostructures by vapour-solid growth on ultrafast laser-structured Zn substrates for photocatalytic applications; R. Ariza, A. Urbieta, P. Fernández, M.E. Rabanal, J. Solis; Oral

Spring Meeting of the European Materials Research Society (E-MRS 2022) 30 mayo - 3 junio 2022, Online

- Oxygen-deficient niobium oxide layers with improved conductivity formed by powder bed selective ultrafast laser processing; B. Sotillo, R. Ariza, P. Fernández, J. Solis; Oral.

C.3. Projects (10 last years)

1. **Caracterización de láminas delgadas de óxidos de niobio y óxidos de tántalo para aplicaciones de almacenamiento de energía (CLOE)**
   Budget: 35000€; MR: Belén Sotillo Buzarra, (PR65/19-22464)
2. **Óxidos metálicos para una economía circular y sostenible;**
   Budget: 12000€; MR: Paloma Fernández Sánchez (Santander UCM PR87/19-22613)
3. **Functional nanomaterials based on metal oxides: synthesis and optimization of their optical and electronic properties for energy applications and sensors**
   Budget: 435600€; MR: Bianchi Méndez Martín and Ana I. Cremades Rodríguez (MAT2015-65274-R; 2016-2019
4. **Physical properties of elongated semiconductor nanostructures of technological interest**
   MCINN MAT 2009- 07882. Budget: 363000 €; Duration: 01/01/2010-31/12/2012; MR: Javier Piqueras de Noriega)
5. **Complex elongated nanostructures of oxides and compound semmiconductors of technological interest: optical and electrical properties**
   MINECO MAT 2012-31959. Budget: 274960 €; Duration: 01/01/2013- 21/12/2016; MR: Javier Piqueras de Noriega
6. **Imagine: Materials Science at sub-angstrom resolution**
   MCINN Consolider CSD 2009-00013. Budget: 496114 €; Duration: 17/12/2009-16/06/2016; Proyecto Consolider- MR: Javier Piqueras de Noriega