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	Jose Angel		
Family name	Irabien Gulias		
Gender (*)		Birth date	
ID number			
e-mail	angel.irabien@unican.es	https://www.researchgate.net/profile/Angel-Irabien	
Open Research and Contributor ID (ORCID)(*)		0000-0002-2411-4163	

(*) Mandatory

A.1. Current position

Position	Chemical Engineering Professor		
Initial date	1991		
Institution	University of Cantabria		
Departament/Center			
Country	Spain	Teleph. Nr	+34629560552
Key words	Chemical Engineering, Sustainability, Climate Change Mitigation		

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

Period	Position/Institution/Country/Interruption cause
2020-now	Catedrático/UC/ Spain
2019-2020	Director General de Universidades Investigacion y Transferencia/Gobierno de Cantabria/Spain
2006-2018	Catedrático/UC/ Spain
2015 (six months)	Madariaga Senior Grant/Academic Visitor/Oxford University/UK
2003-2004	Director General Medio Ambiente/Gobierno de Cantabria/Spain
1991-2003	Catedrático/UC/ Spain/Head of Department
1988-1991	Profesor Titular/UPV-EHU/Spain
1986-1987 (six months)	Fleming (British Council) Postdoctoral Grant/ Kings College University of London/UK
1982-1985	Associate Professor /UPV-EHU/Spain
1979-1980 (one year)	DAAD Predoctoral Grant/Friedrich-Alexander Universität/Erlangen-Nürnberg/Germany
1977-1978/1981-1982	Assistant Professor/UPV-EHU/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed	UPV-EHU/Spain	1976
PhD	UPV-EHU/Spain	1982

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

From 1991 (Full Professor UC) a high number of publications (more than 300) in international journals (h=51 WofS, see I-4395-2014) and citations (near 10.000) summarize the continuous contribution to the knowledge at an international level. From the 429 works in total, with near 10.000 citations (see ORCID 0000-0002-2411-4163), approximately 350 correspond to scientific articles in international journals, from which near 250 have been published in Q1 ranked journals. A continuous international interaction has been carried out: predoctoral stay (one year Germany, Friedrich Alexander Universität, Erlangen-Nürnberg-DAAD Grant); postdoctoral stay (six months UK, Kings College University of London-Fleming British Council Grant) and academic visitor (2015 six months Oxford University-Madariaga Grant). It is worth mentioning the increasing number of highly cited papers (three in the last five years), the citation in the Stanford University World's Top 2% Scientists ranking 2020, and the CENEAI positive assessment of individual research, 6 credits and transfer, 1 credit. In the last ten years 2012-2021 his research interests focus on the analysis, modelling, design, operation, optimization, integration and sustainability assessment of Carbon Capture and Utilization (CCU) technologies; this objective is divided into i) Carbon Capture Processes, where membrane technologies play a key role, ii) Carbon Utilization based on the electrochemical conversion of CO2 into market products, iii) Development of innovative photoelectrochemical processes of CO2 conversion and iv) Sustainability and techno-economic assessment of decarbonization/defossilization processes. The direct competitive funding to projects is around 100.000-200.000 euro/year from the administration and private sector. Two proposals are now under evaluation in European calls: PATHFINDER and Life-2020 respectively. As member of the Spanish partner (UC-Department of Chemical and Biomolecular Engineering) a participation in five international projects in the last ten years corresponding to Interreg and Life calls show the experience of research in big consortia, where the objectives lead to a demonstration deliverable.

International collaborations have been established in different projects with: Prof J Crespo, Universidade Nova Lisbon, Portugal; Prof J Sanchez-Marcano Institut Europeen des Membranes, Montpellier, France; Prof A Pollettini, la Sapienza Roma, Italy; J Stegemann, UCL London, UK; and many others European and international groups like Prof. Yadav at ICT Mumbai, India; Prof I Grosmanm at Carnegie Melon University, USA or Soledad Diaz at Plapiqui, Argentina. The progress in scientific and technical expertise allows a leading role in the SOSPROCAN Unit at UC.

Technological development is demonstrated by 2 patents and more than 20 projects with end users, helping to the progress of the spin-off Apria Systems. In a recent project a proof of concept of the CO2 Capture coupled to the electrochemical reduction using renewable energy is under development, with very good results.

In the last five years (2016-2021) eleven PhD thesis have been supervised, five of them are now in industrial or consulting professional positions; four are now postdoctoral researchers one in Europe (ETH Zurich) and three in Spain and two are assistant professors in Spanish Universities. Considering the last ten years (2011-2021) more than 20 doctors got a job and some of them have reached high positions in the European or Spanish industrial, research or High Education system These results show the benefits to support the PhD and PosDoc research for the innovation in the industry, consulting/services or in the university.

Research management, technical support to the administration and dissemination of knowledge has been carried out in different temporal positions as: Member of the Executive Board of the European Federation of Chemical Engineering (EFCE), President of the Spanish Royal Society Chemical Engineering Group, General Director for the Environment and Universities, Research and Knowledge Transfer in the Cantabria Regional Government.

Part C. RELEVANT MERITS *(sorted by typology)*
C.1. Publications

Ten recent papers have been selected due to the high level of the journals and its impact .

1. Díaz-Sainz, G., Alvarez-Guerra, M., Ávila-Bolívar, B., Solla-Gullón, J., Montiel, V., Irabien, A. Improving trade-offs in the figures of merit of gas-phase single-pass continuous CO2 electrocatalytic reduction to formate Chemical Engineering Journal, 405 (2021) (Cooperation with Institute of Electrochemistry, Alicante)
2. Azenha, C., Mateos-Pedrero, C., Alvarez-Guerra, M., Irabien, A., Mendes, A. Enhancement of the electrochemical reduction of CO2 to methanol and suppression of H2 evolution over CuO nanowires Electrochim. Acta, 36 (2020) (Cooperation with U. Porto-Portugal)
3. Marcos-Madrazo, A., Casado-Coterillo, C., Irabien, Á. Sustainable Membrane-Coated Electrodes for CO2 Electroreduction to Methanol in Alkaline Media. ChemElectroChem, 6 (20), pp. 5273-5282 (2020)
4. Sohaib, Q., Vadillo, J.M., Gómez-Coma, L., Albo, J., Druon-Bocquet, S., Irabien, A., Sanchez-Marcano, J. CO2 capture with room temperature ionic liquids; coupled absorption/desorption and single module absorption in membrane contactor Chemical Engineering Science, 223 (2020) (Cooperation with the Institut Europeen des Membranes, Montpellier-France)
5. M. Rumayor, A. Dominguez-Ramos, A. Irabien Towards the decarbonization of hard-to-abate sectors: A case of study of the soda ash production. ACS Sustainable Chemistry & Engineering 8, 11956-11966 (2020)
6. Aldaco, R., Butnar, I., Margallo, M., Laso, J., Rumayor, M., Dominguez-Ramos, A., Irabien, A., Dodds, P.E. Bringing value to the chemical industry from capture, storage and use of CO 2: A dynamic LCA of formic acid production Science of the Total Environment, 663, pp. 738-753 (2019) (Cooperation with UCL-UK).
7. Castro, S. Albo, J. Irabien, A. Photoelectrochemical Reactors for CO2 Utilization ACS Sustainable Chem. Eng., 6 (12), pp 15877–15894 (2018)
8. Albo, J. Vallejo, D. Beobide, G. Castillo, O. Castaño, P. Irabien, A. Copper-Based Metal Organic Porious materials for CO2 electrocatalytic reduction to alcohols ChemSusChem 10,6, 1100-1109 (2017)
9. Alvarez-Guerra, M. Albo, J. Alvarez-Guerra, E. Irabien, A. Ionic Liquids in the electrochemical valorisation of CO2 Energy and Environmental Science, 8(9)2574-2599 (2015)
10. Albo, J. Alvarez-Guerra, M. Castaño, P. Irabien, A. Towards the electrochemical conversión of carbon dioxide into methanol (2015) Green Chem. 17(4) 2304-2324.

C.2. Congress

In the last 10 years he has been invited to many International Congresses as member of the scientific committee, organizing comittee, Keynote Lecturer or Plenary Lecturer. Among

others: as President of the Organizing Committee 34 Biannual Meeting RSEQ, (Santander, 2013). Member of Scientific Committees: CHISA (Prague, 2012-2014-2016- 2018), European Congress of Chemical Engineering (Copenhaguen, 2004), Mediterranean Congress of Chemical Engineering (Barcelona, 2011,2014), Green Process Engineering (Seville,2014; Toulouse 2018) and World Congress of Chemical Engineering (Barcelona, 2017).

C.3. Research projects

1. Renewable Power to Chemicals: Proof of Concept and Sustainability Assessment (RP2Products (PID2020-112845RB-I00). Budget: 282.000 € (2021-2023)
2. Diseño multiescala de procesos de captura y utilización de dióxido de carbono (CTQ2016-76231-C2-1-R) Budget : 320650 € (2017-2020)
3. Carbon Dioxide Capture and Utilization (CTQ2013-48280-C3-1R) MINECO, UC-UA-UPM 2014-2017 Budget: 348.480 € (2015-2017)
4. "Valorización Química Sostenible de Dióxido de Carbono" CTQ2014-55716-REDTExcellence Network UC/UCM/UPV-EHU/UA/UAM (2014-2017) budget 28000€
5. The application of green technologies for sustainable water purification and reuse. (INDIGO-DST1-017) MINECO-EU 01/06/2012- 01/06/2015, International Project: UE-India 40.000€

C.4. Contracts, technological or transfer merits

1.Estudio comparativo de tecnologías de desulfuración de humos de barcos Solvay Química SL 17/07/2018-31/08/2019 43923€

2.Estudio de Caracterización y Análisis del Tratamiento de Estabilización de las Cenizas de Combustión de la Incineradora de Zabalgarbi para su posterior Vertido y/o ValorizaciónSader, S.A./UC 30/12/2013-31/03/2016 39.840,74 €

PATENTS: ES2 389 201 B1 T.M. Mayer, J.A. Irabien, A. Dominguez, E. García, A. M. Urtiaga Procedimiento integrado de electro-oxidación fotovoltaica para la depuración y reutilización de aguas residuales urbanas. Date: 16/03/2011 Sociedad General de Aguas de Barcelona

ES2 270 705 B1 Irabien, A. Garea, R., Aldaco; O. Pérez, J. M. Saenz Procedimiento para el tratamiento de aguas residuales con fluoruros mediante obtención de fluoruro cálcico sintético. Date. 16/05/2005 Universidad de Cantabria/Derivados del Flúor

C.5.Additional activities

President of the Chemical Engineering Section RSEQ, 2014-2018; President of AQUIQAN-ANQUE, 2013-2017; Trustee of the European Federation of Chemical Engineering (EFCE) 2014-2015; Member of the Executive Board, European Federation of Chemical Engineering (EFCE) 2012-2013;President of the Section Environmental Protection and Sustainability (EFCE) 2010-2012.; Editor in Chief of the Journal Low Carbon Economy 2012; Frontiers in Sutsinability Specialty Chief Editor in Waste Management, 2020-