

Part A. PERSONAL INFORMATION		CV date	25/09/2018
First and Family name	Eva María Fernández Sánchez		
Social Security, Passport, ID number	44906568B	Age	39
Researcher numbers	Researcher ID	A-4630-2009	
	Orcid code	0000-0003-2085-0478	

A.1. Current position

Name of University/Institution	Universidad Nacional de Educación a Distancia		
Department	Departamento de Física Fundamental (Facultad de Ciencias)		
Address and Country	Paseo Senda del Rey 9, 28040, Madrid (SPAIN)		
Phone number	+34 913988863	E-mail	emfernandez@fisfun.uned.es
Current position	Ramón y Cajal Researcher	From	1/11/2015
Espec. cód. UNESCO	2210.01; 2211.01; 2206.99 (cluster); 221018; 220408; 221114		
Palabras clave			

A.2. Education

PhD	University	Year
Physics degree	Valladolid University	2001
Physics PhD	Valladolid University	2005

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

I have published 38 papers (23 of them as the first author) with have received more than 1350 citations altogether. Ten of my papers have received more than 25 citations (one of them has received more than 400 citations). The number of citations per year in the last 5 years is 113.6 citations/year.

21 papers have been published in first-quartile Journals of its subject category, Q1, (with high impact factor: one Angew. Chem. Int., one Physical Review Letters and seven Physical Review B).

My Hirsch index is $h=16$.

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

I graduated in Physics at the Universidad de Valladolid in 2001. Then I started my research career with a FPU grant from the Spanish Ministry of Science to work on the PhD at the department of "Física Teórica, Atómica y Óptica" at the Universidad de Valladolid supervised by Prof. Luis C. Balbás. In December 2005 I obtained the PhD degree with the highest marks. My PhD was awarded Special Doctorate Award by the Universidad de Valladolid in the year 2007. From March 2006 to March 2008 I joined as postdoc at the Technical University of Denmark for two years. From March 2008 to October 2018 I worked as research at the Instituto de Ciencia de Materiales de Madrid (ICMM) of the Consejo Superior de Investigaciones Científicas (CSIC), firstly with a JaeDoc Postdoctoral contract and then with a Comunidad de Madrid postdoctoral contract associated to project. From November 2012 I develop my research work at the department of Física Fundamental of the Universidad Nacional de Educación a Distancia, initially with a competitive postdoctoral contract of the UNED and from noviembre 2015 with a Ramón y Cajal contract.

I have published 38 papers (one Angew. Chem. Int., one Physical Review Letters and seven Physical Review B) with have received more than 1350 citations altogether. Ten of my papers have received more than 25 citations (one of them has received more than 400 citations) and my Hirsch index is $h=16$. I have participated in 11 research project, one international project funding by the Danish Research Agency and 6 national projects (one of them in collaboration with Osnabrück University, Germany).

I was awarded with the Prize of the L'Oreal-UNESCO for Women in Science in Spain year 2017, and the Prize of the Real Sociedad Española de Física – Fundación BBA to Young Researchers in theoretical physics in its 21th edition (year 2007) in 2008.

My research is focused on the analysis of the structural, electronic and thermodynamic properties, by means of first-principles simulation methods, of new tentative materials for applications in catalysis.

I work in two research lines:

1. Nanometric cluster

Improvement and proposal of catalysts for the adsorption of H₂, O₂, CO and CO oxidation on doped clusters. The main interest is the search for new catalysts more active for the oxidation of CO and more efficient materials for hydrogen storage. The analysis of the role played by the dopant atom in the reactivity of these aggregates according to their size and composition allows to improve or design new more efficient catalysts for the oxidation of CO (avoiding or reducing their emission to the atmosphere since when inhaled in high levels can cause death in a few minutes) or for hydrogen storage (the main difficulty for the use of hydrogen as an energy source is its storage in a safe, reliable and compact way).

2. Analysis of the liquid-solid interface: the wetting problem in smooth and rough surfaces.

This problem presents a great technological interest as the partial or complete wetting of the surface by the fluid is one of the main influences on a catalyst efficiency. A partial wetting situation, where the fluid only wet a part of the catalyst, implies a low use of the catalyst, as well as the formation of hot spots and, in addition, affects its selectivity.

Part C. RELEVANT MERITS

C.1. Publications (including books)

1. Authors: M. Jia, J. Vanbuel, P. Ferrari, E. M. Fernández, S. Gewinner, W. Schöllkopf, A. Fielicke and E. Janssens.

Title: Size Dependent H₂ Adsorption on Al_nRh⁺ (n = 1–12) Clusters.

Journal: J. Chem. Phys. C Volume: 122 Pages: 18247 Year: 2018

Impact index: 4.536 Journal in the top 25%: Yes

2. Authors: J. Vanbuel, E. M. Fernández, P. Ferrari, S. Gewinner, W. Schöllkopf, L. C. Balbás, A. Fielicke and E. Janssens.

Title: Hydrogen chemisorption on singly vanadium doped aluminum clusters.

Journal: Chemistry-a European Journal Volume: 23 Pages: 15638 Year: 2017

Quotes: 3 Impact index: 5.317 Journal in the top 25%: Yes

3. Authors: E. M. Fernandez and L. C. Balbas.

Title: Multiple adsorption of molecular oxygen on small Au/Pd cationic clusters at finite temperature. A van der Waals density functional study.

Journal: The Journal of Chemical Physics. Volume: 114 Pages: 224308 Year: 2016

Impact index: 2.965 Journal in the top 25%: Yes

4. Authors: E. M. Fernández, E. Chacón, L. Macdowell and P. Tarazona.

Title: Mesoscopic Hamiltonian for the fluctuations of adsorbed Lennard-Jones liquid films.

Journal: Physical Review E Volume: 91 Pages: 062404 Year: 2015

Impact index: 2.252 Journal in the top 25%: Yes

5. Authors: E. Chacón, E. M. Fernández and P. Tarazona

Title: Effect of dispersion forces on the capillary-wave fluctuations of liquid surfaces.

Journal: Physical Review E Volume: 89 Pages: 042406 Year: 2014

Impact index: 2.288 Journal in the top 25%: yes

6. Authors: Moses, P. Georg; L. C. Grabow; E. M. Fernández; et al.

Title: Trends in Hydrodesulfurization Catalysis Based on Realistic Surface Models.

Journal: Catalysis Letters Volume: 144 Pages: 1425 Year: 2014

Quotes: 23 Impact index: 2.307 Journal in the top 25%: No

7. Authors: E. M. Fernández, E. Chacón, P. Tarazona, A. O. Parry and C. Rascón

Title: Intrinsic Fluid Interfaces and Nonlocality.

Journal: Physical Review Letters Volume: 111 Pages: 096104 Year: 2013

Quotes: 16 Impact index: 7.943 Journal in the top 25%: Yes

8. Authors: E. M. Fernández, A. Vega and L. C. Balbás
Title: Theoretical study of Al_nV^+ clusters and their interaction with Ar.
Journal: Journal of Chemical Physics Volume: 139 Pages: 214305 Year: 2013
Quotes: 3 Impact index: 3.164 Journal in the top 25%: Yes
9. Authors: E. M. Fernandez and L. C. Balbas.
Title: GGA versus van der Waals density functional results for mixed gold/mercury molecules and pure Au and Hg cluster properties.
Journal: Physical Chemistry Chemical Physics
Volume: 13 Pages: 20863 - 20870 Year: 2011.
Quotes: 18 Impact index: 3. Journal in the top 25%: Yes
10. Authosr: E. M. Fernández et. al. (1/11)
Title: Scaling relationships for adsorption energies on transition metal oxide, sulfide, and nitride surfaces.
Journal: Angewandte Chemie-International Edition
Volume: 107 Pages: 4683 Year: 2008
Quotes: 133 Impact index: 10.879 Journal in the top 25%: Yes

C.2. Research projects and grants

1. Name of the project: "Estructura y dinámica de fluidos complejos y sus interfases".
Funding institution: Ministerio de Ciencia e Innovación. Start-End date: 2011-2013
Head(s) researcher(s): Dr. Enrique Chacón Fuertes
Role: Researcher
2. Name of the project: "Estructura, dinámica y propiedades electrónicas de nanoagregados atómicos, nanoaleaciones, interfases y líquidos metálicos de interés tecnológico en espintrónica, catálisis y reactores nucleares".
Funding institution: Junta de Castilla y León. Start-End date: 2011-2013
Head(s) researcher(s): Dr. Andrés Aguado Rodríguez.
Role: Researcher
3. Name of the project: "Modelado y simulación de sistemas complejos".
Funding institution: Comunidad de Madrid. Start-End date: 2010-2013
Head(s) researcher(s): Dr. Enrique Lomba García
Role: Researcher
4. Name of the project: "Propiedades electrónicas y morfológicas de materiales nanoestructurados de interés en espintrónica, catálisis y nuevas aleaciones".
Funding institution: Ministerio de Ciencia e Innovación. Start-End date: 2009-2011
Head(s) researcher(s): Dr. Andrés Vega
Role: Researcher
5. Name of the project: "New electrode materials for hydrogen evolution".
Funding institution: Danish Research Agency, Ministry of Science Technology and Innovation, Dinamarca. Start-End date: 2005-2007
Head(s) researcher(s): Dr. Ib Chorkendorff
Role: Researcher
6. Name of the project: "Estudio teórico de propiedades estructurales, electrónicas y térmicas de sistemas nanodimensionales de interés tecnológico".
Funding institution: Ministerio de Ciencia y Tecnología. Start-End date: 2005-2007
Head(s) researcher(s): Dr. Andrés Vega
Role: Researcher

C.3. Contracts

November 2015 – present: Ramón y Cajal at the Universidad Nacional de Educación a Distancia (UNED).

November 2012 –October 2015: Postdoctoral Contrat at UNED.

January 2011- October 2012: Comunidad de Madrid postdoctoral contract associated to project at the Instituto de Ciencia de Materiales, Consejo Superior de Investigaciones Científicas (CSIC).

March 2008 - December 2010: JaeDoc; Postdoctoral contract at the Instituto de Ciencia de Materiales, CSIC.

2006-2008: Postdoctoral contract at the Technical University of Denmark. (DTU).

2002-2005: Formación del Personal Universitario (FPU) grant at the Universidad de Valladolid.

C.4. Awards

Prize of the L'Oreal-UNESCO for Women in Science year 2017.

Prize of the Real Sociedad Española de Física – Fundación BBA to Young Researchers in Theoretical Physics in its 21th edition (year 2007) in 2008.

My PhD was awarded a Special PhD Award by the Universidad de Valladolid in 2007.

C.5 Research stays

1. Center: Technical University of Denmark

City: Lyngby Country: Denmark Year: 2006-2008 Length: 2 years

Topic: New electrode materials for hydrogen evolution.

Responsible: Prof. J. K. Norskov

2. Center: Instituto de Ciencia de Materiales de Barcelona - CSIC

City: Barcelona Country: Spain Year: 2004 Length: 10 weeks

Topic: Study of O₂ and Cl adsorption on small gold cluster.

Responsible: Dr. Pablo Ordejón

3. Center: Universidad de Osnabrück (Alemania)

City: Osnabrück Country: Germany Year: March 2004 (2 weeks), November 2004 (10 days), May 2005 (10 days), November 2005 (10 days).

Topic: Reactivity of nanometric clusters. Responsible: G. Borstel

4. Center: Instituto de Física, Universidad Nacional Autónoma de México

City: México D. F. Country: México Year: 2003 Length: 3 months

Topic: Study of the electronic properties of Au-Cu bimetallic clusters.

Responsible: Dr. Ignacio L. Garzón

5. Center: Facultad de Ciencias, Universidad Autónoma de Madrid

City: Madrid Country: Spain Year: 2002 Length: 3 months

Topic: Ab-initio dynamic molecular study of geometric and electronic structure of alumina clusters.

Responsible: Prof. José M. Soler

C.6 Master thesis supervised

1. Master: Máster en Física de Sistemas Complejos.

Title: Estudio de la estructura del estado fundamental y la adsorción de O₂ de agregados nanométricos de oro dopados con vanadio Au_nV_m. Year: March 2016

2. Master: Máster de Formación de Profesorado de Educación Secundaria Obligatoria y Bachillerato, Formación Profesional y Enseñanzas de Idiomas.

Title: Estudio de las Ondas Electromagnéticas para Bachillerato y Acceso a la Universidad.

Year: July 2015

C.7 Memberships of scientific societies

Memberships of the Real Sociedad Española de Física from 2004.