

Parte A. DATOS PERSONALES		Date of the CV		06/06/2018
Name	Andres Arnau Pino			
ID	00692057-X	Age	57	
Researcher identity number	Researcher ID	H-7901-2012		
	Orcid code	0000-0001-5281-3212		

A.1. Current professional situation

Institution	Universidad del Pais Vasco			
Center	Departamento de Física de Materiales / Centro de Física de Materiales			
Address	Paseo Manuel de Lardizábal 5, San Sebastian 20018			
Phone	943018204	email	andres.arnau@ehu.es	
Professional category	University Professor	Starting date	09/08/2001	
UNESCO spec. codes	2211			
Keywords	Electronic properties, Surfaces, Condensed Matter			

A.2. Academic degrees (degree, University or Institution, date)

Bachelor/Master/Doctorate	University	Year
Lic. Ciencias Físicas	Universidad Autónoma de Madrid	1985
Dr. Ciencia Físicas	Universidad del País Vasco	1989

A.3. General indicators of scientific research quality / Indicadores generales de calidad de la producción científica

- 5 six-years periods recognised by ANECA (last one in 01/01/2017)
- 7 PhD supervised.
- 3867 citations according to ISI Web of Science, and 4295 according to Google Scholar
- 1508 citations to papers published in the last 6 years (20012-2017), i.e., 251 citations/year.
- 157 publications (ISI Web of Science), 95 in the first quarter of quality (Q1).
- h index = 34 (ISI Web of Science)

Parte B. FREE DESCRIPTION OF YOUR CV (3500 characters maximum, including blank spaces)

SCIENTIFIC TRAJECTORY

1) PH D thesis in 1989 UPV/EHU (supervisor Prof. P. M. Echenique). Post-doctoral stays at Queen’s University (Kingston, Canada) with Prof. E. Zaremba en 1990/1992 and Hahn Meitner Institut (Berlin, Germany) with Prof. N. Stolterfoht en 1994. Participation in HCM and TMR european networks in the early 90’s with experimental groups working in the field of interaction of ions with matter.

2) After having obtained a University Professor position in the Department of Physics of Materials UPV/EHU in 2001, I changed my field of research. I visited the Surface Science Research Centre in Liverpool (UK) in summer 2003 and 2005 invited by Prof. Werner Hofer and, in 2007, I visited the University Paul Sabatier in Toulouse (France) invited by Prof. Nicolas Lorente. Since then, I have been working in a research line based on ab initio calculations of the different nanostructured materials electronic structure, in close colaboration with Dr. Daniel Sanchez Portal, addressing several problems in the field of physico-chemistry of surfaces and electronic transport.

3) In the last four years, my research activity has focused on problems related to the electronic and magnetic properties of complex surfaces of different kind, including metal-organic coordination networks, self-assembled monolayers of molecules and graphene on metal surfaces. Recently, I have started a collaboration with Prof. Evgueni Chulkov in the field of electronic structure of topological insulators.

MAIN SCIENTIFIC ACHIEVEMENTS

- Description of the interaction of multicharged ions with matter during the the middle 90's, the most significant results appear in a review paper (297 citations) published in Surf. Sci. Rep. 27, 117 (1997).

- Collaboration with experimental groups with recognized international prestige during the last 15 years in the fields of physico-chemistry of solids and electronic transport. Among others, it is worth to mention the following groups: Prof. K. Kern inn Stuttgart, J. V. Barth in Munich, R. Berndt in Kiel, P. Garbandella in Zurich, H. Petek in Pittsburg o R. Miranda in Madrid. The results of these collaborations have been published in high impact journals, like Physical Review Letters, Nanoletters, ACS Nano, Nat. Nanotechnology or Nature Physics.

OBJECTIVES AND RESEARCH INTEREST

- I am interested in the interaction of ions with matter, the electronic and magnetic properties of nanostructured surfaces.

- I plan to continue collaborating with different experimental groups, as well as with theory groups. These latter are research groups at CFM like that of Dr. Sebastian Bergeret or Dr. Nicolas Lorente.

- During the next few years, I would like to study problems related to surface magnetism, including methodological aspects and also first principles calculations. In particular, I will focus in the description of the magnetic coupling of spins in metal-organic coordination networks, spin excitations in low dimensional systems and proximity effects in materials with strong spin-orbit coupling.

Parte C. MORE RELEVANT MERITS

C.1. Publications (10 relevant)

1. Mikhail M Otrokov, Ilya Klimovskikh, Fabian Calleja, Alexander Shikin, Oleg Vilkov, Artem G Rybkin, Dmitry Estyunin, Stefan Muff, Hugo Dil, Amadeo Lopez Vazquez de Parga, Rodolfo Miranda, Hector Ochoa, Francisco Paco Guinea, Jorge I Cerda, Eugene V Chulkov, Andres Arnau, "Evidence of large spin-orbit coupling effects in quasi-free-standing graphne on Pb/Ir(111)", 2D Materials 5, 035029 (2018).

2. María Blanco-Rey, Ane Sarasola, Corneliu Nistor, Luca Persichetti, Christian Stamm, Cinthia Piamonteze, Pietro Gambardella, Sebastian Stepanow, Mikhail M Otrokov, Vitaly N Golovach, Andres Arnau, "Magnetic properties of metal-organic coordination networks based on 3d transition metal atoms", Molecules 23, 964 (2018).

3. C García-Fernández, Emil Sierda, Mikel Abadía, Bernhard Bugenhagen, Marc Heinrich Prosenc, Roland Wiesendanger, Maciej Bazarnik, José Enrique Ortega, Jens Brede, Eduard Matito, Andrés Arnau, "Exploring the relation between intramolecular conjugation and band dispersión in one-dimensional polymers", J. Phys. Chem. C 121, 271118-27125 (2017).

4. Rémi Pétuya and Andrés Arnau, "Magnetic coupling between 3d transition metal adatoms on graphene supported by metallic substrates", Carbon 116, 599-605 (2017).

5. Elisabeth Gruber, Richard A Wilhelm, Rémi Pétuya, Valerie Smejkal, Roland Kozubek, Anke Hierzenberger, Bernhard C Bayer, Inigo Aldazabal, Andrey K Kazansky, Florian Libisch, Arkady V Krashennnikov, Marika Schleberger, Stefan Facsko, Andrei G Borisov, Andrés Arnau, Friedrich Aumayr, "Ultrafast electronic response of graphene to a strong and localized electric field", Nature Communications 7, 13948 (2016).

6. Fabian Calleja, Héctor Ochoa, Manuela Garnica, Sara Barja, Juan Jesús Navarro, Andrés Black, Mikhail M. Otrokov, Evgueni V. Chulkov, Andrés Arnau, Amadeo L. Vázquez de Parga, Francisco Guinea and Rodolfo Miranda, "Spatial variation of a giant spin-orbit effect induces electron confinement in graphene on Pb islands", Nat. Phys. 11, 43-47 (2015).

7. Marisa N. Faraggi, Vitaly N. Golovach, Sebastian Stepanow, Tzu-Chun Tseng, Nasiba Abdurakhmanova, Christopher Seiji Kley, Alexander Langner, Violetta Sessi, Klaus Kern and Andres Arnau, "Modeling Ferro- and Antiferromagnetic Interactions in Metal-Organic Coordination Networks", J. Phys. Chem. C 119 547–555(2015).

8. M. M. Otrokov, E. V. Chulkov and A. Arnau, "Breaking time-reversal symmetry at the topological insulator surface by metal-organic coordination networks", Phys. Rev. B 92, 165309 (2015).

9. A. Garcia-Lekue, T. Balashov, M. Olle, G. Ceballos, A. Arnau, P. Gambardella, D. Sanchez Portal, and A. Mugarza, "Spin-Dependent Electron Scattering at Graphene Edges on Ni(111)", Phys. Rev. Lett. 112, 066802 (2014).

10. Marisa N. Faraggi, Nan Jiang, Nora Gonzalez Lakunza, Alexander Langner, Sebastian Stapanow, Klaus Kern, and Andres Arnau, "Bonding and charge transfer in metal-organic coordination networks on Au(111) with strong acceptor molecules", J. Phys. Chem. C 116 , 24558–24565 (2012).

C.2. Projects (5 most relevant)

1. Title: "PROPIEDADES ESTRUCTURALES, ELECTRONICAS Y MAGNETICAS DE SISTEMAS EN LA ESCALA NANOMETRICA "

Ref. : FIS2016-75862-P

Funding Agency: Ministerio de Economía y Competitividad

Budget: 135.000,00 €

Start-Finish date: 30/12/2016 - 29/12/2019

Principal Investigator: Andrés Arnau Pino

2. Title: Reactividad, propiedades electrónicas y estructurales de sistemas complejos

Ref. : FIS2013-48286-C2-2-P

Funding Agency: MINECO

Budget: 151.250,00 €

Start-Finish date: 01/01/2014-31-12-2016

Principal Investigator: Iñaki Juaristi Oliden

3. Title: "Subvención Grupos de Investigación Consolidados y Alto Rendimiento UPV/EHU "

Ref. : IT-756-13

Funding Agency: Gobierno Vasco

Budget: 333.599,00 €

Start-Finish date: 01/01/2013-31/12/2018

Principal Investigator: Andrés Arnau Pino

4. Title: "Dinámica Electrónica, Transporte, Plasmónica y Microscopía Electrónica"

Ref. : FIS2010-19609-C02-01

Funding Agency: MICINN

Budget: 229.900,00 €,

Start-Finish date: 01/01/2011-31/12/2013

Principal Investigator: Andrés Arnau Pino

5. Title: "Subvención a Grupos de Investigación Consolidados y de Alto Rendimiento de la UPV/EHU "

Ref. : IT-366-07
Funding Agency: Gobierno Vasco
Budget: 561.968,00 €
Start-Finish date: 01/01/2007-31/12/2012
Principal Investigator: Andrés Arnau Pino

C.3. Contracts, technological transfer

C.4. Patents

C.5. Other Merits

- Supervision of 6 post-docs research projects.
- Principal Investigator in 7 Research Grants funded by UPV/EHU, GobiernoVasco and Plan Nacional (MEC, MINECO, etc)
- Referee of Phys. Rev. A, Phys. Rev. B, Phys. Rev. Lett., J. Am. Chem. Soc., J. Phys. Chem. C, Europhys. Lett., etc.
- 64 contributions in Conferences (12 invited talks)
- Organizer of Conferences, Workshops and Summer School UPV/EHU (information available in <http://dipc.ehu.es/>).
- Responsable of the UPV/EHU program “Master in Nanoscience” since 2013 (<http://www.ehu.es/es/web/masternanoscience/aurkezpena>).