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	

Part A. PERSONAL INFORMATION

First name	Inmaculada		
Family name	ORTIZ URIBE		
Social Security, Passport, ID number			
e-mail	ortizi@unican.es	URL Web http://grupos.unican.es/pasep	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-3257-4821	

(*) Mandatory

A.1. Current position

Position	Chemical Engineering Professor		
Initial date	28/01/1996		
Institution	University of Cantabria		
Department/Center	Chemical and Biomolecular Eng.	ETSIIyT	
Country	Spain	Teleph. number	
Key words	Membrane Technology, clean energy, waste circularity		

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

Period	Position/Institution/Country/Interruption cause
xxxx-xxxx	
yyyy-yyyy	

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
BsC. Chemistry	Univesity of the Basque Country	1980
PhD Chemistry	University of the Basque Country	1980

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

Inmaculada Ortiz Uribe is Professor of Chemical Engineering at the University of Cantabria, Spain, since 1996. She received her Ph.D in Sciences (Chemistry) from the University of the Basque Country (Spain) in 1985 and completed her training at Giessen University, Germany (1980) and Imperial College, University of London (1985-86, 1987). She has been visiting Professor at Wuhan University, China in 2010, and Fulbright Fellow at Carnegie Mellon University, USA, 2017, University of Oulu, 2012, Institute of Chemical technology, Bombay, 2012, Institute of Technology of the university of Tashken (Uzbekistan), 2018, Universidad Autónoma de Méjico (Ciudad de Méjico), 2015 and 2018, Universidad Nacional del Sur (Argentina), 2000, KAUST university (Arabia), 2010, universidad del Noroeste en Potchefstroom (Sudáfrica) 2014; during the research and academic visits she has given specialized courses in the field of Membrane Technology and has strentghen the scientific collaboration.

Her research interests focus on the ***design, optimization and integration of advanced separation technologie***s; this general objective is divided into i) the synthesis and development of high selective

separation materials, where selective membranes play a key role, ii) integration of separation and reaction steps searching for more efficient processes and, iii) developing the methodology for process scale-up and scale-down ORCID: http://orcid.org/0000-0002-3257-4821. Apart from the high number of publications and citations received, it is worth mentioning the incresing number of publications placed in the 1% of articles with the highest citations in the respective fields.

Currently she is the head of the Advanced Separation Processes research group where the binomial "knowledge creation and its application & transfer" is the cornerstone of the daily activity. R&D projects have applied advanced separations to a wide number of fields such as protection of natural resources, optimization of industrial separations, renewable energy sources, food quality as well as biomedical applications. She has supervised 27 post-doc and 48 doctorate thesis in the doctorate program of chemical, process and energy engineering. In 2006 she co-founded the spin off company APRIA SYSTEMS; the SME that has experienced a continuous and sustained growth (from 1 PhD in 2006 to 11 PhD, 3 engineers and 2 non-specialized workers in 2021) has consolidated its position in the design, engineering and construction of demonstration plants for challenging applications. Dr. Ortiz Uribe has participated as the Spanish ministry representative in the Scientific Committee of a good number of international R&D programs, INTAS 2003-06; COST, ESSEM Domain, 2013-14; Joint Programming Initiative, JPI Water, 2015-18, and has given over 60 invited and plenary talks at scientific congresses and meetings.

The research and academic activities have been shared with her commitment and service to the Society where the following responsibilities deserve special mention 1) scientific officer of 2 national R&D programs in the period **1998-2002** (Environment: Environmental Technologies and Chemical Products and Processes), and 2) Scientific coordination of the field "Chemical Technology" for the Agencia Nacional de Evaluación y Prospectiva, **2005-08**;

She was elected to the National Academy of Sciences in May 2008, and has received several research awards**:** XV Burdinola Research Prize for the work Industrial Applications of Membrane Technologies" in 2010, XV Research and Innovation in applied Chemistry, Prof. M. Moreno in 2014. CIDETEC 2015 for the work Contribution of electrochemistry to the sustainable development; C.S.J. M. Parés 2017 for the Research trajectory on Advanced Separation Processes, ICCE2019 etc

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

C.1. Publications *(see instructions),*

Selected publications according to the number of citations

1. A. Pérez-González, A. Urtiaga; R. Ibáñez, Inmaculada Ortiz. *S*tate of the art and review on the treatment technologies of water reverse osmosis concentrates. Water Research 46 (2012) 267-283. **highly cited paper;** 684 citations (23/11/2021)
2. Ch. Gadipelly, A. Pérez-González, G. Yadav, Inmaculada Ortiz, R. Ibañez, V. Rathod, K. Marathe, *Pharmaceutical industry waste water: Review of the technologies for water treatment and reuse*. Industrial and Engineering Chemistry Research 53(29)11571-11592, 2014. 471 citations (23/11/2021)
3. S.V. Jadhav, E. Bringas, G.D. Yadav, V.K. Rathod, Inmaculada Ortiz, K.V. Marathe. Arsenic and Fluoride Contaminated Groundwaters: A review of current technologies for contaminants removal. J.Environ. Manag. 162, 306-325, 2015. **highly cited paper** ; 405 citations (23/11/2021)
4. J. Gómez, E. Bringas, Inmaculada Ortiz, Review Recent progress and future challenges on the use of high performance magnetic nano-adsorbents in environmental application s. Chemical Engineering Journal, 256, 187-204, 2014. **highly cited paper** ; 328 citations (23/11/2021)
5. M. Díaz, A. Ortiz, I. Ortiz, Progress in the use of ionic liquids as electrolyte membranes in fuel cells, J. Membr. Sci. 469, 379-396, 2014; 242 citations (23/11/2021)

Selected publications dealing with hydrogen contribution to energy decarbonization

6. Maestre, V. M.; Ortiz, A.; Ortiz, I. *Challenges and Prospects of Renewable Hydrogen-Based Strategies for Full Decarbonization of Stationary Power Applications. Renew. Sustain. Energy Rev.* 2021, *152*, 111628.
7. Ortiz-Imedio, R.; Caglayan, D. G.; Ortiz, A.; Heinrichs, H.; Robinius, M.; Stolten, D.; Ortiz, I. *Power-to-Ships: Future Electricity and Hydrogen Demands for Shipping on the Atlantic Coast of Europe in 2050. Energy* 2021, *228*, 120660
8. Yáñez M., Ortiz A., Gorri D., Ortiz I., *Comparative performance of commercial polymeric membranes in the recovery of industrial hydrogen waste gas streams*, Int. J. Hydrogen Energy 46(33) 2021, 17507-17521
9. Teixeira FC., de Sá AI., Teixeira APS., Ortíz-Martínez VM., Ortiz A., Ortiz I., Rangel CM., *New modified Nafion-bisphosphonic acid composite membranes for enhanced proton conductivity and PEMFC performance*, Int. J. Hydrogen Energy 46 (33) 2021 17562-17571
10. Ortiz-Imedio R., Ortiz A., Urroz JC., Diéguez PM., Gorri D., Gandía LM., Ortiz I., *Comparative performance of coke oven gas, hydrogen and methane in a spark ignition engine*, Int. J. Hydrogen Energy 46(33) 2021 17572-17586

11. C.2. Congress .

In the last 10 years Dr. Ortiz Uribe has co-authored more than 100 contributions to scientific congresses giving invited lectures and keynotes. Next, only plenary talks delivered in the last 5 years with special invitation of the scientific committee are included

- **Separation Challenges in the quest for sustainability**, **conferencia plenaria** en el 12th European Congress of Chemical Engineering, Florence, 18.09.2019
- **Membrane Reactors: From Fundamentals to Future Perspectives** en **CAMURE 2020. Conferencia plenaria en** el 11th International Symposium on Catalysis in Multiphase Reactors & 10th International Symposium on Multifunctional Reactors, 01.06.2020. Celebrada on line finalmente 22.03.2021
- **Membrane-assisted photocatalytic reactors. Achieving the paradigm of process integration, Conferencia plenaria en SESTEC 2020,** impartida on-line el 23/03/2021
- **Increasing Desalination Sustainability,** conferencia plenaria invitada en Desalination Week, Denia, 25-27 Noviembre 2019
- **Contribution of Membrane Technology to the societal challenges in the 21st century**. **conferencia plenaria** en X Ibero-American congress on Membrane Science and Technology, CITEM 2016. Ciudad de Méjico 24 de mayo de 2016
- **Novel separation processes based on the facilitated transport mechanism**. **Conferencia invitada** en Carnegie Mellon University, Pittsburgh (EEUU), 30 de marzo de 2017

C.3. Research projects., since 2016

- **Solar to hydrogen energy conversion efficiency using seawater, S2H, PLEC-2021007718.** Ministerio de Ciencia e Innovación. IP: Inmaculada ORTIZ URIBE 01.12.2021-30.11.2024; 453120,59 €
- **LIFE-3E**, Environment, energy and economy. IP en la UC: I. ORTIZ URIBE; (01.10.2020-30.09.2023); Budget: 1,730,984 euros
- **SUDOE ENERGY PUSH.** SOE3/P3/E0865; concedido 18/06/2019. 1.387.457,64 euros (IP en la UC: A Ortiz)
- **LUV2Innovate: Innovative photochemical processes assisted by LED UV-C for the treatment of wastewaters.** *RTC2019-006820-5* IP: Inmaculada ORTIZ URIBE**;** 183.108 €,01.04.2020-31.12. 2022
- ***High performance microfluidic separations: Challenges and Opprotunities***, MINECO RTI2018-093310-B-I00; 01.01.2019-31.12.2021; 338.800 €, IP: Inmaculada ORTIZ URIBE

- **Network for Renewable Generation and Supply of Hydrogen to promote High Energy Efficiency. HYLANTIC.** Interreg Atlantic**.** Coordinator: UC, Dr. A. Ortiz; Budget:2.500.000 €
- **Energy sustainability in the SUDOE región. PEMFC-SUDOE network**. Interreg Sudoe; 01/07/2016 -30.06.2019; Coordinador: Universidad de Cantabria (A. Ortiz);
- **Harnessing saline gradient energy through the reverse electrodialysis Technology. Phase I. Techno-economic feasibility of the application in the Cantabria Autonomy.** GRADISAL. SODERCAN. **IP: Inmaculada ORTIZ URIBE.** 30.12.2016 – 29.12.2018. Cuantía Total: 194.247,31 €.
- **Magnetic separation of gram negative bacteria endotoxins in the treatment of sepsis infections.**CTQ2015-72364-EXP. MINECO. IP: I. ORTIZ URIBE. 01.05.2017 – 30.04. 2019; 60.500 €
- **Advanced separation applications. Modeling and experimental validation.** (CTQ2015-66078-R) (MINECO- FEDER); 01/01/2016 –31/12/2018; 385.990 €; **IP: I.Ortiz**
- **Synthesis and characterization of magnetic nanomaterials as separation agents.** SODERCAN – UC; 01/06/2015 – 25/06/2016; 30.000 €; **IP: I. Ortiz Uribe**

C.4. Contracts, technological or transfer merits, since 2017

The transfer of knowledge to stakeholders and to the Society is a cornerstone in the activity developed by Dr. Ortiz Uribe. The activity involves 1) promotion of the transfer of knowledge through the spin-off company APRIA SYSTEMS, 2) transfer of knowledge through the incorporation of specialized PhD personnel to national and international companies, academy and administration and, 3) formalization of R&D contracts on demand of companies and organisms.

Although the Technology oriented spin-off Company APRIA SYSTEMS was created in 2006, before the period considered in this cv, it continuously supports the transfer of knowledge created in the academic R&D group Advanced Separation Processes; APRIA SYSTEMS has hired Dr. Isabel Ortiz Gándara (2016), Dr. S. Domínguez Suárez (2017) and Dr. A. Hernández (2021) trained in the R&D UC group, it jointly collaborates in EU financed projects (HYLANTIC, LIFE 3E etc) and acts as a bridge between the group and different stakeholders through the estableshiment of research contracts.

In addition, it is worth to mention the transfer of knowledge to different companies resulting from hiring PhD personel trained in the R&D group. A sample from 2017 on, **Dr. M. Díaz Viejo** (2017) R&D dep. Dynasol Elastomers (Repsol group); **Dr. A. Barceló Compte** (2017), Head of the Microbiology depart. Freixenet S.A., la **Dr. P. Ribao Martínez** (2018), Production engineer in Armando Alvarez S.A., **Dr. A. Basauri Penagos** (2021) engineering dep. in CLH S.A, **Dr. Claudía Solá Gutiérrez** (2019) R&D dep. in **UniSieve** (Suitzerland)**, Dr. A.Romano** (2020)**,** Chlor-alkaly in **INOVIN** (Italy) or to Academy such as **Dr. Carlos Javier Escudero Santiago** (2017), associate profesor at the universidad Tecnológica de León (Méjico), **Dra. Jenifer Gómez-Pastora** (2018), post-doc at The Ohio State University and associate profesor at the university of Texas from January 2022

In order to give answer to specific and temporary demands from different companies R&D contracts have been signed with specific agreements for the protection of the intelectual property; among the most recent contracts the following are highlighted,

REMSELAM. Técnicas Reunidas 12.11.2020-30.06.2022 (IR: I. Ortiz) Cuantía Total: 77597,3€

Evaluación Técnica de la recuperación de la energía de gradiente salino contenida en la mezcla salmuera-agua de mar mediante electrodiálisis reversa. ACCIONA-AGUA; 01.05.2018-31.01.2019 (**IR: I. Ortiz Uribe)**; 50.000 €.

***Desarrollo de recubrimientos funcionalizados con nanopartículas de grafeno para laminados prelacados con elevada resistencia a la corrosión*.** Santander Coated Solutions. 06.02.2017 – 12.12.2017. (**IR: I. Ortiz**). 60.500 €.