MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

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

CV date	21-10-2022

Part A. PERSONAL INFORMATION

First name	Antonio		
Family name	Nieto-Márquez Ballesteros		
Gender (*)	Man	Birth date	
ID number			
e-mail	Antonio.nieto@upm.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-2784-787X	

(*) Mandatory

A.1. Current position

Position	Tenured Professor (PTU)		
Initial date	26/09/2017		
Institution	Universidad Politécnica de Madrid		
Department/Center	Ing. Mecánica, Química y Diseño Industrial	ETSIDI	
Country	Spain	Tel number	0034 0677718
Key words	Chemical engineering, waste management, catalysis, adsorption		

A.2. Previous positions (research activity interuptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
24/02/21-17/08/21	Interruption. Born of twin daughters
26/10/10-25/09/17	Interim Tenured Professor. ETSIDI-UPM
01/01/10-25/10/10	Assistant professor. Faculty of Chemistry-UCLM
01/09/2005-31/12/2009	FPI researcher. Faculty of Chemistry-UCLM

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Chemical Engineer, MsC	Universidad de Castilla-La Mancha	2005
Chemical Engineer, PhD	Universidad de Castilla-La Mancha	2010

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

I have conducted my research in the following topics:

-*Carbon nanostructures*.This topic was my first contact with research. It was started during my Master thesis in the University of Kentucky (USA) and continued during my PhD thesis at the University of Castilla-La Mancha and Heriot-Watt University (Scotland). I focused on the synthesis, characterization and catalytic applications of carbon and nitrogen-carbon nanostructures. 13 JCR publications and 1 book chapter were derived from this period, among which, a review paper on Carbon Nanospeheres (J. Mater. Chem.) is highly cited (> 200 citations/10 years).

-*Activated carbons from waste*. This topic was developed during my first years at ETSIDI-UPM. Cork, sludge and scrap tires were upgraded as activated carbons and used as adsorbents for gaseous and liquid pollutants. 4 JCR publications were derived, including a granted international collaboration with Pontificia Universidad Católica del Perú. Recently, we collaborated with the company Sorigué through a contract (Art. 83, 17500 €) to apply this technology.

-*Biomass valorization*. This topic was developed in collaboration with the University of Valladolid (2012-2018) funded by two National Plan research projects (ENE2014-53459-R,

196020 € and CTQ2011-27347, 145200 €). 8 JCR works were published, being worth mentioning a publication in Green Chemistry (IF 9.31). In addition, a PhD thesis was supervised and two awards were obtained in 2017: Santander YUZZ and Green Weekend Valladolid for best business plan in green technologies.
-*Photocatalysis*. Since 2012, I have worked in photocatalysis. First, in collaboration with the University of Limoges to develop low cost floating photocatalysts for waste water treatment. This project received French regional funding (50000 €) and conducted to a Spanish Patent (ES 2428667 R1). 2 JCR publications were derived from this topic. Recently, I collaborate with a company (Proquicesa S.L.) to test the efficiency of photocatalytic paints for indoor pollution though a private (Art. 83, 1500 €) contract. Results were explained in the online event organized by the Iberian Association of Photocatalysis*: AIF, 10 años, 10 premios*.
-*Fly ash treatment*. Since 2011 I have collaborated with industry in the development of inertization/stabilization treatments for fly ash, through two contracts (Art. 83, 20000 and 14000 €). 1 JCR publication was derived from this work. A project with public funding (100K €) in this topic has been granted as Principal Investigator.
-*Intensification in distillation*. Since 2019, I have collaborated with industry in the optimization of the batch distillation process to recover high value solvents from paint industry. This work conducted to two contracts (Art. 83, 1210 and 1765 €) and I have been granted with a SDGine scholarship (Marie S. Curie Action) to supervise an Industrial PhD Thesis in this topic.
In addition, given my catalytic background, other collaborations, mainly related to *catalytic H_2 production* have conducted to 2 JCR publications.
In sum, I have authored **35 JCR publications**, being 28 of them rated as Q1, 14 of them derived from international collaborations and acting in 13 as corresponding author, with a **h-index** of **19** and more than **1000 citatons** (SCOPUS). I am the author of **1 patent** (national) and **45** contributions to **congresses**.
As explained above, an important part of my research activity has been developed in collaboration with industry through private contacts (Art. 83) in the following topics:
-*Fly ash:* Saica, 2019, 14000 €. Valoriza Servicios Medioambientales, 2011, 20000 €.
-*Analysis of pollution for space companies:* Thales Alenia, 2019, 6000 €. University AS-NW (Switzerland), 2017, 1694 € (Principal Researcher). INTA, 2017, 12000 €, SENER, 2014, 1694 € (Principal Researcher).
-*Building materials:* Hydroclinker S.L., 2015, 12500 €
-*Biopolymers:* Grupo Entre Compas, 2019, 3765 € (Main Researcher)
-*Distillation:* PPG Ibérica-Insolatio Pamasol SL, 2019, 1210 and 1765 € (Main Researcher)
-*Waste upgrading:*. Sorigué, 2020, 15542 € (Main Researcher) and 2021, 2000 €.
-*Photocatalysis*: *Proquicesa S.L*. 2022, 1500 € (Main Researcher)
Finally, I am regular reviewer of different JCR journals and Topic Editor in Frontiers in Chemistry. I have evaluated project proposals for UEM, UC3M, U. Oviedo and Poland National Science Centre and a researcher career for the South African National Research Foundation. I am regular reviewer of private R&D projects for EQA.
During 2019 I acted as head of the UPM Research Group "Análisis y Caracterización Optica de Materiales".

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

C.1. Publications

1. *Authors:* E. Atanes, B. Cuesta-Fernández, A. Nieto-Márquez, F. Fernández-Martínez. *Title:* A mixed separation-immobilization method for soluble salts removal and stabilization of heavy metals in municipal solid waste incineration plants. *Reference*: Journal of Environmental Management, 240 (2019) 359-367
2. *Authors:* M.J. Martín de Vidales, A. Nieto-Márquez, D. Morcuende, E. Atanes, F. Blaya, R. Soriano, F. Fernández-Martínez. *Title:* 3D printed floating photocatalysts for wastewater treatment *Reference*: Catalysis Today, 318 (2019) 157-163
3. *Authors:* A. Romero, J.A. Díaz, A. Nieto-Márquez, N. Essayem, E. Alonso, C. Pinel . *Title:* One-pot catalytic hydrolysis/hydrogenation of cellobiose into hexitols over Ru/Al-MCM-48. *Reference:* Microporous and Mesoporous Materials, 271 (2018) 186-195

4. *Authors:* A. Romero, A. Nieto-Márquez, E. Alonso. Title: Bimetallic Ru:Ni/MCM-48 catalysts for the effective hydrogenation of D-glucose into sorbitol. *Reference:* Applied Catalysis A: General, 529 (2017) 49-59
5. *Authors:* A. Nieto-Márquez, A. Pinedo-Flores, G. Picasso, E. Atanes, R. Sun Kou. Title: Selective adsorption of Pb^{2+}, Cr^{3+} and Cd^{2+} mixtures on activated carbons prepared from waste tires. *Reference:* Journal of Environmental Chemical Engineering, 5(1) (2017) 1060-1067
6. *Authors:* A. Romero, D. Cantero, A. Nieto-Márquez, C. Martínez, E. Alonso, M.J. Cocero. *Title:* Supercritical water hydrolysis of cellulosic biomass as effective pretreatment to catalytic production of hexitols and ethylene glycol over Ru/MCM-48. *Reference:* Green Chemistry, 18 (2016) 4051-4062
7. *Authors:* A. Nieto-Márquez, E. Atanes, J.Morena, F. Fernández-Martínez, J.L. Valverde. *Title:* Upgrading waste tires by chemical activation for the capture of SO_2. *Reference:* Fuel Processing Technology, 144 (2016) 274-281
8. *Authors:* A. Nieto-Márquez, E. Atanes, A. Fernández, S. López-Villa, A. Cambra, F. Fernández-Martínez. *Title:* Effective adsorption of sulfur dioxide by activated carbons containing calcium carbonate from deinking paper sludge. *Reference:* Industrial and Engineering Chemistry Research, 53 (2014) 15620-15628
9. *Authors:* M. Rueda, L.M. Sanz-Moral, A. Nieto-Márquez, P. Longona, F. Matea, A. Martín. *Title:* Production of silica aerogel microparticles loaded with ammonia borane by batch and semicontinuous supercritical drying techniques. *Reference:* The Journal of Supercritical Fluids, 92 (2014) 299-310
10. *Authors:* E. Atanes, A. Nieto-Márquez, A. Cambra, M.C. Ruíz-Pérez, F. Fernández-Martinez. *Title:* Adsorption of SO_2 onto waste cork powder-derived activated carbons. *Reference:* Chemical Engineering Journal, 211-212 (2012) 60-67

C.2. Congress

1. *Authors:* A. Nieto-Márquez, A. Díaz. *Title:* Aplicaciones fotocatalíticas en interiores. Aplicación de pinturas en aulas universitarias. *Congress: Gala AIF, 10 años, 10 premios. Organizer:* Asociación Ibérica de Fotocatálisis. *Participation:* Invited conference. *Date and Place*: 24/11/2021, online.
2. *Authors:* A. Nieto-Márquez. *Title:* Carbon nanostructures in catalysis. *Congress: Congreso Latinoamericano de Química. Organizer:* Federación Latinoamericana de Química. *Participation:* Invited conference. *Date and Place*: October 2014, Lima.

C.3. Research projects

1. *Project*: Valorización de cenizas volantes procedentes de la incineración de Residuos Sólidos Urbanos. *Funding Body:* Ministerio de Ciencia e Innovación. *Main Researchers:* Antonio Nieto-Márquez y Evangelina Atanes. *Amount Funded:* 163350 €. *Dates:* September 2022/August 2025 (36 months).
2. *Project:* RES2+U (Responsables, Sostenibles, Universitarios). *Funding body:* Universidad Politécnica de Madrid. Santander Universidades. *Main researcher:* Carmen Avilés Palacios. *Researchers:* D. Martín Sánchez, F. Olivieri, G. Romero, M. Álvarez A. Nieto-Márquez. *Amount funded:* 22500 €. *Dates:* January2020/December 2020 (12 months)
3. *Project:* Chemical recycling of CO_2 by hidrotermal conversión in a continuous reactor ENE2014-53459-R *Funding body:* Ministerio de Economía y Competitividad. *Main researcher:* Ángel Martín, Mª Dolores Bermejo. *Researchers:* L.M. Sanz, M. Rueda, A.I. Bradao, J. McGregor, A. Nieto-Márquez. *Amount funded:* 196020 €. *Dates:* January 2015/June 2018 (36 + 6 months)
4. *Project:* Synthesis of catalysts under supercritical CO_2 for the selective conversion of cellulose in platform chemicals. CTQ2011-27347. *Funding body:* Ministerio de Ciencia e Innovación. *Main researcher:* Gloria Esther Alonso. *Researchers:* R. Mato, O. Benito, T. Adschiri, A. Nieto-Márquez. *Amount funded:* 145200 €. *Dates:* January 2012/June 2015 (36 + 6 months)

5. *Project:* Low cost system for water depollution. *Funding body:* Limousin Regional Council (Francia). *Main researcher:* Fabrice Rossignol, A. Nieto-Márquez. *Researchers:* E. Atanes, F. Fernández, C. Dagot. *Amount funded:* 50000 € . *Dates:* September 2012/August 2013 (12 months)

C.4. Contracts, technological or transfer merits

1. *Project: "*Fly ash stabilization treatment". *Funding company*: Sociedad Anónima Industrias Celulosas Aragonesas-SAICA S.A. *Main researcher:* E. Atanes Sánchez. *Researchers:* A. Nieto-Márquez, M.J. Martín de Vidales Calvo J. Díaz López, A.J. Dos Santos García, V. Blanco Gutiérrez, L. Isidoro García, F. Fernández-Martínez. *Amount funded:* 14000 €. *Dates:* December 2019/November 2020 (11 month).
2. *Project "*RESACTIV. Pyrolysis of waste tires". *Funding company*: ACSA Obras e infraestructuras S.A.U. Grupo Sorigué. *Main researcher:* A. Nieto-Márquez. *Researchers:* J.A. Díaz López, E. Atanes Sánchez, M.J. Martín de Vidales Calvo, F. Fernández-Martínez. *Amount funded:* 15542 €. *Dates:* September 2020/February 2021 (5 months).
3. *Project:* "Evaluation of recovery capacity of MIBK by batch distillation from a resin". *Funding body:* Insolatio Pamasol SL. *Main researcher:* A. Nieto-Márquez . *Researchers:* J.A. Díaz López, L. Isidoro. *Amount funded:* 1765 €. *Dates:* June 2019/July 2019 (1 month)
4. *Project:"*Separation of MIBK-water mixtures by batch rectification". *Funding body:* Insolatio Pamasol SL. *Main researcher:* A. Nieto-Márquez. *Researchers:* J.A. Díaz López, L. Isidoro. *Amount funded:* 1210 €. *Dates:* May 2019 (2 weeks)
5. *Project* "Study of biodegradability of plastic straws" *Funding company*: Grupo Entre Compas InVino Veritas Representaciones S.L. *Main researcher*: A. Nieto-Márquez. *Researchers*: J.A. Díaz López, E. Atanes Sánchez, A.J. dos Santos García, M.J. Martín de Vidales Calvo, V. Blanco Gutiérrez. *Amount funded*: 3765 €. *Dates: May* 2019/July 2019 (2 months)
6. *Project:* "Pollution control according to ECSS-Q-ST-70-05C". *Funding body:* University AS-NW (Switzerland). *Main researcher:* Antonio Nieto-Márquez. *Researchers:* F. Fernández, E. Atanes Sánchez, A.J. dos Santos. *Amount funded:* 1694 €. *Dates:* October 2017/January 2018 (4 months)
7. *Project* "Analysis of the pollution of witness plates following ESA Standard ECSS-Q-ST-70-05C". *Funding company*: Instituto Nacional de Técnica Aeroespacial (INTA). *Main researcher*: E. Atanes Sánchez. *Researchers*: A.J. Dos Santos García, F. Fernández-Martínez, A. Nieto-Márquez, M.J. Martín de Vidales Calvo. *Amount funded*: 12000 €. *Dates*: May 2017/December 2017 (8 months)
8. *Project* "Development of novel building materials". *Funding company*: Hydro Clinker, S.L. *Main researcher*: F. Fernández Martínez. *Researchers*: E. Atanes Sánchez, A. Nieto-Márquez, A.J. Dos Santos García. *Amount funded*: 12500 €. *Dates*: September 2015/September 2016 (12 months)
9. *Project* "Research and development of a stabilization method for solid waste incineration fly ash". *Funding company*: Valoriza Servicios Medioambientales, S.A.. *Main researcher*: F. Fernández-Martínez. *Researchers*: E. Atanes Sánchez, A. Nieto-Márquez, Francisco Hernández Olivares. *Amount funded*: 20000 €. *Dates*: July 2011/July 2013 (24 months)
10. *Patent. Authors:* F. Fernández-Martínez, E. Atanes, A. Nieto-Márquez, A. Cambra, C. Dagot, F. Rossignol. *Reference*: Spanish Patent ES 2428667 R1 *Title:* A material that floats in water and has a cork nuclei covered by a layer of activated carbon and a layer of titanium dioxide, procedure of obtention and use. *Priority:* Spain. *Date:* 31-08-2015. *Applicant*: Universidad Politécnica de Madrid (77,5%) and University of Limoges (22,5%). *Under exploitation:* No