

Part A. PERSONAL INFORMATION

CV date

12-09-2018

First and Family name	Fernando Álvarez		
Social Security, Passport, ID number	15976311 M	Age	53
Researcher numbers	Researcher ID	G-8836-2015	
	Orcid code	0000-0002-7038-0315	

A.1. Current position

Name of University/Institution	University of the Basque Country (UPV/EHU) –Materials Physics Center (CSIC-UPV/EHU)		
Department	Materials Physics		
Address and Country	Paseo de Lardizabal 5, 20018, San Sebastián, Gipuzkoa, Spain		
Phone number	+34 943018805	E-mail	fernando.alvarez@ehu.eus
Current position	Associated Professor	From	08-04-1997
Espec. cód. UNESCO	2206-2304-2211		
Palabras clave	Physics of polymeric and glass-forming systems. Molecular Dynamics Simulations		

A.2. Education

PhD	University	Year
Physics	University of the Basque Country (UPV/EHU)	1993

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

- Total number of publications 59
- h index: 21 (Average citations per item 35)
- Number of co-supervised PhD's: 4 (3 in the last ten years)
- Number of acknowledged six years periods of quality evaluated research: 4
- Total number of citations to date, according to ISI Web of Science: 2020

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

Early Scientific Activity:

Post-graduate Granted from 01/09/1988 until 01/09/1992

Post-doctorate Granted from 01/09/1992 until 01/10/1992

Lecturer (UPV/EHU) from 06/10/1992 until 30/07/1993

Temporary Associated Professor (UPV/EHU) from 01/10/1993 until 08/04/1997

My research career was born in the group created and leaded by Professor Colmenero who is an acknowledged expert in the field of polymers and soft matter. At the first stages, my tasks were rather focused in experimental physics and, as a part of my Ph. D. I was involved with techniques such as Broadband Dielectric Spectroscopy and, mainly, Photon Correlation Spectroscopy. My training in this technique was enriched with several stays at three of the worldwide most important laboratories in the field: the ones leaded by Prof. G. Fytas in Heraklion (Greece), Prof. C.H. Wang in Lincoln (Nebraska, USA) and Prof. E.W. Fischer in Mainz (Germany). However, departing from these, more experimental-like initial steps, my research soon reoriented into rather more fundamental-like subjects, mainly of a computational nature. In this way, I contributed to my very first scientific paper, Phys. Rev. B 44 (1991) 7306 that has known a wide recognition, and has been citated more than 400 times nowadays. In this work it was presented what has been termed as the AAC-method in the literature in order to translate and study in a combined way information obtained from experimental techniques acting either in the time or in the frequency domains. This methodology turned out to be useful not only in my field of polymers and soft-matter, but also

in very different ones. As an example I would like to cite a multidisciplinary work involving such miscellaneous branches of science as photonics and histopathology, Applied Optics 42, 16, 2295-3004 (2003). Due to my expertise in the computational details of stretched exponential-like time response techniques, this work had been assigned, in the first place, to me in order to review it. However, after examining my corrections, the authors considered not only to include them in their work, but also my name among the authors.

Nevertheless, in the last years, my main research activities, although still of a computational nature, have evolved into the field of Molecular Dynamics Simulations (MDS), namely fully atomistic ones. Right now I am the responsible of this area in Prof. Colmenero's Group. During the last ten years about a dozen people have been, in more or less extent, working in this area, under my assistance. Some of them were already postdocs, but for another six, MDS constituted an essential part of their PhD thesis. Moreover, the algorithms I developed in order to combine the MDS results with experimental results mainly from Neutron Scattering techniques contributed to the Review Soft Matter 8, 32, 8257-8270 which is considered to be a reference in the field.

I think it is also noteworthy to mention that the that appears in the first place in the following Publications list, deserved not only to be considered as "Editor's Choice" of the publication (Physical Review Letters) but also was selected for a "Viewpoint" in "Physics".

Part C. RELEVANT MERITS

C.1. Publications (including books)

1) Arbe, A.; Malo de Molina, P.; Alvarez, F. and Colmenero, J. (2016)
"Dielectric Susceptibility of Liquid Water: Microscopic Insights from Coherent and Incoherent Neutron Scattering"
Physical Review Letters 117, 18, 185501
DOI: [10.1103/PhysRevLett.117.185501](https://doi.org/10.1103/PhysRevLett.117.185501)

2) Malo de Molina, P., Alvarez, F.; Frick B.; Wildes, A.; Arbe, A. and Colmenero, J. (2016)
"Investigation of the dynamics of aqueous proline solutions using neutron scattering and molecular dynamics simulations"
Physical Chemistry Chemical Physics 19, 40, 27739-27754
DOI: [10.1039/c7cp05474b](https://doi.org/10.1039/c7cp05474b)

3) Khairy, Y., Alvarez, F., Arbe, A. and Colmenero, J. (2014)
"Collective Features in Polyisobutylene. A Study of the Static and Dynamic Structure Factor by Molecular Dynamics Simulations"
Macromolecules 47, 1, 447-559
DOI: [10.1021/ma401669y](https://doi.org/10.1021/ma401669y)

4) Colmenero, J., Alvarez, F., Khairy, Y. and Arbe, A. (2013)
"Modeling the collective relaxation time of glass-forming polymers at intermediate length scales: Application to polyisobutylene"
Journal of Chemical Physics 139, 4, 044906-1 (6 páginas)
DOI: [10.1063/1.4816127](https://doi.org/10.1063/1.4816127)

5) Garcia-Yoldi, I., Alvarez, F. and Colmenero, J. (2013)
"On the interactions between poly(ethylene oxide) and graphite oxide: A comparative study by different computational methods"
Journal of Chemical Physics 138, 9, 094308-1 (11 páginas)
DOI: [10.1063/1.4790169](https://doi.org/10.1063/1.4790169)

6) Arbe, A., Alvarez, F. and Colmenero, J. (2012)
"Neutron scattering and molecular dynamics simulations: synergetic tools to unravel structure and dynamics in polymers"
Soft Matter 8, 32, 8257-8270
DOI: [10.1039/c2sm26061a](https://doi.org/10.1039/c2sm26061a)

- 7) Brodeck, M, Alvarez, F., Colmenero, J and Richter, D (2012)
"Single Chain Dynamic Structure Factor of Poly(ethylene oxide) in Dynamically Asymmetric Blends with Poly(methyl methacrylate). Neutron Scattering and Molecular Dynamics Simulations"
Macromolecules 45, 1, 536-542
DOI: [10.1021/ma2016634](https://doi.org/10.1021/ma2016634)
- 8) Perez-Aparicio, R, Alvarez, F, Arbe, A., Willner, L., Richter, D., Falus, P. and Colmenero, J. (2011)
"Chain Dynamics of Unentangled Poly(ethylene-alt-propylene) Melts by Means of Neutron Scattering and Fully Atomistic Molecular Dynamics Simulations"
Macromolecules 44, 8, 3129-3139
DOI: [10.1021/ma102909r](https://doi.org/10.1021/ma102909r)
- 9) Capponi, S., Arbe, A., Alvarez, F., Colmenero, J., Frick, B. and Embs, J. P (2009)
"Atomic motions in poly(vinyl methyl ether): A combined study by quasielastic neutron scattering and molecular dynamics simulations in the light of the mode coupling theory"
Journal of Chemical Physics 131, 20, 204901-1 (12 páginas)
DOI: [10.1063/1.3258857](https://doi.org/10.1063/1.3258857)
- 10) Tyagi, M., Arbe, A., Alvarez, F., Colmenero, J. and Gonzalez, M. A. (2008)
"Short-range order and collective dynamics of poly(vinyl acetate): A combined study by neutron scattering and molecular dynamics simulations"
Journal of Chemical Physics 129, 22, 224903-1 (14 páginas)
DOI: [10.1063/1.3028210](https://doi.org/10.1063/1.3028210)

C.2. Research projects and grants

- 1) Reference: IT-654-13
Título: POLIMEROS Y MATERIALES NO-CRISTALINOS
Benefit Institution:UPV/EHU; Funding Institution:GOBIERNO VASCO
Leading Researcher: JUAN COLMENERO
Duración: 01/01/2013 - 31/12/2018
Funding amount (in euros):193.999
- 2) Reference: MAT2012-31088
Title ESTRUCTURA Y DINAMICA DE MATERIALES COMPLEJOS BASADOS EN POLIMEROS
Benefit Institution:UPV/EHU; Funding Institution:MINISTERIO DE ECONOMIA Y COMPETITIVIDAD
Leading Researcher: JUAN COLMENERO
Duration:01/01/2013 - 31/12/2015
Funding amount (in euros):370.000
- 3) Reference: IT-436-07
Title "POLÍMEROS Y MATERIALES NOCRISTALINOS", SUBVENCION A GRUPOS DE INVESTIGACION DEL SISTEMA UNIVERSITARIO VASCO
Benefit Institution:UPV/EHU; Funding Institution:GOBIERNO VASCO
Leading Researcher: JUAN COLMENERO
Duration:01/10/2007 - 31/12/2012
Funding amount (in euros):363.433

4) Reference: MAT2007-63681

Title POLIMÉRICOS MULTICOMPONENTE, NANOESTRUCTURADOS Y BIOLÓGICOS

Benefit Institution:UPV/EHU; Funding Institution:M.E.C.

Leading Researcher: JUAN COLMENERO

Duration:01/10/2007 - 03/08/2012

Funding amount (in euros):764.720

5) Reference: Fp6-2002-Nmp1, Contract 502235-2 PRIORITY 3NMP

Title SOFTCOMP. EUROPEAN NETWORK OF EXCELLENCE

Benefit Institution:UPV/EHU; Funding Institution:UNION EUROPEA

Participación como investigador.

Duration:27/12/2004 - 13/12/2007

Funding amount (in euros):186.864

6) Reference: MAT2004--01017

Title DE LO SIMPLE A LO COMPLEJO: DINÁMICA MOLECULAR EN MATERIALES POLIMÉRICOS MULTI-COMPONENTES Y NANO-CONFINADOS

Benefit Institution:UPV/EHU; Funding Institution:M.E.C.

Leading Researcher: JUAN COLMENERO

Duration:27/12/2004 - 13/12/2007

Funding amount (in euros):335.800

C.3. Contract

C.4. Patents

C.5. Language Skills

English - Certificate of Proficiency (University of Cambridge) and "Aptitud" Certificate at (Escuela Oficial de Idiomas)

French - Oral Understanding

German - Reading Understanding

Euskera – "Gaitasun" Certificate EGA (Basque Government)

C.6. Teaching Experience

- Number of acknowledged five years periods of quality evaluated teaching: 5

- Last teaching evaluated year: 2015

Besides the non-stop teaching activity since 1992 in different physics and mathematics related subjects at the San Sebastián Faculty of Chemistry in the University of the Basque Country (UPV/EHU), I have also been involved through these years in lecturing at the Ph D Program called "Materials Science and Technology" that was awarded by the Spanish Education Ministry with an "Excellence Mention".

Likewise, since its creation, I have also been a lecturer at the "Master in Nanoscience" hold at the Materials Physics Center.