MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE ABREVIADO (CVA)

CV date	11/12/2025

Part A. PERSONAL INFORMATION

First name	**Juan**		
Family name	**Garcia Rodriguez**		
Gender (*)		Birth date	
ID number			
e-mail	jgarciar@ucm.es	URL Web: https://ucm.es/gcyps	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-4850-1491	

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	26-10-2018		
Institution	Complutense University of Madrid		
Department/Center	Chemical Engineering and Materials Department	Faculty of Chemistry	
Country	Spain	Teleph. number	+34 91 394 5207
Key words	Circular economy, Carbon materials, Environmental technology, Chemical Engineering, Wastewater treatment		

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

Period	Position/Institution/Country/Interruption cause
2009-2018	(Associate Professor) TU, Complutense University of Madrid/Spain
2006-2009	PCD (Contratado Doctor Professor), Complutense University of Madrid/Spain
2002-2006	Assistant Professor (Doctor) Complutense University of Madrid/Spain
2000-2002	Postdoctoral contract, Extremadura University/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Ph.D in Chemical Engineering	Extremadura University	2000
Chemistry (Degree). Industrial speciality	Extremadura University	1996

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

Juan Garcia has been a Full Professor of Chemical Engineering in the Department of Chemical and Materials Engineering of the Complutense University of Madrid since 2018. He received a PhD in Chemical Engineering in 2000 and has carried out **research stays** in Porto University (Porto, Portugal, 2003), Bath University (Bath, United Kingdom, 2006), Concepción University (Concepción, Chile, 2012) and Polytechnic Institute of Bragança (Bragança, Portugal, 2016). Since 2002 he has belonged to **CyPS (UCM) research group,** first member and then **director** in 2022. The research group **CyPS was recognised with the Excellent mark by Agencia Estatal de Investigación in the last evaluation**, 2023. He has published **139 papers in JCR journals** (2/3 in Q1, **44 in 2020-2024** (www.ucm.es/gcyps)) (**H index: 46 and more than 6900 citations**). He has sent more than 150 communication to congresses (2/3 internationals). 18 book chapters. He has **supervised 9 doctoral theses (2 have been industrial doctorates)** (2 with Extraordinary Award, 4 with International Mention and 2 with Industrial PhD Mention), more than 30 Master Thesis and 18 supervision of international students. So far, he has **participated in more than 23 research projects financed by public funds, European, Autonomic, National** (in **11 of them as main researcher**) and in more than **29 projects funded by companies** (Art. 83, 60) (in **19 of them as main researcher**). He is co-author of **1 industrial property product.** He has participated as **reviewer** of the German-Israeli Water Technology Cooperation Program (The Israeli Ministry of Science and Technology), Ministry of Science and Technology of the Argentine Republic (**ANPCyT**), Science and Technology Foundation (**FCT**) of the Portuguese Ministry of Education and Science and the **Nottingham University**, UK, Research projects of **Madrid Community**. He is a reviewer of **ANEP** and **State Research Agency projects** (since 2010). Moreover, he has cooperated in the **organization of several scientific events and chairman of the international organising committee**. **5th Technology and Knowledge Transfer Award of the Complutense University**.

Transfer Award to the Project of the research group entitled "Development of cyclic adsorption processes applied in the chemical industry". **Member of the monitoring evaluation panel of the PhD Programme of the UCM** from 2019 to the present, and **Member of the Research Committee of the Faculty of Chemistry** since 2010. He is a member of the Spanish Carbon Group (GEC). Editor of special issues of JCR-indexed scientific journals such as Environmental Science and Pollution Research (Springer), Catalysis (MDPI), Applied Sciences (MDPI), Journal of Envornmental Management (JEMA). Award of the Portuguese Association of Ph.D. studies (APDF) "Celestino da Costa / Jean Perrin" for his contribution to the studies of carbon nanotubes, as part of the research team of the FEUP. He has **four periods of investigation** (4 sexenios-Last period 2015-2020).

Part C. RELEVANT MERITS
C.1. Publications (only project-related, last 5 years)

1. Hernández-Abreu, A.B., Álvarez-Torrellas, S., Águeda, V.I., Larriba, M., Delgado, J.A.,Calvo, P.A., **García, J**. Enhanced removal of the endocrine disruptor compound Bisphenol A by adsorption onto green-carbon materials. Effect of real effluents on the adsorption process. *Journal of Environmental Management*, 266, 110604 (***2020***). **Q1**.
2. Serra-Perez, E., Ferronato, C., Giroir-Fendler, A., Álvarez-Torrellas, S., Ovejero, G., **Garcia,J.** Highly Efficient Ru supported on carbon nanosphere nanoparticles for ciprofloxacin removal: effects of operating parameters, degradation pathways, and kinetic study. *Industrial and Engineering Chemistry Research*, 59, 15515-15530 (***2020***). **Q1**.
3. Serra-Pérez, E., Álvarez-Torrellas, S., Águeda, V.I., Larriba, M., Ovejero, G., **García, J**.Effective removal of naproxen from aqueous solutions by CWAO process using noble metals supported on carbon nanospheres catalysts. *Separation and Purification Technology*, 257, 118084 (***2020***). **Q1**.
4. Serra-Pérez, E., Álvarez-Torrellas, S., Águeda, V.I., Larriba, M., Ovejero, G., **García, J.** Effective removal of naproxen from aqueous solutions by CWAO process using noble metals supported on carbon nanospheres catalysts. *Separation and Purification Technology*. 257 (***2021***) 118084. **Q1,**
5. Huaccallo-Aguilar, Y., Diaz de Tuesta, J.L., Alvarez-Torrellas, S., Gomes, H.T., Larriba, M., Ovejero, G., **García, J.** New insights on the removal of diclofenac and ibuprofen by CWPO using a magnetite-based catalyst in an up-flow fixed -bed reactor. *Journal of Environmental Management*. 281 (2021) 111913. **Q1**.
6. Huaccallo-Aguilar, Y., Alvarez-Torrellas, S., Larriba, M., Águeda, V.I., Delgado, J.A., Ovejero, G., Peres, J.A., **García, J**. Naproxen removal by CWPO with Fe3O4/multi-walled carbon nanotubes in a fixed-bed reactor. *Journal of Environmental Chemical Engineering*. 9 (***2021***) 105110. **Q1**.
7. Hernández-Abreu, A.B., Álvarez-Torrellas, S., Rocha, R.P., Pereira, M.F.R., Águeda, V.I., Delgado, J.A., Larriba, M., **García, J**., Figueiredo, J.L. Effective adsorption of the endocrine disruptor compound bisphenol A from water on surface-modified carbon materials. *Applied Surface Science*. 552 (***2021***) 149513. **Q1**.
8. Sanz-Santos, E., Álvarez-Torrellas, S., Larriba, M., Calleja-Cascajero, D., **García, J.** Enhanced removal of neonicotinoid pesticides present in the Decision 2018/840/EU by new sewage sludge-based carbon materials. *Journal of Environmental Management*, 313 (***2022***) 115020. **Q1**.
9. Gutiérrez-Sánchez, P., Navarro, P., Álvarez-Torrellas, S., **García, J**., Larriba, M. Extraction of neonicotinoid pesticides from aquatic environmental matrices with sustainable terpenoids and eutectic solvents. *Separation and Purification Technology*, 302 (***2022***) 122148. **Q1**.
10. Gutiérrez-Sánchez, P., Álvarez-Torrellas, S., Larriba, M., Gil, M.V., Garrido-Zoido, J.M., **Garcia, J**. Influence of transition metal-based activating agent on the properties and catalytic activity of sewage sludge-derived catalysts. Insights on mechanism, DFT calculation and degradation pathways. *Journal of Molecular Liquids*, 381 (***2023***) 121840. **Q1**.
11. Álvarez-Torrellas, S., Segura, Y., de Mora, A., Gutiérrez-Sánchez, P., Sanz-Santos, E., Corrochano, N., Larriba, M., Pariente, M.I., Martínez, F., **García, J**. Evaluation of the adsorptive and catalytic properties of sludge-based carbon materials for the efficient removal of antibiotics listed in the European Decision 2020/1161/EU. *Journal of Environmental Chemical Engineering*, (***2023***) 110743. **Q1**.
12. Gutiérrez-Sánchez, P., Álvarez-Torrellas, S., Larriba, M., Gil, M.V., Garrido-Zoido, J.M., **Garcia, J.** Efficient removal of antibiotic ciprofloxacin by catalytic wet air oxidation using sewage sludge-based catalysts. Degradation mechanism by DFT studies. *Journal of Environmental Chemical Engineering*, 11(2) (2023) 109344. **Q1**.

13. Rodríguez-Llorente, D., Liu, Y., de Mello, J.C., **García, J**., Larriba, M. Flow-based recovery of acetic acid from aqueous solutions using bio-derived terpenes as extracting solvents. *Separation and Purification Technology* 324 (2023) 124524. **Q1**.
14. Gutiérrez-Sánchez, P., Hrichi, A., Garrido-Zoido, J.M., Álvarez-Torrellas, S., Larriba, M., Gil, M.V., Heidi, B., **García, J**. Natural clays from Gabes (Tunisia) as adsorbents for the efficient removal of the antibiotic ciprofloxacin from wastewaters: Experimental and theoretical studies using DFT method. *Journal of Industrial and Engineering Chemistry,* 134 (***2024***) 137-151. **Q1**.
15. Huber-Benito, D., Martín-Martínez, M., Larriba, M., Águeda, V.I., **García, J**. Enhanced prednisone removal by catalytic wet air oxidation using sewage sludge derived catalyst. Process Safety and Environmental Protection, 190 (2024) 475-485. **Q1**.

C.2. Congress, (selected from the last 5 years, related to proposal)

1. **Oral Communication:** Intensification of photo-Fenton process to efficiently treat cytostatic drugs. J. Carbajo, J.E. Silveira, J. A. Zazo, J. A. Casas, E. Portillo, Silvia Álvarez-Torrellas, Vicente Ismael Águeda, Juan García. WCCE11 - CIBIQ2023 - GS06 - Global Symposium on Removal of Emerging Contaminants. Buenos Aires, Argentina, 2023.
2. **Oral Communication:** Valorisation of sewage sludge producing an activated carbon as an adsorbent for the removal of cytostatic drugs from water. E. Portillo, S. Álvarez-Torrellas, J. Carbajo, V.I Águeda, J. Garcia. The International Chemical and Biological Engineering Conference (CHEMPOR). Bragança, Portugal, 2023.
3. **Oral Communication:** Adsorción de pesticidas neonicotinoides sobre carbones activados procedentes de lodos de depuradora. Efecto en las condiciones de síntesis. E. Sanz-Santos, S. Álvarez-Torrellas, M. Larriba, J. García. A. XV Reunión del Grupo Español del Carbón (GEC22), Granada, Spain, 2022.
4. **Oral Communication:** Depuración de aguas mediante procesos de oxidación catalítica y adsorción empleando materiales carbonosos. V.I. Águeda, S. Álvarez-Torrellas, J. Cañas, J. Carbajo, J.A. Delgado, P. Gutiérrez, A.B. Hernández-Abreu, Y. Huaccallo-Aguilar, D. Huber, M. Larriba, M. Martín, G. Ovejero, E. Portillo, D. Rodríguez-Llorente, E. Sanz-Santos, E. Serra-Pérez, J. García. Mesa Española de Tratamiento de Aguas (META22), Sevilla, Spain, 2022.
5. **Oral Communication:** Eliminación de ciprofloxacina mediante CWAO. Pablo Gutiérrez, Silvia Álvarez-Torrellas, Marcos Larriba, Juan Garcia. Workshop Nuevos avances en las tecnologías para el tratamiento de aguas residuales y la valorización de residuos. Madrid, Spain, 2022.
6. **Oral Communication:** Degradation of bisphenol A, ciprofloxacin and naproxen in hospital wastewater by catalytic wet air oxidation using noble metals supported on carbon nanospheres. E. Serra-Pérez, S. Álvarez-Torrellas, G. Ovejero, J. García. 4th Symposium on Environmental Engineering (4ISEBE). Porto, Portugal, 2021.
7. **Poster Communication:** Removal of microplastics and drugs from sewage sludge by wet oxidation. J. Cañas Jimenez, C. Ruiz de Leon Gomez, S. Alvarez Torrellas, V.I. Agueda, B. Hermana, J. García. The 7th Portuguese Young Chemists Meeting, the Portuguese Young Chemists group from the Portuguese Society of Chemistry (7PYCHEM). Bragança, Portugal, 2021.
8. **Oral Communication:** Proof of concept of wastewater treatment spiked with naproxen by catalytic wet air oxidation using iron and nickel catalysts supported on carbon nanospheres. E. Serra-Pérez, S. Álvarez-Torrellas, G. Ovejero, J. García. 5th EuChemS Conference on Green and Sustainable Chemistry (5th EuGSC). Thessaloniki, Greece, 2021.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible. **(last 5 years) (related to project proposal)**.

1. Title: Red madrileña de tratamientos avanzados de aguas residuales, S2013/MAE-2716, **PI:** Juan Garcia (UCM). **Funding entity:** CAM **Start-End date:** 01/10/2014 – 31/03/2019 **CAM Budget:** 120.000,00 €.
1. Title: Utilización de CO_2 capturado para obtención de metanol con un reactor PSA, CTM2017-84033-R, **PI:** J.A. Delgado and V.I. Agueda (UCM). **Funding entity:** MICINN **Start-End date:** 01/01/2018 – 30/09/2021 **MICINN Budget:** 193.600,00 €.
2. Title: Desarrollo y optimización de la tecnología OSCAR para el tratamiento de efluentes con una elevada carga orgánica, IND2017/AMB7720, **PI:** Juan Garcia (UCM). **Funding entity:** CAM **Start-End date:** 01/02/2018 – 06/08/2021 **CAM Budget:** 76.000 €.

3. Eliminación y recuperación de metales estratégicos presentes en aguas mediante materiales zeolíticos y carbonosos, CTQ2014-59011-R, **PI:** Juan Garcia (UCM). **Funding entity:** MICINN **Start-End date:** 01/01/2015 – 31/12/2018 **MICINN Budget:** 150.150,00 €.
4. Title: Red madrileña de tratamientos para la reutilización de aguas residuales y valorización de fangos, S2018/EMT-4341, **PI:** Juan Garcia (UCM). **Funding entity:** CAM **Start-End date:** 01/01/2019 – 30/04/2023 **CAM Budget:** 145.000 €.
5. Title: Valorización de efluentes de la tecnología OSCAR en el tratamiento de lodos con una elevada carga orgánica, IND2019/AMB17114, **PI:** Juan Garcia (UCM). **Funding entity:** CAM **Start-End date:** 15/02/2020 – 14/02/2023 **CAM Budget:** 89.719,23 €.
6. Title: Advanced adsorption-oxidation technologies for the removal of emerging contaminants from wastewater by 3D-structured carbon-materials, PID2020-116478RB-I00, **PI:** Juan García and V.I. Agueda (UCM). **Funding entity:** MICINN **Start-End date:** 01/09/2021 – 30/09/2024 **MICINN Budget:** 242.000,00 €.
7. Title: Advanced adsorption-oxidation technologies for the removal of emerging contaminants from wastewater by 3D-structured carbon-materials, PID2020-116478RB-I00, **PI:** Juan García and V.I. Agueda (UCM). **Funding entity:** MICINN **Start-End date:** 01/09/2021 – 30/09/2024 **MICINN Budget:** 242.000,00 €.
8. Title: Circular fuel supply for air transport via negative emission HTL conversion (CIRCULAIR), 101083944. Call: HORIZON-CL5-2021-D3-03, **PI:** M. Larriba (UCM). **Funding entity:** Horizonte Europa **Start-End date:** 01/01/2023 – 31/12/2026 **European Commission Budget:** 400.000,00 €.
9. Title: RedCoPollutants, **PI:** J. García (UCM). **Funding entity:** ERA-NET Cofund AquaticPollutants Thematic Annual Programming (TAP). Water JPI **Start-End date:** 01/01/2022 – 31/12/2024 **European Commision Budget:** 70.000 €.
10. Title: Quaternary treatment of emerging pollutants by adsorption and catalytic processes using carbon-based materials from plastic wastes, PID2023-150365OB-I00, **PI:** Juan García and Silvia Álvarez-Torrellas (UCM). **Funding entity:** MICINN **Start-End date:** 01/09/2024 – 30/09/2027 **MICINN Budget:** 300.000,00 €.

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any. **(last 5 years) (related to project proposal)**
1. Title: Oxidación húmeda catalítica de aguas residuales de alta carga orgánica.
PI: Juan Garcia (UCM) **Funding entity:** Ecolotum, Energía Recuperable, S.L. **Start-End date:** 2015-2019 **Budget:** 60.000,00€.
2. Title: Optimización del proceso MOLEX de obtención de parafinas lineales por adsorción.
PI: V. I. Águeda (UCM) **Funding entity:** Cepsa Química **Start-End date:** 2018-2020 **Budget:** 135.000,00 €.
3. Title: Biorenewable Fuel ADDitives (BioFADD).
PI: V. I. Águeda (UCM) **Funding entity:** Total S.A. **Start-End date:** 2021-2022 **Budget:** 94.500,00 €.
4. Title: Diseño de sistemas de purificación de H_2 compactos. Programa Misiones Ciencia e Innovación
PI: V. I. Águeda (UCM) **Funding entity:** Técnicas Reunidas S.A. **Start-End date:** 2021-2023 **Budget:** 170.000,00 €.
5. Title: Realización de análisis de aprovechamiento de gases de pirólisis
PI: V. I. Águeda (UCM) **Funding entity:** Grupo de Investigación: Medio Ambiente y Bioproductos de la Universidad de Alcalá de Henares. **Start-End date:** 2023-2024 **Budget:** 15.867,94 € €.
6. Title: Optimización de procesos de adsorción para la industria química
PI: V. I. Águeda (UCM) and J.A. Delgado **Funding entity:** Cepsa Química. **Start-End date:** 2024-2026 **Budget:** 180.000 € €.

CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Mª Ángeles		
Family name	Sanromán Braga		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	sanroman@uvigo.gal	URL Web: https://biosuv.webs2.uvigo.es/el-grupo/equipo-humano/dra-ma-angeles-sanroman-braga/	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-8148-2130	

(*) Mandatory

A.1. Current position

Position	Professor		
Initial date	26/04/2019		
Institution	Universidad de Vigo		
Department/Center	Ingeniería Química		
Country	Spain	Teleph. number	986812383
Key words	Advanced water treatment technologies; Environmental biotechnology; Electrochemical and photo-assisted processes; Organic Micropollutants removal; Green Chemistry; Adsorption; Biomass thermal conversion; Catalyst		

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

Period	Position/Institution/Country/Interruption cause
01/01/1988 - 30/09/1991	FPI Research Fellow (University of Santiago de Compostela, Spain)
01/10/1991 - 14/10/1991	University Assistant 1 (University of Vigo, Spain)
15/10/1991 - 14/05/1992	University Assistant 2 (University of Vigo, Spain)
15/05/1992 - 26/05/1994	Associate Professor – Full-time – Temporary position (University of Vigo, Spain)
27/05/1994 - 25/04/2019	Associate Professor – Full-time (University of Vigo, Spain)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed Chemical-Chemical Enginnering	Santiago de Compostela	1987
PhD Chemistry	Santiago de Compostela	1991

(Include all the necessary rows)

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

Mª Ángeles Sanromán is Professor of Chemical Engineering at the University of Vigo. She is graduate in Chemical Engineering from the University of Santiago de Compostela, Spain (1987). Completed her PhD degree (1991), focusing on the development of bioreactor and cell immobilisation techniques. In 1991, she got a position as assistant professor joined the staff at the University of Vigo in the Chemical Engineering Department. She is the Head of the Research group Bioengineering & Sustainable Processes (BIOSUV Group) at the University of Vigo. Currently, develops the following research lines: i) Environmental Technology applied to soil and water remediation; ii) Advanced Oxidation Processes; iii) Reuse, Recycling & Valorisation of wastes; iv) Green Chemistry. Her teaching and research assessments have been positively recognised with 6 five-year teaching periods and 6 six-year research periods.

She authored> 400 scientific articles, including 17 reviews, and collaborated in several books. Its h index is 63 (Scopus), and the total number of citations is higher 14500. Her publication activities include a high number of his publications in Q1 (70% with 15% in the first decyl) and in 84.5% of all his publications in the top 25% journals according to CiteScore (Elsevier). The impact of her research is also reflected in the international collaborations with 41% of the articles co-authored with researchers in other countries/regions (source: Scopus).

Author of more than 500 communications to National and International Conferences, receiving several awards in recognition of her work. She has participated in more than 50 national and international research and innovation projects and technology transfer contracts with public administration and companies, mainly as principal investigator.

It is remarkable her work as director of the Research Results Transfer Office at the University of Vigo (1994-1998) and member of the National Agency for Evaluation and Prospective (ANEP) in the subject of Chemical Technology (2007-2011). She has been collaborating as panel member in the Coordination and Evaluation Subdivision belonging to the Spanish Agency of Investigation (AEI) in the scientific area of Technology Transfer (2015-2018) and Materials Energy and Environmental (2019-2022). Prof Sanromán has been the Director of the CINTECX Research Center since May 2024. In addition, she acts as reviewer in regular evaluation tasks of research projects in competitive calls for several national and international calls. She is members of several academic societies and editorial boards of journals, highlighting her position as Associate Editor of the journal Bioresource Technology (2010-2023). In addition, she is member of several organising and scientific committees of international congresses. It is important to mention that Prof Sanromán is presently involved with various Networks of Excellence, specifically focusing on the use of electrochemistry in environmental applications. These networks operate both at a national and regional level, including the E3TECH Network and the REGATA Network. It is also significant her labour as guidance, supervisor or leadership of young researchers.

Prof Sanroman is a member of UVigo's BTQM teaching innovation group, that is involved in several innovation activities such as "ZERO-WASTE SL" and "ZERO-WASTE+ SL" projects, selected in UVigo's 2021 and 2022 educational innovation calls, in collaboration with NGO Amigos da Terra, led by Prof. Sanromán. BTQ group also engages high school students in research through STEMbach programs, supervising projects and participating in "CINTECX Open Day". Prof. Sanromán gives science popularization talks to high schoolers, focusing on female scientists' contributions. She contributed to "Quiero ser investigadora" (2023), a book that highlights pioneering women scientists to inspire young people. Additionally, she participates in forums and activities for the International Day of Women and Girls in Science, as part of CINTECX and UVigo's Faculty of Chemistry initiatives. She has supervised more than 24 PhD theses and is currently overseeing 6 researchers. Her research career has been recognized with the 2023 Parga Pondal Research Medal from the Royal Galician Academy of Sciences and Distinguished Scientist Awards in 2015 and 2021.

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

C.1. Publications *10 Selected Publications in 2022-2025 type Q1 from 423 papers:*

1. Iberache N., Díez A.M., Hadfi A., Errami M., Pazos M., Sanroman M.Á. (2025) High-efficiency removal of imidacloprid from wastewater by heterogeneous electro-Fenton process using MnFe2O4/g-C3N4 catalyst in a wide range of pH, Separation and Purification Technology, 10.1016/j.seppur.2025.133517
2. Terrón D., Holgado-Vázquez J.P., Rosales E., Sanromán M.A., Pazos M. (2025) Zn-MIL53(Fe) as an electro-Fenton catalyst: Application in organic pollutant degradation and pathogen inactivation, Separation and Purification Technology, 10.1016/j.seppur.2024.130881
3. Díez A.M., Bolaños-Vázquez M., Chiussi S., Pazos M., Sanromán M.Á. (2024) Screening of agroindustry residues for their usage as oxygen evolution reaction catalysts, Journal of Environmental Chemical Engineering, 10.1016/j.jece.2024.114527
4. Lomba-Fernández B., Fdez-Sanromán A., Pazos M., Sanromán M.A., Rosales E. (2024) Iron metal-organic framework nanofiber membrane for the integration of electro-Fenton and effective continuous treatment of pharmaceuticals in water, Chemosphere, 10.1016/j.chemosphere.2024.143447

5. Tesnim D., Díez A.M., Amor Hédi B., Sanroman M.Á., Pazos M. (2024) Sustainable removal of antipyrine from wastewater via an Eco-Friendly heterogeneous Electro-Fenton-like process employing Zero-Valent iron nanoparticles loaded activated carbon, Chemical Engineering Journal, 10.1016/j.cej.2024.152494
6. Cruz del Álamo A., Puga A., Pariente M.I., Rosales E., Molina R., Pazos M., Martínez F., Sanromán M.A. (2023) Activity and stability of bifunctional perovskite/carbon-based electrodes for the removal of antipyrine by electro-Fenton process, Chemosphere, 10.1016/j.chemosphere.2023.138858
7. Escudero-Curiel S., Pazos M., Sanromán A. (2023) Facile one-step synthesis of a versatile nitrogen-doped hydrochar from olive oil production waste, "alperujo", for removing pharmaceuticals from wastewater, Environmental Pollution, 10.1016/j.envpol.2023.121751
8. Puga A., Meijide J., Pazos M., Rosales E., Sanromán M.A. (2022) Electric field as a useful tool to improve the poor adsorption affinity of pollutants on carbonaceous aerogel pellets, Journal of Molecular Liquids, 10.1016/j.molliq.2022.120269
9. Balci E., Rosales E., Pazos M., Sofuoglu A., Sanroman M.A. (2022) Continuous treatment of diethyl hexyl and dibutyl phthalates by fixed-bed reactor: Comparison of two esterase bionanocomposites, Bioresource Technology, 10.1016/j.biortech.2022.127990
10. Ouiriemmi I., Escudero-Curiel S., Pazos M., Angeles Sanromán M. (2022) On-site regeneration by ultrasound activated persulfate of iron-rich Antipyrine-loaded biochar, Journal of Environmental Chemical Engineering, 10.1016/j.jece.2022.108400

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

Prof Sanromán has been member of the international committees (14 conferences in the last 5 years) such as 5th International Environmental Chemistry Congress (EnviroChem). October 30 - November 2, 2023, Antalya, Turkey; 5th Iberoamerican Conference on Advanced Oxidation Technologies, November 7-11, 2022, Cuzco, Peru; 11th International Conference on Environmental Engineering and Management (ICEEM11). September 8 – 10, 2021, Muttenz, Switzerland, 3rd International Conference on Bioresource Technology for Bioenergy, Bioproducts & Environmental Sustainability. May 17 - 19, 2021. 5th Workshop of the E3TECH Network and 1st Ibero-American Remote Workshop E3TECH, October 28-31, 2020, Virtual; ELO.Watr International Workshop on Advanced Electrochemical Oxidation for Water Reuse, September 15-17, 2020, Virtual or International Conference on Sustainable Waste Treatment and Management (SWTM-2019). Yangling, China. May 6-9, 2019.

Over the past five years, she has actively participated in a total of 60 conferences, comprising 45 international and 15 national events. During these conferences, they have presented 136 communications, of which approximately 30% were distinguished as plenary sessions, keynote lectures, or oral presentations. Notably, several presentations have been awarded for their excellence, such as the best oral presentation at the Reunión Ibérica de Adsorción 41RIA-IBA3, and the best poster at the 3rd International Congress of Chemical Engineering, the XXXIX Electrochemical Group (RSEQ) Meeting, and the 3rd 3E-Mediterranean Symposium.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

National call:

1. Title: "Reduccion del impacto ambiental y sanitario de efluentes hospitalarios mediante oxidacion avanzada: innovacion en el ecodiseño de catalizadores y electrodos multifuncionales (ResiHOSP-AOP)". Ministerio de Ciencia e Innovación. From: 01/09/2021 until: 30/08/2024. Grant money: 242.000€. IPs: Marta Pazos and **Mª A. Sanromán**. Reference: PID2020-113667GB-I00
2. Title: "Un enfoque práctico y próximo a la realidad de mercado en la detección y el tratamiento de compuestos farmacéuticos (HIBRITEC+)". Ministerio de Ciencia e Innovación. From: 01/12/2021 until: 30/05/2024. Grant money: 138.000€ **IPs: Mª Angeles Sanromán** and Marta Pazos. Reference: PDC2021-121394-I00
3. Title: "Propuestas de contaminacion cero para la protección del Medioambiente de substancias persistentes, móviles y tóxicas". Ministerio de Ciencia e Innovación. From: 01/12/2021 until: 30/05/2024. Grant money: 184.000€. IP: Emilio Rosales. Reference: TED2021-129590A-I00.
4. Title: "Advancing Toward a Greener Future: Integration of Environmentally Friendly Materials for Water Purification and Renewable Energy Initiatives (G-Free)" Ministry of Science, Innovation and Universities (Spain) Ministerio de Ciencia e Innovación. From: 01/09/2024 until: 30/08/2027. Grant money: 275.000€. IPs: Marta Pazos and **Mª A. Sanromán**. Reference: PID2023-146133NB-I00

International call:

1. Title: "Sustainable and Safe Water Management in Agriculture: Increasing the Efficiency of Water Reuse for Crop Growth While Protecting Ecosystems, Services, and Citizens' Welfare" (REWATER). ERA-NET Cofund WaterWorks2015. Duration: From 01/04/2017 to 31/03/2020. Funding: €555,960. Project Coordinator: Cristina Delerue Matos. Spanish Principal Investigator (IP): Mª Ángeles Sanromán.
2. Title: BioReset – Biodiversity Restoration and Conservation of Inland Water Ecosystems for Environmental and Human Well-being. BiodivRestore Cofund 2020. Duration: From 2022 to 2025. Funding: €1430,745. Project Coordinator: Cristina Delerue Matos. Spanish Principal Investigator (IP): Mª Ángeles Sanromán.

Member of National networks:

1. Title: "Red Temática de Excelencia: Aplicaciones medioambientales y energéticas de la tecnología electroquímica". Ministerio de Ciencia, Innovación y Universidades. (2018-2020) CTQ2017-90659-REDT. Grant money: 20.000€. IP: Manuel Andrés Rodrigo Rodrigo.
2. Title: "Red Temática de Excelencia: Aplicaciones medioambientales y energéticas de la tecnología electroquímica frente a los retos del nexo auga-energía" Ministerio de Ciencia e Innovación. (2023-2024) RED2022-134552-T. Grant money: 20.390€. IP: Manuel Andrés Rodrigo Rodrigo.

C.4. Contracts, technological or transfer merits,

Contracts PI Mª Angeles Sanromán (last 5 years):

- Estudio de la actividad biocida de aceros tras diversos tratamientos (Fase 1). Company: AIMEN-CENTRO APLICACIONES LASER. subcontratación dentro del Proyecto MATChING: Materials and technologies for performance improvement of cooling systems in power plants, GA: 686031 H2020 del topic.
- Estudio del cultivo en fed-batch de la microalga Crypthecodinium cohnii. Company: CARBIOTECH, S.L. 2017. I
- Diseño de un proceso sostenible para el cultivo de una especie de microalgas autóctona y enriquecimiento en el compuesto de interés – CRYPTHA. Company: CARBALLO BIOMETANIZACIÓN, S.L. 2018-2019.

Patents:

- Moldes, D., Sanromán, A. y Fernández, M. "Procedimiento para dotar de hidrofobicidad materiales de madera". Ref: P201300587; Priority country: Spain; 2015. Universidad de Vigo
- Deive, F.J., Alvarez, M.S., Moscoso, F., Rodríguez, A., Sanromán, A. "Procedimiento para la eliminación de compuestos orgánicos presentes en aguas residuales". Ref: P201301068; Priority country: Spain; 2015. Universidad de Vigo
- Fernández-Costas, C., Sanromán M.A., Moldes D. "Procedimiento enzimático para conferir a la madera y productos derivados resistencia frente a agentes de origen biótico". Ref: P201600325; Priority country: Spain; 2017. Universidad de Vigo
- Moldes D., Domínguez, A., Othman, A.M., Sanromán M.A. "Procedimiento para la unión estable de retardantes de llama a productos madereros mediante catálisis enzimática". Ref: P201600924; Priority country: Spain; 2018. Universidad de Vigo
- Deive, F.J. Gutiérrez-Arnillas, E., Rodríguez, A., Sanromán, M.A. "Procedimiento para el incremento de producción de lipasa en cultivos de Halomonas mediante inducción química y biológica". Ref: P201700078; Priority country: Spain; 2018. Universidad de Vigo

Other merits

- Director of the CINTECX Research Center since May 2024
- Member of Chemical Tecnology of ANEP: 2007-2013.
- Member of AEI (Spanish Agency of Investigation) in the scientific area of
    - Technology Transfer of Technology Transfer (2015-2018)
    - Materials Energy and Environmental (2019- 2022).
- Member of Evaluator panel of ERC Consolidator Grant 2022 and 2024
- Expert Evaluator of PF7, WaterJPI, OCEANS, PICA and other international agences.
- Associate Editor of Bioresource Technology (2010-2023).
- Member of the Engineering and Architecture Commite of Andalusian Agency for Knowledge (DEVA-AAC) from 2016.

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION *

First name	Manuel Andrés		
Family name	Rodrigo Rodrigo		
Gender (*)		Birth date	
Social Security, Passport, ID number			
e-mail	Manuel.Rodrigo@uclm.es	URL Web	Blog.uclm.es/manuelrodrigo
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-2518-8436		

A.1. Current position

Position	Full Professor		
Initial date	05/12/2009		
Institution	University of Castilla La Mancha		
Department/Center	Chemical Engineering	Faculty of Chemical Sciences&Technologies	
Country	Spain	Teleph. number	
Key words	Chemical engineering, electrochemical engineering, environmental engineering, energy		

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

Period	Position/Institution/Country/Interruption cause
01/10/1993-30/11/1993	Assistant Professor (Profesor Asociado)
01/01/1994-30/09/1996	FPI Grant Generalitat Valenciana
01/10/1996-30/09/1997	Assistant Professor (Profesor Ayudante Escuela Universitaria)
01/10/1997-03/04/2000	Assistant Professor (Profesor Ayudante de Facultad)
03/04/2000-04/12/2009	Associate Professor (Profesor Titular Universidad)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD	University of Valencia	1997
Licensed (≈graduate+master)	University of Valencia	1993

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

M.A. Rodrigo studied Industrial Chemistry at University of Valencia, where he graduated with the Extraordinary Award in 1993 and obtained his PhD in the Chemical Engineering (ChE) Program in 1997, with a doctoral thesis on the automation of biological nutrient removal processes. In 1996, he joined UCLM as an Assistant Professor, starting a research line in Electrochemical Engineering within the ChE Department. In this initial stage, the research mainly focused on studying the treatability of industrial effluents using electrolytic technology. After a first postdoctoral stay at EPFL (Switzerland), he began working with electrically conductive diamond electrodes. In 2000, he obtained a position as Associate Professor and started working on electrocoagulation, as well as PEM fuel cells and electrocatalysis (for which he did a second stay at EPFL). Subsequently, his interests centered on the electrolytic production of oxidizing agents, electrokinetic remediation of contaminated soils, and bioelectrochemical systems. In 2009, he won a professorship in ChE at UCLM and, from that moment, has been consolidating all the previously mentioned research lines with the aim of creating a competitive international research group in electrochemical engineering with expert knowledge at the electrochemical-energy-environment frontier, and with involvement in knowledge transfer to the industrial sector, demonstrated by strong consulting activity with numerous companies in the energy and environmental sectors. A pioneer in numerous topics, he is currently opening new fields such as electrochemically assisted reactive absorption, electro-refinery, and the development of high-efficiency electrochemical cells using 3-D printing. He has a strong sensitivity towards the training of young researchers. He collaborates with different research groups worldwide, especially promoting collaborations with groups in Latin America. He has been a visiting professor at the Universities of Paris East - Marne la Vallée (France) and collaborates in teaching activities with UPV. He has been responsible for Div. 5 (Engineering and Technology of Electrochemical Processes) of the International Society

of Electrochemistry (22-24) and was vice-president in the period 15-16. He has been president of the Working Group on Electrochemical Engineering of the European Federation of Chemical Engineering (11-18), still active in the group as well as in the Energy Section (18-). He has been an adjunct to the Chemical Technology area of ANEP (07/15-01/17) and a collaborator in the CTQ/IQM area of AEI (01/17-06/20). He is the Dean of the Faculty of Chemical Sciences and Technologies at UCLM (21-), having been Vice-Dean between 07-15 and Coordinator of the Degree in ChE (04/09-02/16). In 2020, he received the Career Award from the ChE Group of the RSEQ and in 2022 the 2021 Research and Innovation Award from the JCCM (Engineering and Architecture Section). Fellow International Society of Electrochemistry (2025-). Fellow of the Spanish Royal Academy of Sciences (2025-). Member of the Science Advisory Council of CLM (2022-2025). **General indicators of quality of scientific production**. (According to *SCOPUS 04/12/25)* Five research periods (1995-2000; 2001-2006; 2007-2012; 2013-2018; 2018-2024) and one transfer period (2000-2007) successfully evaluated. 677 scientific articles. 51.4% are international collaborations and 0.2% with companies. 89.8% of the works published in first-quartile journals and 69.4% included in the first quartile of the most cited worldwide. h-index 85. FWCI (Field-Weighted Citation Impact) index 1.38. Total number of citations: 33378. Strong social involvement of the research carried out, considering the number of articles that align with the SDGs (Sustainable Development Goals). In the last six years (2019-2024), he has published 255 scientific works. Additionally, he has written more than 90 scientific-technical reports for companies and is the author of 5 patents. He has presented over six hundred conference communications, more than 60% of which are oral communications and 10% plenary or invited lectures. He has supervised 28 doctoral theses, 13 of them in the 2019-2024 period. He has led or is leading 21 competitive projects (€2962.52k), 3 infrastructure projects (€819.91k), 23 R&D contracts with companies (€1203.89k), and has also participated within the Research Group he leads (Electrochemical and Environmental Engineering Laboratory, E3L) in another 30 competitive projects (€5781.00k), 12 infrastructure projects (€2221.29k), and 21 R&D contracts with companies (€713.50k). He was editor of the Journal of Electrochemical Science & Engineering from 2011 to 2016 and currently serves on the Editorial Board of the journals Separation & Purification Technology, Journal of Hazardous Materials, Current Opinion in Electrochemistry, and Journal of Applied Electrochemistry. He has been guest editor of 10 special issues of WoS-indexed publications.

Part C. RELEVANT MERITS

C.1. Publications Following, 12 publications, from 2019 to 2025, are highlighted based on the novelty and/or relevance of the topic, impact factor / number of citations (as for SCOPUS on 08/01/25): **1)** Richa M., García Cervilla R., Lobato, J. Cañizares P. Rodrigo M.A. Separation of carboxylates using electrodialysis: a key process for the electro-refinery concept (2025) Separation and Purification Technology 376, 134073, DOI: 10.1016/j.seppur.2025.134073 (core of the electrorefinery proposal) **2)** Requena-Leal I. García-López M., Lobato J., Rodrigo M.A. Green power on wheels: Hybrid engines fueled by sunlight and saltwater (2025) International Journal of Hydrogen Energy 188 152070 DOI: 10.1016/j.ijhydene.2025.152070 (core of the energy proposal) **3)** Requena-Leal I., Fernández-Marchante C.M., Lobato J., Rodrigo M.A. Towards a more sustainable hydrogen energy production: Evaluating the use of different sources of water for chloralkaline electrolyzers (2024) Renewable Energy, 233, 121137, DOI: 10.1016/j.renene.2024.121137 (cited 9 times, technology to achieve sustainable green hydrogen from water management). **4)** Martínez-Huitle C.A., Rodrigo M.A., Sirés I., Scialdone O. A critical review on latest innovations and future challenges of electrochemical technology for the abatement of organics in water (2023) Applied Catalysis B: Environmental, 328, 122430, DOI: 10.1016/j.apcatb.2023.122430 (cited 341 times, critical vision of the future of electrolytic water treatment technology) **5)** Mena I.F., Montiel M.A., Sáez C., Rodrigo M.A. Improving performance of proton-exchange membrane (PEM) electro-ozonizers using 3D printing (2023) Chemical Engineering Journal, 464,. 142688, DOI: 10.1016/j.cej.2023.142688 (cited 21 times, improvement of the efficiency of electrochemical processes with 3-D printing from the reactor design). **6)** Marques Cordeiro-Junior P.J., Sáez C., Lanza M.R.D., Rodrigo M.A. Electrochemical production of extremely high concentrations of hydrogen peroxide in discontinuous processes (2022) Separation and Purification Technology, 300, 121847, DOI:

10.1016/j.seppur.2022.121847 (cited 31 times, development of electrodes to achieve faradaic efficiencies close to 100%). **7)** Souza F.L., Sáez C., Cañizares P., Rodrigo M.A. Improving the degradation of low concentration of microcystin-LR with PEM electrolyzers and photo-electrolyzers (2021) Separation and Purification Technology, 259, 118189, DOI: 10.1016/j.seppur.2020.118189 (cited 9 times, approach to the treatment of low concentration and salinity streams). **8)** Muñoz-Morales M., Sáez C., Cañizares P., Rodrigo M.A. Improvement of electrochemical oxidation efficiency through combination with adsorption processes (2020) Journal of Environmental Management, 262, 110364, DOI: 10.1016/j.jenvman.2020.110364 (cited 33 times, new strategies to efficiently remove hazardous compounds at low concentration) **9)** Carvela M., Lobato J., Rodrigo M.A. Storage of energy using gas-liquid H_2/Cl_2 fuel cell: A first approach to electrochemically-assisted absorbers (2020)Chemosphere, 254, 126795, DOI: 10.1016/j.chemosphere.2020.126795 (cited 19 times, initiation of EDEN® technology for green energy storage). **10)** Ganiyu S.O., Martínez-Huitle C.A., Rodrigo M.A. Renewable energies driven electrochemical wastewater/soil decontamination technologies: A critical review of fundamental concepts and applications (2020) Applied Catalysis B: Environmental, 270, 118857, DOI: 10.1016/j.apcatb.2020.118857 (cited 266 times, reference for understanding and performing the electrical connection of electrolytic systems with green energy) **11)** Lara-Ramos J.A., Saez C., Machuca-Martínez F., Rodrigo M.A. Electro-ozonizers: A new approach for an old problem (2020) Separation and Purification Technology, 241, 116701, DOI: 10.1016/j.seppur.2020.116701 (cited 37 times, reinvention and improvement of cells capable of competing with discharge ozonizers) **12)** Muñoz-Morales M., Sáez C., Cañizares P., Rodrigo M.A. A new electrochemically-based process for the removal of perchloroethylene from gaseous effluents (2019) Chemical Engineering Journal, 361, 609 – 614. DOI: 10.1016/j.cej.2018.12.119 (cited 19 times, strategies for the efficient electrolysis of gases).

C.2. Congress, Here is a list of twelve invited lectures in the last six-year period (2019-2025):**1)** Reshaping the future of sustainability with the help of electrochemical engineering. 15th ECCE/8th ECAB/3rd CIBIQ Lisbon (Portugal 08/09/25-10/09/25 **2)** Revolutionizing sustainability with innovations in electrochemical engineering. 76th Annual Meeting ISE. Mainz (Germany) 07/09/25-12/09/25 **3)** Organic electrorefineries: pioneering a new era in advanced oxidation processes. EAAOP7. Paestum (Italy) 10/06/25-13/06/25 **4)** Organic Electrorefineries: towards a new paradigm in electrochemical environmental technology. 39th Topical Meeting of the ISE Natal (Brazil) 23/03/25-26/03/25 **5)** On the way of increasing TRL in electrochemical advanced processes. CIPOA - VI CIPOA Florianopólis (Brazil) 7/10/2024-11/10/2024. **6)** Innovative Electrochemical Engineering: A Personal Perspective. 7th IACC. Semnan (Iran) 1709/2024-18-09/2024. **7)** Cutting Edge Research in Electrochemical Engineering from a Personal Perspective. i2A Webcycle - Webinar Series Research for Society 2024. Coimbra (Portugal) 19/06/2024.**8)** Fundamentals and technology of electrokinetic processes. Workshop La década de la restauración de suelos. 14/03/2022-18/032022.**9)** Challenges of Electrochemical Technology in Water Reuse. 1st International Workshop on Advanced Electrochemical Oxidation for Water Reuse Nancy (France) 15/09/2020 -19/09/2020. **10)** The Binomial Technology Readiness Level / Environmental Electrochemical Engineering: where are we and where are we going? 12th ESEE Leuwarden (Netherland) 14/06/2021-17/06/2021; **11)** Nuevas fronteras de la tecnología electroquímica en energía y medio ambiente. IV Congreso Colombiano Electroquímica. Antioquía (Colombia) 05/10/2020-07/10/2020; **12)** Desarrollo de procesos electroquímicos para el tratamiento de Aguas. Webinar de Electroquímica EVE 2020. Univ. Santiago de Chile. 11/20-12/20. **13)** ¿Cómo afrontar los desafíos para la ingeniería electroquímica ambiental en la próxima década?. Webminar Procesos Electroquímicos como desafío en Remediación ambiental del siglo XXI en países iberoamericanos. Univ. de Sao Paulo. 6/11/2020-4/12/2020. **14)** Nuevas fronteras de la tecnología electroquímica en energía y medio ambiente. 36 JNIQ. Zaragoza 4/09/2019-6/09/2019.

C.3. Research projects, Here is a list of competitive projects led in the last six-year period (2019-2024):**1)** Knowledge Generation: Oriented Research (Gob. España): Organic Electrorefineries: towards a new paradigm in electrochemical environmental technology (PID2022-138401OB-I00). 09/23-09/26, 276.562,50 €; **2)** Reg. CLM: Regulación energética sostenible para el sector vitivinícola (SBPLY/21/180501/000075), 09/22 – 08/25, 137.995,17

€; **3)** Projects Focused on Ecological and Digital Transition (Gob. España): Adaptando la tecnología EDEN a la reducción de la huella de carbono de motores diesel en el sector transporte Proyecto (TED2021-131630B-100), 12/22-07/25, 245.180,00; **4)** Excellence Networks (Gob. España): Aplicaciones Medioambientales y Energéticas de la Tecnología Electroquímica frente a los Retos del Nexo Agua-Energía (RED2022-134552-T), 07/23 – 05/25, 20.390 €; **5)** Pruebas de Concepto 2021 (Gob. España). Getting on top of Sustainable electrochemical remediation technologies for chlorinated hydrocarbons pollution associated to industrial activities (PDC2021-121105-I00). 12/21-11/23,149500,00€; **6)** International Joint Call. AQUAPOLLUTANTS: Sustainable Electrochemical Reduction of contaminants of emerging concern and Pathogens in WWTP effluent for Irrigation of Crops (PCI2021-121963) 09/21-12/24. 150000,00 €; **7)** Society Challenges (Gob. España): New Electro-Absorption Technologies for more Sustainable environmental and energy applications (PID2019-107271RB-I00) 06/20-05/23; 249260,00 €; **8)** European Erasmus+: Addressing the current and Future skIll needs for sustainability, digitalization, and the bio-Economy in AgricuLture: European skills agenDa and Strategy (2019-1-IT-EPPKA2-SSA-B) 01/01/2020-30/06/2024; 108883 €; **9)** Explora Science/Technology (Gob. España): Electrochemically-based Decarbonizing Energy (CTQ2017-91190-EXP) 11/18-10/20; 72.600 €; **10)** Explora Science/Technology (Gob. España): Emulating life in the production of energy: photomicrobiologic fuel cells for the production of electricity from sunlight (CTQ2013-49748-EXP) 01/15 – 04/17; 60.000 €.

C.4. Contracts, technological or transfer merits, Here is information about the company projects in the last six-year period (2019-2024): **1)** 230195UCTR: Optimización del diseño de técnicas electrocinéticas para la remediación de los limos, contaminados con HCH y otros compuestos organoclorados, del aluvial al pie del vertedero de Sardas (Sabiñánigo, Huesca). EMGRISA. 04/23–12/24. 30.250,00; **2)** 2240458UCTR: Estudio de I+D para la optimización y mejora del tratamiento de los efluentes líquidos generados por Laboratorios Servier en la planta de Toledo. Laboratorios Servier. 10/24–10/25. 64.420,40€; **3)** 240208UCTR: Servicio de Finalización de los trabajos de asesoramiento para el escalado de un reactor BES para la depuración de aguas industriales obteniendo un rendimiento de depuración del 90% y la producción de biogás rico en hidrógeno. Proyecto H2020 ultimate. FCC Aqualia. 09/24–11/24, 3513,00€; **4)** 210253UCTR: Servicio de asesoramiento para el escalado de un reactor BES para la depuración de aguas industriales obteniendo un rendimiento de depuración del 90% y la producción de biogas rico en hidrógeno. Aqualia Gestión Integral del Agua S.A. 06/21-06/22,8784,60€; **6)** 200412UCTR: Validación y Diseño de Técnicas Electrocinéticas para la Remediación de los limos del aluvial al pie del Vertedero de Sardás (Sabiñánigo-Huesca), contaminados con HCH y otros compuestos organoclorados.12/20-09/22. 30250,00€; **7)** UCTR190427: Eliminación de HCH y otros compuestos organoclorados en limos del vertedero de Sardas por procedimientos electrocinéticos. 12/19- 05/20, 19595,95€; **8)** UCTR190175: Puesta en marcha de un proceso en continuo de la familia de la butamina HCL. Fase síntesis del etilénico. Laboratorios Servier. 05/19-12/19, 82794,86 €. Next, two of the six patents are shown: **9)** “Proceso de desinfección de agua con electrodos de diamante”. M.A. Rodrigo; P. Cañizares; C. Sáez; J. Lobato. No.: 201130933. Country of registration: Spain. Registration date: 06/06/2011. Grant date: 09/04/2014; **10)** “Reactor combinado de electrocoagulación y electroflotación para el tratamiento electroquímico de agua residual”. M.A. Rodrigo; P. Cañizares; C. Sáez; J. Lobato; C. Jiménez; F. Martínez No.: 201130644. Country of registration: Spain. Registration date: 25/04/2011 Grant date: 03/03/2014. Currently co-leading the E3L Knowledge Transfer Unit. Prof. Rodrigo was also a founding partner and board member, representing the University of Castilla-La Mancha (UCLM), of the technology-based company **CLM Hidrógeno (Compañía de Castilla-La Mancha de Hidrógeno, Biocombustibles y Pilas de Combustible),** where he served for nearly six years. Within this framework, he contributed to the development of the Strategic Deployment Plan for Hydrogen Technologies in Castilla-La Mancha, prepared for the Regional Energy Agency (AGECAM) in 2008. He was also a founding partner of the company **Garlicinsa**, which aimed to commercialize applications derived from the patent WO2008102036A1 (related to stable freeze-dried extracts from Allium genus plants).

Fecha del CVA	14/12/2025

Parte A. DATOS PERSONALES

Nombre y apellidos	Elena de la Fuente González		
DNI/NIE/pasaporte		Edad	
Núm. identificación del investigador	Researcher ID	F-3774-2016	
	Código Orcid	0000-0003-0421-4607	

A.1. Situación profesional actual

Organismo	Universidad Complutense de Madrid			
Dpto./Centro	Facultad de Ciencias Químicas			
Dirección	Avda Complutense s/n, Ciencias Químicas Edif B, 5ª			
Teléfono	913944245	correo electrónico	helenafg@ucm.es	
Categoría profesional	Profesor Titular		Fecha inicio	21/10/2010
Espec. cód. UNESCO	Ingeniería Química, 330300, 330308, 330311			
Palabras clave	Floculación, fibrocemento, nanofibras de cellulosa, fabricación de papel			

A.2. Formación académica *(título, institución, fecha)*

Licenciatura/Grado/Doctorado	Universidad	Año
Ingeniero Químico	Universidad Complutense de Madrid	1999
Doctor en Ingeniería Química	Universidad Complutense de Madrid	2004

A.3. Indicadores generales de calidad de la producción científica *(véanse instrucciones)*

Sexenios: 4. Último sexenio concedido: 2018-2023.
63 artículos científicos indexados en JCR. En Q1: 35
WOK: h-index = 30,
Tesis terminadas codirigidas 1 (2013)

Resumen del CV

Ingeniera Química por la UCM y Doctora por la misma universidad (2004). Ha desarrollado su labor docente como Profesora Ayudante (2002-2004), Profesora Ayudante Doctora (2004-2008), Profesora Contratada Doctora (2008-2010) y actualmente como Profesora titular en el Departamento de Ingeniería Química y de Materiales de la UCM; donde imparte docencia en los grados de Ingeniería Química, Química, Ciencia y Tecnología de los Alimentos y en los másteres de Ingeniería Química: Ingeniería de Procesos y Biotecnología Ambiental Industrial. Imparte la asignatura de Ingeniería de los Alimentos en el grado de Ciencia y Tecnología de los Alimentos, del que también es coordinadora de curso, y en el Máster de Ingeniería Química: Ingeniería de Procesos, de cuyo comité forma parte.

Desde el inicio de su tesis doctoral, su investigación se ha centrado en el estudio de los procesos de floculación en la fabricación de papel y en la producción de fibrocemento libre de amianto. En los últimos 10 años ha incorporado a sus líneas de investigación el estudio de la producción y aplicación de nanocelulosas en diferentes industrias: fabricación de papel, industria alimentaria y compuestos de fibrocemento. En estos campos ha publicado 63 artículos de investigación sobre procesos de floculación y el uso de nanocelulosas en distintas aplicaciones.

Como miembro de un grupo muy activo en la transferencia de resultados, galardonado por ello en 2016 y 2019, ha participado como integrante en 10 proyectos de investigación con empresas, además de 16 proyectos de convocatorias competitivas (3 de la CM, 7 nacionales y 6 europeos).

Artículos indexados en JCR

1. Balea, A., Fuente, E., Monte, M. C., Merayo, N., Campano, C., Negro, C., & Blanco, A. (2020). Industrial application of nanocelluloses in papermaking: a review of challenges, technical solutions, and market perspectives. *Molecules*, *25*(3), 526.
2. Balea, A., Monte, M. C., Fuente, E., Sanchez-Salvador, J. L., Blanco, A., Negro, C. (2019). Cellulose nanofibers and chitosan to remove flexographic inks from wastewaters. Environmental Science: Water Research & Technology, 5(9)
3. Raj, P., Blanco, A., de la Fuente, E., Batchelor, W., Negro, C., Garnier, G. (2017). Microfibrilated cellulose as a model for soft colloid flocculation with polyelectrolytes. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 516
4. Raj, P., Batchelor, W., Blanco, A., de la Fuente, E., Negro, C., & Garnier, G. (2016). Effect of polyelectrolyte morphology and adsorption on the mechanism of nanocellulose flocculation. Journal of colloid and interface science, 481

Participación en proyectos de convocatorias competitivas en los últimos 5 años

- PID2023-147459OB-C22.“Nanocellulose-based products for environmental applications”, Ministerio de Ciencia, Innovación e Universidades. Carlos Negro y Elena de la Fuente (UCM) de 1/09/2024 a 31/08/2027.
- PID2020-113850RB-C21. “Developing knowledge for the future use of nanocellulose in an industry sustainable and competitive paper mill in Spain” Ministerio de Cienia e Innovación. Carlos Negro y Elena de la Fuente (UCM) de 1/09/2021 a 31/08/2025.
- CTQ2017-85654-C2-2-R. “Sustainable production of nanocellulose for its application in different sectors and industrial processes”. Ministerio de Ciencia, Innovación y Universidades. Carlos Negro Álvarez (UCM). 01/01/2018 a 31/12/2020.

CURRICULUM VITAE (CVA)

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

CV date	01/12/2025

Part A. PERSONAL INFORMATION

First name	Jesús		
Family name	Lemus Torres		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	jesus.lemus@uam.es	Google Scholar: 9ue2Xr8	
Open Research and Contributor ID (ORCID)(*)		0000-0001-5386-2868	

(*) Mandatory

A.1. Current position

Position	Associate Professor		
Initial date	May of 2024		
Institution	Autónoma University of Madrid		
Departament/Center	Chemical Engineering		
Country	Spain	Teleph. number	914973769
Key words	Ionic liquids, CO_2 capture, design and process simulation		

A.2. Previous positions (research activity interruptions, art. 45.2.c))

Period	Position/Institution/Country/Interruption cause
2006-2008 (18 months)	Predoctoral researcher/Autónoma University of Madrid/Spain
2009-2009 (3 months)	UAM fellowship/ Autónoma University of Madrid/Spain
2009-2013 (4 years)	CAM fellowship/ Autónoma University of Madrid/Spain
2013-2013 (7 months)	Postdoctoral researcher “National Project”/Autónoma University of Madrid/Spain
2014-2015 (2 years)	Postdoctoral researcher “European Project”/Autónoma University of Madrid/Spain
2016 (9 months)	FCT postdoctoral researcher/University of Aveiro/Portugal
2016-2021 (5 years)	Assistant Professor/Autónoma University of Madrid/Spain
2021-2024 (3 years)	Contracted Professor/Autónoma University of Madrid/Spain
2024-now	Associate Professor/Autónoma University of Madrid/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD Chemical Engineer	Autónoma University of Madrid	2012
MsC Pedagogical Aptitude	Complutense University of Madrid	2008
Chemistry degree	Autónoma University of Madrid	2007

Part B. CV SUMMARY

Jesús Lemus (JL) graduates in Chemistry in 2006 at Autónoma University of Madrid (UAM). He holds his PhD in November of 2012 at UAM under the supervision of Prof. José Palomar and Prof. Juan José Rodríguez. He is currently carrying out his research activity in the Department of Chemical Engineering at UAM as an Associate Professor, with experience in different lines of research, mainly focused on the field of ionic liquids: design molecular; adsorption treatment of wastewater; polluting gas treatments; synthesis of advanced materials; molecular and process simulation; and cost estimation process.

JL has participated in 17 research competitive projects from National and International sources, and he keeps collaboration with 4 National industrial companies related to Environmental Engineering, such as Técnicas Reunidas and Aqualia. JL has published 46 papers in JCR indexed Journals, 86% of which in first quartile journals. These publications have received a total of more than 2000 citations and the h-index is 30 (Source: Scopus). JL has published together with researchers from 6 international institutions (highlighting Imperial College, Universidade de Aveiro or Technische Universität Darmstad) and several national centers. Recently, he has published 2 invention patents (P202031120, P202031121 and P202130789, Oficina Española de Patentes y Marcas). His months abroad as postdoctoral researcher are 12. He has obtained a scholarship from the Portuguese Ministry (FCT) at the University of Aveiro under the supervision of Professor J.A.P. Coutinho (9 months in 2016) and a Mobility Grant abroad "José Castillejo" to carry out a stay at Imperial College London (3 months in 2019) with Professor J. Hallett. Moreover, JL assisted to numerous international conferences, with more than 70 contributions. He participated in the organizing committee of 2 international conferences (the Iberoamerican Meeting on Ionic liquids held in Madrid in 2015 and the World Conference on Carbon held in Madrid in 2018) and one national conference (Grupo Español del Carbon Meeting held in Madrid in 2013). JL has reviewed more than 100 times for 20 international journals, mainly top-ranked, since 2013 and he contributes as Guest Editor of the Special Issue called "Recovery, regeneration and reutilization insights related to new generation solvents" in Processes open access journal (MDPI). JL has also participated as jury in 8 evaluations of doctoral dissertations.

In addition to his experience as a researcher, he has a solid academic training, he is a doctor in Chemical Engineering from UAM (2013, Extraordinary Doctorate Award). Since September 2016, he has been developing his teaching and research work in the Chemical Engineering Department of UAM, now as Associate Professor. He has been awarded two research productivity periods ("sexenios") for the periods 2008–2013 and 2014–2019, as well as a teaching merit period ("quinquenio") for 2017–2021. He has an average of more than 200 hours per course teaching in the Chemical Engineering master and degree, Chemistry degree and Environmental Science degree since 2016 (>1700 hours). In the last years JL has directed 40 MSc and BCs Thesis (degree in Chemical Engineering, Chemical Engineering Master and Biotechnology Master) and currently, he is supervising 2 PhD Thesis, 1 CAM-fellowship researcher, 2 MSc Thesis and 1 BCs Thesis in CO_2 capture processes. Since 2021, JL coordinates the course organized by UAM "Integración del diseño molecular y la simulación de procesos en el desarrollo de nuevos procesos y productos industriales".

Part C. RELEVANT MERITS

C.1. Publications

47 papers. Websites updated at ORCID, Publons, ResearchID, Scopus and Google Scholar platforms.

Works selected due to their relationship to current project within last 5 years (IF, impact factor; C, citations; *, corresponding author):

1 R. Santiago, *J. Lemus*,* A.X. Outomuro, J. Bedia, J. Palomar. Assessment of Ionic Liquids as H2S Physical Absorbents by Thermodynamic and Kinetic Analysis based on Process Simulation. Separation and Purification Technology. 2020, 233, 116050-116059. IF: 5.107. C: 42.

2 D. Hosptial-Benito, *J. Lemus*,* R. Santiago, J. Palomar. Thermodynamic and kinetic evaluation of ionic liquids + tetraglyme mixtures on CO_2 capture. Journal of CO2 Utilization. 2020, 35, 185-193. Impact Factor: 5.189. C: 17.

3 *J. Lemus*,* R. Santiago, D. Hospital-Benito, T. Welton, J. Hallett, J. Palomar. Process Analysis of Ionic Liquid-Based Blends as H_2S Absorbents: Search for Thermodynamic/Kinetic Synergies. ACS Sustainable Chemistry and Engineering, 2021, 9(5), 2080–2088. IF: 6.140. C: 16

4 *J. Lemus*,* C. Paramio, D. Hospital-Benito, C. Moya, R. Santiago, J. Palomar. Selective CO_2/CH_4 Separation by Fixed-Bed Technology Using Encapsulated Ionic Liquids. ACS Sustainable Chemistry and Engineering. 2022, 10, 42, pp. 13917-13926. IF: 15.339. C: 10.

5 J. Palomar, *J. Lemus*,* P. Navarro, C. Moya, R. Santiago, D. Hospital-Benito, E. Hernández. Process Simulation and Optimization on Ionic Liquids. Chemical Reviews. 2024, 124, 1649-1737. IF: 62.1. C: 25.

C.2. Congresses

Highlighted communications as first author among 33 contributions since 2019:

1 J Lemus et al. (2025) 22nd International Conference on Carbon Dioxide Utilization (ICCDU 2025) (Lisbon, Portugal). Oral

2 J Lemus et al. (2023) 11th World Congress of Chemical Engineering (WCCE11) (Buenos Aires, Argentina). Oral

3 J Lemus et al. (2021) 6th Iberoamerican Meeting on Ionic Liquids (online). Oral communication. Other three oral contributions in this congress as author.

4 J Lemus et al. (2019) The 8th international congress on Ionic Liquids (COIL 2019, Beijing). Oral. Other two oral contributions in this congress as author and a poster award.

5 J Lemus et al. (2019) 1st Ibero-American Congress on Chemical Engineering (CIBIQ, Santander). Other two oral contributions in this congress as author.

C.3. Research projects

1 Nuevos sistemas de captura y conversión de CO_2 basados en líquidos iónicos para la producción de energía limpia y sostenible (PID2020-118259RB-I00). 261.360 €.

2 Tecnología de upgrading de biogas basada en líquidos iónicos soportado (PDC2021-120881-I00) 143.750 €.

3 Carbon Dioxide Capture using Gas–liquid Membrane Contactors and Non-volatile Solvents: Aiming at a Close Cycle CCS Process for Offshore Implementation (IF/00758/2015). 50.000 €.

4 Estrategia de investigación multiescala para el desarrollo de sistemas de captura selectiva de gases basados líquidos iónicos (CTQ2014-52288-R). Ministerio de Economía y Competitividad. 239.480 €.

5 Sustainable fuel production by aqueous phase reforming-understanding catalysis and hydrothermal stability of carbon supported noble metals (Sus Fuel Cat 310490). Seventh Framework.

6 Captura de CO_2 mediante innovadoras operaciones de separacion basadas en líquidos iónicos (CTQ2011-26758). Ministerio de Ciencia e Innovación. 188.000€.

7 Empleo de líquidos iónicos como alternativa a los disolventes orgánicos en procesos avanzados de separación (S2009/PPQ-1545). Comunidad de Madrid. 234.000€.

8 Preparación de líquidos iónicos soportados sobre carbón activo para la separación de contaminantes clorados (CTQ2008-05641). Ministerio de Ciencia e Innovación. 137.000€.

9 Preparación, caracterización y estudio de sistemas constituidos por líquidos iónicos soportados en carbón activo para el tratamiento de contaminantes clorados. Comunidad Autónoma de Madrid-UAM. 20.000€.

10 Preparación de catalizadores de Pd con líquidos iónicos soportados en carbón activo para hidrodecloración de contaminantes clorados. Comunidad Autónoma de Madrid-UAM. 16.000€.

C.4. Contracts, technological or transfer merits

National patents:

1 P. Navarro, E. Hernández, S. Vela, C. Moya, R. Santiago, D. Hospital, J. Lemus, J. Palomar. Procedimiento para fijación de dióxido de carbono en fase acuosa (P202031120).

2 P. Navarro, E. Hernández, S. Vela, C. Moya, R. Santiago, D. Hospital, J. Lemus, J. Palomar. Procedimiento para fijación de dióxido de carbono en un sistema bifásico orgánico/agua (P202031121).

Contracts with firms (Art. 83):

1 Soluciones tecnológicas basadas en hidrógeno para la movilidad inteligente y sostenible de flotas autónomas heavy-duty shine fleet. Programa Misiones. Técnicas Reunidas. 45.000 €.

2 Simulación y optimización de proceso de limpieza de biogás - H2020 ULTIMATE. Aqualia. 2.500 €.

3 Diseño, rediseño y validación de proceso de limpieza de biogás. Proyecto H2020 ULTIMATE. Aqualia. 3.750 €.

4 Nuevos materiales, tecnologías y procesos para la generación, almacenamiento, transporte e integración de hidrógeno renovable y biometano a partir de biorresiduos - ECLOSION. Proyecto Misiones. Aqualia. 170.000 €.

CURRICULUM VITAE (CVA)

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

CV date	11 /12 /2025

Part A. PERSONAL INFORMATION

First name	Raquel		
Family name	Ibáñez		
Gender (*)		Birth date	
e-mail	ibanezr@unican.es	URL Web	
Open Research and Contributor ID (ORCID)(*)		Orcid.org/0000-0002-0432-1827	

A.1. Current position

Position	Full Professor		
Initial date	18/12/2017		
Institution	Universidad de Cantabria		
Departament/Center	Departamento de Ingenierías Química y Biomolecular/ETSIIyT		
Country	Spain	Teleph. number	942201594
Key words	Membranes, EDBM, Sustainable Engineering; Water		

A.2. Previous positions (research activity interruptions, art. 45.2.c)

Period	Position/Institution/Country/Interruption cause
03-07-2000 a 17-12-2017	Assistant professor/ Spain/
01-10-1998 a 02-07-2000	Profesora titular de escuela universitaria interina/Spain/----

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
1992	*Universidad del País Vasco/Spain*	*Licenciada*
1996	*Universidad de Cantabria/Spain*	*PhD*

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

Indicators of Quality and Scientific Production:

- 5 Teaching Steps (Quinquenios) & 6 sexenios (5 research steps and 1 transfer step)
- **PhD Thesis directed: 12** (three more ongoing)
- **H-index: 35** with 4421 citations (Scopus June 2024)
- Scientific production: 105 contributions in JCR Journals (70% in Q1); 5 patents, more than 160 contributions to specialised congresses.
- R&D Expertise: **IP in 17 national and regional projects and 12 R&D contracts (**participation as researcher in more 30 projects, included 6 internationals, and 28 research contracts).

Raquel Ibáñez is Full professor in chemical engineering at the University of Cantabria since 2017. Previously she had been assistant professor (2000-2017). As part of her commitment with university management she has been Head of the Chemical Engineering and Inorganic Chemistry Department (2004-2008) and Vice-Dean of the ETSIIyT (2008-on going). Her research activity covers different positions (pre and posdoctoral) along them she has the opportunity to develop several research lines, being most of them oriented towards R&D of new processes aimed at the treatment and **valorisation of waste and waste streams**. During her predoctoral period her research was focused in the characterization and treatment of industrial solid wastes. She obtained a predoctoral grant from the

enterprise TRADEBE, and she completed a predoctoral stay at the *Universidad Pedagógica y Tecnológica de Tunja* (Colombia) supported by a grant from the Spanish International Affairs Ministry. Besides an intensive technological transfer activity towards different enterprises, she published two books (edited by the Basque Government) and a number of publications in JCR (e.g. JHM; J Environ Eng ; Environ. Technol.). As associate professor in the UC, teaching and postdoctoral research activities were conducted in the Advanced Separation Processes (ASP) research group, headed by prof. Inmaculada Ortiz. In this period a research stay was completed at the Membrane Technology Group (Twente University, The Netherlands) supported by a grant from the program "*Programa de estancias para profesores de universidad y de escuelas universitarias en centros extranjeros y españoles*". After her stay she started a new research line focused in electro-membrane processes. Since 2013 she has been heading the research group Sustainable Processes Engineering (IPS) of the University of Cantabria. Her research interest has been focused in the developments and **application of, advanced membrane processes for the material and energy valorization of waste streams**. Working in these R&D topics, she has been IP in 16 competitive projects (national and regional) and has participated in more than 33 as researcher (5 international). The internationalization of her research activities has increased in the last years, as researcher in projects obtained in SUDOE, LIFE or INDIGO calls. She has published more than 80 articles (JCR) most of them in Q1 journals, (h=27 Scopus December 2021) and more than 150 contributions to specialized congresses. She has obtained 4 research and 1 transference Steps (sexenios). She signed 11 research contracts and has participated as researcher in 25; has coauthored 4 Patents and a Utility Model.

Her contribution to decarbonization and climate change mitigation has been focused in the use of electromembrane technologies (EDR) for energy harvesting from salinity gradient between salty effluents (e.g. SWRO concentrate brines or UWWTP effluents) and the corresponding receiving waterbodies. Basic knowledge, related to fundamentals, viability conditions, modelling and optimization, has been carried out my means of EQC2018-004754-P, PDC2021-120786-I00) the performance of SGE-EDR in SWRO desalination plant attracted attention of ACCIONA AGUA and as result of a research contract a patent was coauthored (ES2814028-B2) and a proposal, LIFE INDESAL, has been submitted to current LIFE call.The performance of SGE-EDS as energy harvesting in coastal UWWTPs attracted attention of the Cantabria government (CG). A project financed by CG demonstrated the potential of such technology in a number of coastal UWWTP in Cantabria. As a result, a Pilot plant is being run in Comillas WWTP under Project LIFE 3E coordinated by MARE (CG).

Her commitment with the education of young researchers has10 Doctoral Thesis, currently in the framework of the Doctorate in chemical engineering, energy and processes of the University of Cantabria. She has been responsible of Postdoctoral researchers in the framework of different competitive calls like Margarita Salas. In 2006 she was co-founded of a Technological Spin-off, APRIA SYSTEMS She is in charge of the "*servicios cientifico-técnicos*" of the Chemical and Biomolecular Department (UC) since 2011. In this role she has been in charge of the obtention of several quality standards (UN-EN-ISO9001:2015). She has been collaborator in the thematic area of Science and Chemical Technologies - subarea of Chemical Technology-, General Directorate of Research and Management of the National R&D Plan. (2012-2018). She is evaluator for different agencies, national (ANEP, DEVA, AEI) and international (EU, Akademy of Finnland, CYTED; FCT).

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

C.1. Publications (10 Recent publications (2020-2024) selected from 105 contributions in JCR)

1. Sampedro, T., Gómez-Coma, L., Ortiz, I., Ibañez, R. (2024) Unlocking energy potential: Decarbonizing water reclamation plants with salinity gradient energy recovery Science of the Total Environment, 906,167154. (Q1).
2. Fernández-Escalante, E., Ibañez, R., San-Román, M.-F. (2023). **Separation and Purification Technology**, 326,124645
3. Fernández-Escalante, E., Ibañez, R., San-Román, M.-F.(2023) Selective lithium separation from desalination concentrates via the synergy of extractant mixtures. **Desalination**. 556,116525 (Q1)

4. Sampedro T.; Tristán C.; Gómez-Coma L.; Rioyo J.; Sainz M.; Ortiz I.; Ibañez R. (2023) SWRO concentrates for more efficient wastewater reclamation. **Desalination** 545,116156. Q1
5. Santos, G., Ortiz-Gándara, I., Del Castillo, A., Arruti, A., Gómez, P., Ibáñez, R.,, Urtiaga, A.; Ortiz, I. (2022) Intensified fish farming. Performance of electrochemical remediation of marine RAS waters. **Science of the Total Environment** 847,157368. Q1
6. Coterillo R. Gallart L.-E., Fernández-Escalante E., Junquera J. García-Fernández P., Ortiz I, Ibañez R. San-Román M.-F. (2022). Selective extraction of lithium from seawater desalination concentrates: Study of thermodynamic and equilibrium properties using Density Functional Theory (DFT). Desalination, 532, 115704.Q1
7. Gómez-Coma L.; Abarca J.A.; Fallanza M.; Ortiz A.; Ibáñez R.; Ortiz I. (2022) Optimum recovery of saline gradient power using reversal electrodialysis: Influence of the stack components. Journal of Water Process Engineering 48, 102816.Q1
8. Tristan, Fallanza, M., Ibáñez, R., Ortiz, I.(2020) Recovery of salinity gradient energy in desalination plants by reverse electrodialysis. Desalination, 496,114699. DOI 10.1016/j.desal.2020.114699. Q1.
9. C. Tristan, M. Rumayor, A. Dominguez-Ramos, M. Fallanza, R. Ibáñez, I. Ortiz (2020) Life cycle assessment of salinity gradient energy recovery by reverse electrodialysis in a seawater reverse osmosis desalination plant Sustainable Energy & Fuels, 4(8), pp. 4273-4284. DOI 10.1039/d0se00372g. Q1.
10. Ortiz-Martinez, V.M., Gómez-Coma, L., Tristan, C., Pérez G., Fallanza M., Ortiz A. Ibáñez R, Ortiz, I.(2020) A comprehensive study on the effects of operation variables on reverse electrodialysis performance. Desalination 482,114389. DOI 10.1016/j.desal.2020.114389. Q1.
11. Herrero-González, M., Diaz-Guridi, P., Domínguez-Ramos, A., Irabien, A., Ibáñez, R. (2020) Highly concentrated HCl and NaOH from brines using electrodialysis with bipolar membranes. Separation and Purification Technology 242, 116785. DOI10.1016/j.seppur.2020.116785. Q1

C.2. Congress

more than 20 contribution is last five years including national and international congresses related to chemical engineering, energy, sustainability and environment topics. The following are extracted:

- Book of abstracts 13th European Congress of Chemical Engineering. EFCE event Nº 767. 20-23 September 2021 (berlin, Germany on-line):
  - C. Tristan, M. Fallanza, R. Ibáñez e I. Ortiz. on the energy recovery of waste streams: A process Synthesis tool for reverse electrodialysis power plant design.
  - T. Sampedro, L. Gomez, M Fallanza, A. Ortiz, R. Ibáñez, I. Ortiz Blue Energy through reverse electrodialsysis Technology: A promising renewable energy to implement in Europe.
    M. Herrero, A. Dominguez, R. Ibáñez, Towards Circular economy in desalination: Environmental sustainability of acid and base self-supply.

C.3. Research projects

Summary of the most relevant R&D projects in the last 5 years, from a total of 49 competitive projects and 36 contracts in which R. Ibáñez has participated throughout her R&D trajectory

a) Research projects obtained in competitive calls in which the author is acting as coordiantor:

- PDC2021-120786-I00: Aprovechamiento energético del gradiente salino (EGS). Prueba de concepto para la innovación y transferencia de la Electrodiálisis reversa (EDR) como tecnología sostenible . Founded: MCIN/AEI y UE Next Generation EU/PRTR). 01/12/2021 a 30/11/2023. IP: Raquel Ibáñez.
- PID2020-115409RB-I00: Tecnologías de recuperación de materias primas críticas de corrientes residuales en el marco de la economía circular. Founded: MCIN/ AEI). 01/09/2021 a 31/08/2024 IP: Raquel Ibáñez, CoIP: Maria Fresnedo San Román.
- RTC-2017-6035-2: ImpulRAS: Hacia una mejora tecno-económica de ELOXIRAS®: control y minimización de subproductos. Founded: Ministerio de Economía y Competitividad. Retos Colaboración 2017. Participants: Apria Systems (coordinator) UC. 01/01/2018 a 31/12/2021. IP subproyecto UC: Raquel Ibáñez.

- CTM2017-87850-R: Tecnologías ambientales sostenibles para el aprovechamiento energético de corrientes residuales. Founded: Ministerio de Economía y Competitividad. 01/01/2018 a 31/12/2020. IP: Raquel Ibáñez.
  EQC2018-004754-P: Laboratorio Integrado de Membranas y Sistemas de Reacción (MRSIL) founded: Ministerio de Ciencia, Innovación y Universidades. IP: Raquel Ibáñez
  b) Participation as researcher in competitive projects obtained in international calls:
- LIFE-3E: ENVIROMENT-ENERGY–ECONOMY (LIFE19ENV/ES000143) Founded: European Commission. 01/10/2020- 30/09/2024.Coordinator: MARE S.A.
- SUDOE ENERGY PUSH: SUDOE Efficient energy for public social housing (FEDER) SOE3/P3/E0865. Founded: European Commission. 01/09/2019- 31/08/2022. Coordinator: UC
- HYLANTIC: Atlantic network for renewable generation and supply of hydrogen to promote high-energy efficiency (FEDER). ATLANTIC AREA EAPA_204/2016. Founded: European commission. Coordinator: UC. 01/10/2017- 30/09/2020.
- LIFE-2-ACID. LIFE16 ENV/ES/000242. Founded: European Commission. 01/07/2017- 31/12/2020. Coordinator: APRIA SYSTEMS
- PEMFC-SUDOE: Sostenibilidad energética en la región SUDOE: Red PEMFCSUDOE (FEDER) PEMFC-SUDOE- SOE1/PI/E0293. COMISION EUROPEA. 01/07/2016- 30/06/2019.

C.4. Contracts, technological or transfer merits

- **A) R&D contracts**:
- Desarrollo y seguimiento de aplicaciones de electrodiálisis. Founded: Solvay 13/09/2021 a 12/12/2021. IP: Raquel Ibáñez
  ELOXIRAS© DULCE: Oxidación Electroquímica en sistemas de Acuicultura de Agua Dulce en Recirculación. Founded: APRIA Systems, SODERCAN. 05/03/2020- 31/12/2020.IP: R. Ibáñez.
- Ensayos relativos a la caracterización de polímeros y disoluciones acuosas u orgánicas. Founded: DYNASOL, S.A.; 02/01/2020- 01/01/2024. IP: R. Ibáñez.
- Evaluación técnica de la recuperación de la energía de gradiente salino contenida en la mezcla salmuera-agua de mar mediante electrodiálisis reversa. Founded: ACCIONA S.A. 01/05/2018- 01/02/2019. Researcher.
- Tratamiento Electroquímico de Aguas residuales Procedentes de EDAR. Founded: CADAGUA. S.A. 16/10/2018- 30/07/2019. Researcher.

B) Patents and Utility Models

- Ferrer O., Malfeito J.J., Ortiz I., Ibáñez R., Ortiz A. Procedimiento de recuperación de energía con mezcla de corrientes de osmosis inversa. Titular: ACCIONA AGUA S.A. ES2814028-B2. concesión 28/07/2021
- P. M. Gomez; R. Ibáñez, A. M. Urtiaga & I. Ortiz, Modelo de utilidad U202131422(7) -Instalación de recirculación acuícola de agua dulce. Titular: APRIA SYSTEMS, S.L. Nº pub.: ES1275532 19/10/2021.
- Ortiz I, Urtiaga A.M.; Ibáñez R., Pérez-González Antia Título: *Proceso de Conversión de Salmueras en ácidos y Bases y productos obtenidos*. Solicitud: P201200758. País de prioridad: España. Titular: UC.
- Valiño V, Valiente R., San Román M.F., Ibáñez R., Ortiz I Título: *Método espectroscópico para la determinación de proteínas en medios complejos.* N. de solicitud: ES2464440 A1 País de prioridad: España. Fecha de prioridad: (02.06.2014). Titular: UC.
- Ortiz I, Galán B., Ibáñez R. Título: *Método para la extracción y concentración simultaneas de compuestos de fases líquidas utilizando membranas microporosas* N. de solicitud: ES 2 187 311 B2. País de prioridad: España. Titular: UC

C)Other transfer merits

- Co-founder of Technological **Spin-off APRIA SYSTEMS** (http://www.apriasystems.es/)