



# SOSPROCAN UNIT

ACTIVITY SUMMARY 2022



**Department of Chemical & Biomolecular Engineering**

**Sustainable Production in Cantabria (SOSPROCAN)**

**ETSIIyT – Universidad de Cantabria  
Av. Los Castros s/n 39005 Santander  
Cantabria – Spain**

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- <https://web.unican.es/Departamentos/ingquimica>
- <https://www.facebook.com/IngenieriaQuimicayBiomolecular/>
- [https://www.instagram.com/iqb\\_uc/](https://www.instagram.com/iqb_uc/)
- <https://web.unican.es/portal-investigador/departamentos/detalle-departamento?d=023>



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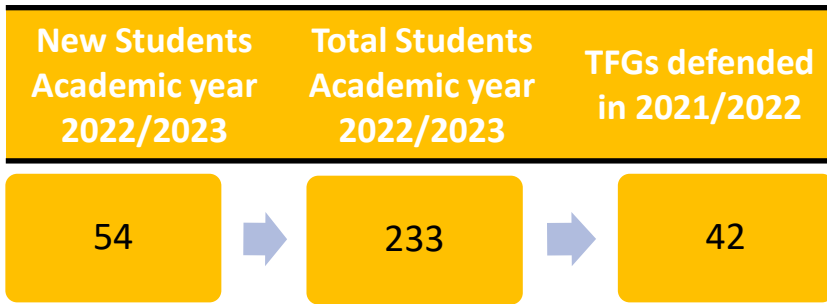
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# ACADEMIC ACTIVITIES

## ☐ CHEMICAL ENGINEERING DEGREE



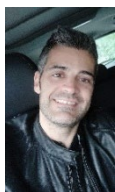
**Prof. Raquel Ibáñez**  
Vice-Dean of the ETSIIT  
Head of the Chemical Engineering Studies  
[ibanezr@unican.es](mailto:ibanezr@unican.es)



<https://web.unican.es/centros/etsiit/grados/gi>

## ☐ INTERNATIONAL ACADEMIC EXCHANGE PROGRAMMES

<https://web.unican.es/unidades/oficina-relaciones-internacionales/estudiantes>

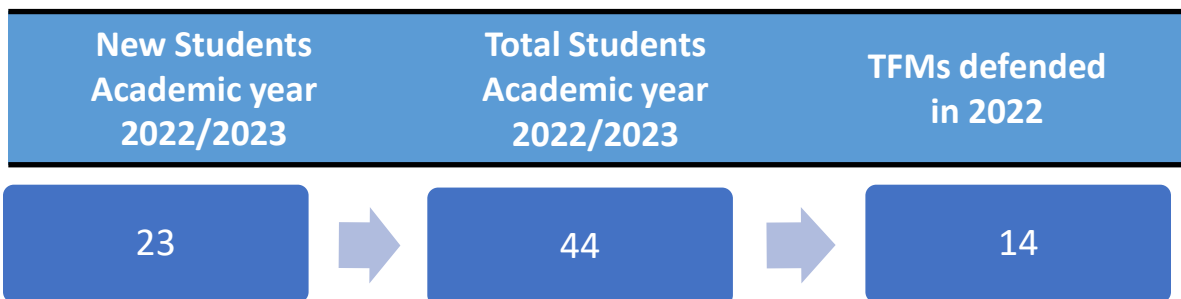


**Eugenio Bringas**  
Academic Director for International Relations and Global Engagement in Vice-Rectorate of Internationalization  
[bringase@unican.es](mailto:bringase@unican.es)



**Nazely Dibán**  
Coordinator of Academic Mobility and International Internships in the area of Chemical Engineering  
[dibann@unican.es](mailto:dibann@unican.es)

## ☐ MASTER IN CHEMICAL ENGINEERING



<http://web.unican.es/centros/etsiit/Paginas/Master-Universitario-en-Ingenieria-Quimica.aspx>



**Maria José Rivero**  
Academic coordinator of the Master in Chemical Engineering  
[riveromj@unican.es](mailto:riveromj@unican.es)



**Clara Casado**  
Coordinator of the Curricular Internships  
[casadoc@unican.es](mailto:casadoc@unican.es)

**Máster Universitario en Ingeniería Química**

Es un Máster Oficial Interuniversitario entre la Universidad de Cantabria (UC) y la Universidad del País Vasco (UPV/EHU) que se imparte por primera vez a través del convenio de colaboración entre ambas universidades.

**Finalidad**  
El objetivo fundamental del Máster es proporcionar a los estudiantes un conocimiento sólido y actualizado en el área de la Ingeniería Química, así como desarrollar sus habilidades profesionales y personales para afrontar los retos de la industria química y de procesos. También pretende fomentar el espíritu de equipo y el trabajo en equipo, así como el compromiso social y la responsabilidad profesional.

**Perfil del alumnado**  
El perfil de ingreso relativo de los estudiantes del presente Máster es el de aquellos estudiantes que acrediten las competencias correspondientes al Grado de Ingeniería Química.

**Grado de Ingeniería Química**  
Corresponde a este programa de estudios el Grado de Ingeniería Química, que se imparte en la Universidad de Cantabria y en la Universidad del País Vasco (UPV/EHU).

**Para obtener la información**  
Para obtener la información de contacto, acudir al correo electrónico [info@masterquimica.com](mailto:info@masterquimica.com) o al teléfono de atención al estudiante [+34 942 200 000](tel:+34942200000).

**Salidas profesionales**  
El Ingeniero Químico es un profesional que puede trabajar en el sector público o privado, en el ámbito de la industria química, de procesos, de energía, de materiales, de medio ambiente, de servicios y de investigación, o en el ámbito de la docencia.



# ACADEMIC ACTIVITIES

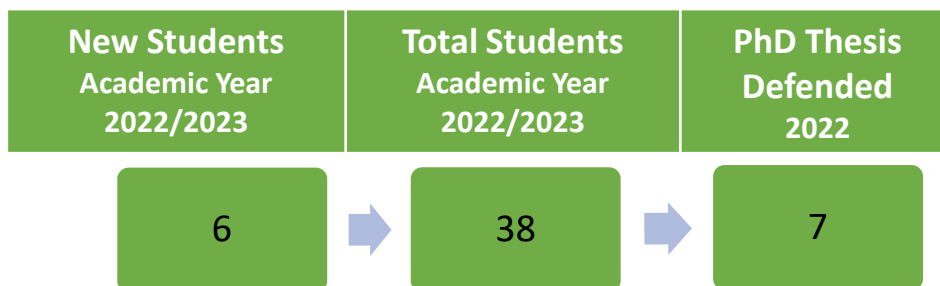
## ❑ DOCTORAL STUDIES IN CHEMICAL ENGINEERING, ENERGY AND PROCESSES

<https://web.unican.es/estudios/detalle-doctorado?p=183&a=2017>



### Manuel Álvarez

Coordinator of the Doctorate Program in Chemical Engineering, Energy and Processes  
UC Doctorate School: Member of the Steering Committee and of the Quality Commission  
[alvarezgm@unican.es](mailto:alvarezgm@unican.es)



## PHD. THESIS DEFENDED IN 2022

### Rafael Ortiz Imedio

*"Performance of low carbon fuels in internal combustion engines"*

Supervised by: Prof. Inmaculada Ortiz and Dr. Alfredo Ortiz

March 4<sup>th</sup>, 2022



### Cristina González Fernández

*"Magnetophoretic microdevices for lipopolysaccharide removal from blood: design through advanced simulation techniques"*

Supervised by: Prof. Inmaculada Ortiz and Dr. Eugenio Bringas

March 17<sup>th</sup>, 2022

# ACADEMIC ACTIVITIES PHD. THESIS DEFENDED IN 2022

## Laura Batlle Bayer

*“Análisis y comparación de la sostenibilidad de patrones alimentarios. Un enfoque de ciclo de vida”*

Supervised by: Dr. Pere Fullana and Dr. Alba Bala

July 22<sup>th</sup>, 2022



## Marta Romay Romero

*“Development of a decision tool to predict membrane morphology using non-solvent induced phase separation synthesis”*

Supervised by: Prof. Ane Urriaga and Dr. Nazely Diban

September 29<sup>th</sup>, 2022



## Aitor Marcos Madrazo

*“Development of membrane coated electrodes for the electroreduction of CO<sub>2</sub> in alkaline media”*

Supervised by: Prof. Ángel Irabien and Dr. Clara Casado

September 30<sup>th</sup>, 2022



## Bohdana Markiv

*“Environmental exposure to manganese and other metals in particulate matter: bioaccessibility and biomonitoring”*

Supervised by: Prof. Ignacio Fernández and Dr. Miguel Santibañez

November 4<sup>th</sup>, 2022



## Carla Adriana Arregoitia Sarabia

*“Development and characterization of composite membranes for the selective separation of bioalcohols by pervaporation”*

Supervised by: Prof. Daniel Gorri and Dr. Marcos Fallanza

December 16<sup>th</sup>, 2022

# RESEARCH ACTIVITIES: Research Groups

The **SOSPROCAN team** hosts more than 60 researchers of the **University of Cantabria** with background in the analysis, design and optimization of environmental and production processes.

The mission of this team is to develop **cutting-edge research** to advance the sustainability and innovation of environmental and production processes, through:

- **Teaching**
- **Research & Development**
- **Services**

The members of SOSPROCAN team belong to four research groups:

## DEPRO

[Development of Environmental and Production Processes](https://grupos.unican.es/depro/)



<https://grupos.unican.es/depro/>

Head of the Group: A. Irabien  
[irabienj@unican.es](mailto:irabienj@unican.es)

## ASP

[Advanced Separation Processes](https://grupos.unican.es/pasep/)



<https://grupos.unican.es/pasep/>

Head of the Group: I. Ortiz  
[ortizi@unican.es](mailto:ortizi@unican.es)

## TAB

[Environmental Technologies and Bioprocesses](https://grupos.unican.es/tab/)

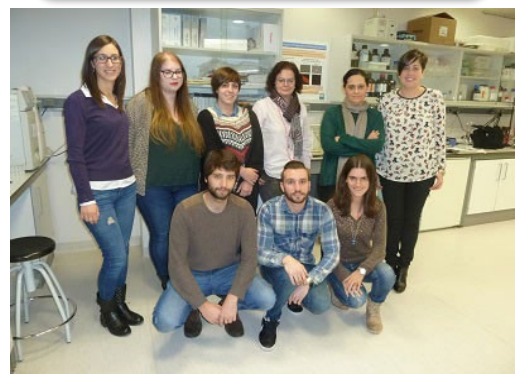


<https://grupos.unican.es/tab/>

Head of the Group: A. Urtiaga  
[urtiaga@unican.es](mailto:urtiaga@unican.es)

## IPS

[Sustainable Processes Engineering](https://grupos.unican.es/ips/)



<https://grupos.unican.es/ips/>

Head of the Group: R. Ibáñez  
[ibanezr@unican.es](mailto:ibanezr@unican.es)



# RESEARCH ACTIVITIES: Research Topics

## DEPRO

### Development of Environmental and Production Processes

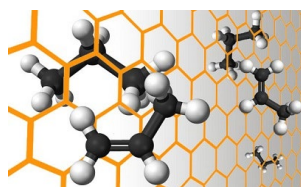
- ✓ **CO2 Capture and Utilisation, Waste Minimisation and Sustainability**
- ✓ **R&D of Membrane Separation Processes**
- ✓ **Sources and Characterization of Particulate Matter and its Components**
- ✓ **Life Cycle Assessment Tools for Decision Support in Processes and Products**



## ASP

### Advanced Separation Processes

- ✓ **Filtration membrane technology: Ultra and nanofiltration, reverse osmosis and direct osmosis, electrodialysis.**
- ✓ **Membrane technology for gas and gas-liquid separation: Gas permeation, pervaporation, membrane distillation.**
- ✓ **Energy Sustainability: Blue energy, Hydrogen, Fuel cell.**
- ✓ **High performance materials. Functionalized Magnetic Nanomaterials. Synthesis, characterisation and applications.**



## TAB

### Environmental Technologies and Bioprocesses

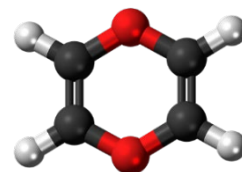
- ✓ **Environmental Technologies. Development of persistent pollutant remediation with integrated electrochemical and membrane technologies.**
- ✓ **Preparation and characterization of biocompatible functionalized materials for biomedical applications and tissue engineering.**
- ✓ **Membrane technologies for climate change mitigation: recovery of refrigerant gases, hydrogen, synthesis gas.**



## IPS

### Sustainable Processes Engineering

- ✓ **Development of advanced technologies for selective metal separation**
- ✓ **Applications of Advanced Oxidation Processes (POAS). Study of the Formation / Destruction of Persistent Organic Compounds.**
- ✓ **Development of Membrane Technologies for the Agri-Food Sector and in the Reuse of Purified Water**
- ✓ **Modelling, Simulation and Optimisation of Separation Processes with Liquid Membranes**



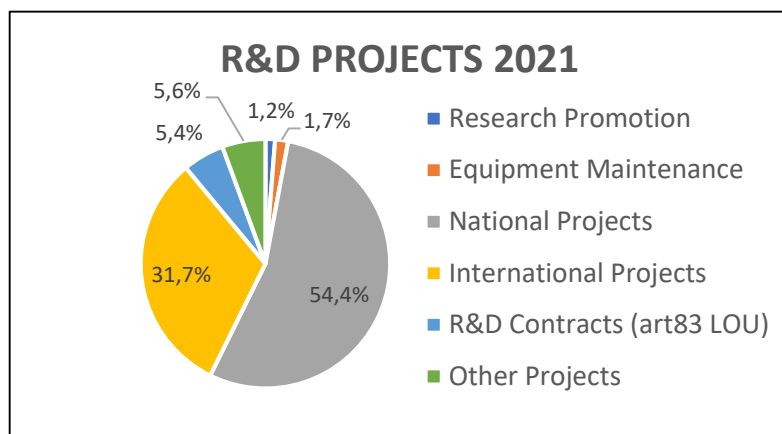


# RESEARCH ACTIVITIES: Projects

SOSPROCAN team integrates 4 active and competitive R&D Groups. Below there is a summary of the competitive grants funded by several agencies and private companies that were being carried out in 2022

European & International Projects	National Projects	Private & Regional Projects	R&D Contracts & UC Projects	Infrastructures & Analytical Equipment
7	19	10	4	2

The complete list of 2022 active projects is available on: <https://web.unican.es/departamentos/ingquimica/Paginas/Anuarios.aspx>



Total = 1 104 483 €

Total UFG UC = 6.6 %

Ranking UFG UC = 2<sup>nd</sup>

Annual Increase = 37.1 %

<https://web.unican.es/consejo-direccion/gerencia/Documents/MemoriaLiquidacion2021.pdf>

The research groups of SOSPROCAN team have actively participated in european and international projects in collaboration with partners and institutions of different countries. The researchers attended to projects follow-up meetings to present and share their main results during 2022.

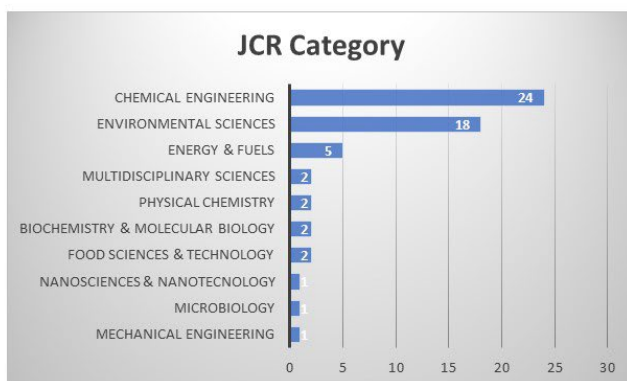
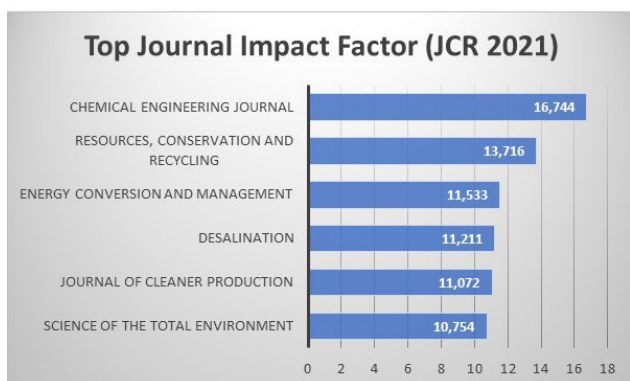
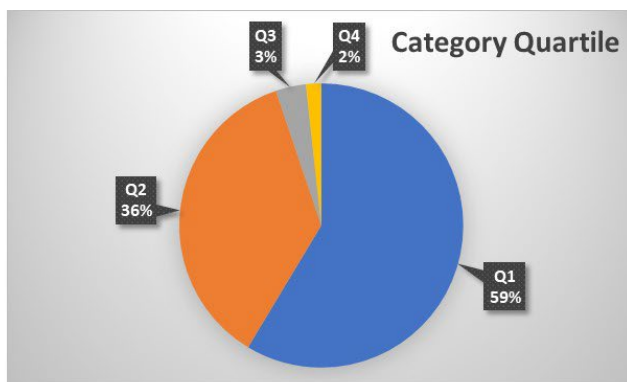
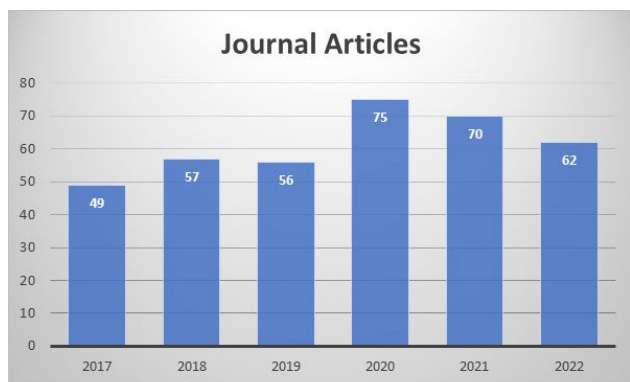


# RESEARCH ACTIVITIES: Publications

The results of the research activity are published in international journals after peer-reviewed evaluation by specialized referees who support the quality of our research. In 2022, more than 60 articles were published.

**2022**

63 scientific articles published  
Average Impact Factor = 7.75



The complete list of the articles published in 2022 is available on: <https://web.unican.es/departamentos/ingquimica/Paginas/Anuarios.aspx>



# RESEARCH ACTIVITIES: Congresses



The Chemical & Biomolecular Engineering Department organized the **6th International Symposium on Green and Smart Technologies** conceived as an international forum for the dissemination and reinforcement of research collaboration among the participating institutions from Portugal, Spain, Turkey and Japan. The objective of the symposium was aligned with the 2030 Agenda for Sustainable Development, and aimed at the study of key-enabling technologies and processes to ensure a sustainable industry for the society of the future.

The Chemical & Biomolecular Engineering Department organized and hosted the **XLII Meeting of the Electrochemistry Group of The Royal Society of Chemistry (RSEQ)**. More than 150 national and international experts in electrochemistry participated in this event in Santander on July 6th – 8th, 2022. All the information about the meeting is available on:

<https://42gerseq2022.com/>



The main progresses of our research activity are presented in international scientific congresses. **During 2022, we have attended more than 30 international congresses, with oral and poster contributions.**



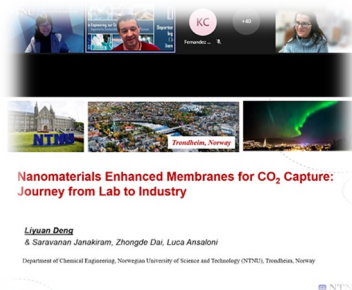
The complete list of the congress contributions in 2022 is available on: <https://web.unican.es/departamentos/ingquimica/Paginas/Anuarios.aspx> and <https://web.unican.es/portal-investigador/departamentos/detalle-departamento?d=023>

# RESEARCH ACTIVITIES: Seminars & Conferences

The Chemical & Biomolecular Engineering Department of the University of Cantabria has been involved in the organization of different seminars and conferences during 2022:

**January 31<sup>th</sup>, 2022**

Prof. Dario R. Dekel, Department of Chemical Engineering, Technion – Israel Institute of Technology (Israel), delivered the conference “*Latest Progress in Anion-Exchange Membranes Fuel Cells*”. The event will take place virtually and it was organized by the Chemical Engineering, Energy and Processes Doctorate Program.



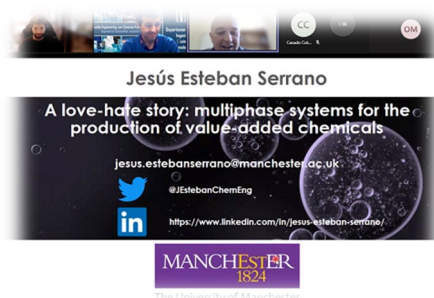
**February 18<sup>th</sup>, 2022**

Prof. Liyuan Deng, Department of Chemical Engineering, Norwegian University of Science and Technology (Norway), delivered the conference “*Nanomaterials Enhanced Membranes for CO<sub>2</sub> capture: Journey from Lab to Industry*”. The event took place virtually and it was organized in the frame of the Doctorate in Chemical Engineering, Energy and Processes of the University of Cantabria.



**April 26<sup>th</sup>, 2022**

Dr. Jesús Esteban Serrano, Department of Chemical Engineering, University of Manchester (United Kingdom), delivered the conference entitled “*A love-hate history: multiphase systems for the production of value-added chemicals*”. The event took place virtually and it was organized in the frame of the Doctorate in Chemical Engineering, Energy and Processes of the University of Cantabria.



**May 20<sup>th</sup>, 2022**

Prof. Claudi Mans i Teixidó, University of Barcelona (Spain), delivered the conference “*Ingeniería Química Gastronómica*”. The event took place at the conference room of ETSIIT and it was organized in the frame of the Doctorate in Chemical Engineering, Energy and Processes of the University of Cantabria.



**October 5<sup>th</sup>, 2022**

Prof. Javier García, IUPAC President and Director of Molecular Nanotechnology Laboratory at University of Alicante (Spain), delivered the talk “*El futuro de la profesión química (preparación/formación) para un tiempo nuevo*”. The event was organized in the frame of the Doctorate in Chemical Engineering, Energy and Processes of the University of Cantabria.





# RESEARCH ACTIVITIES: Seminars & Conferences

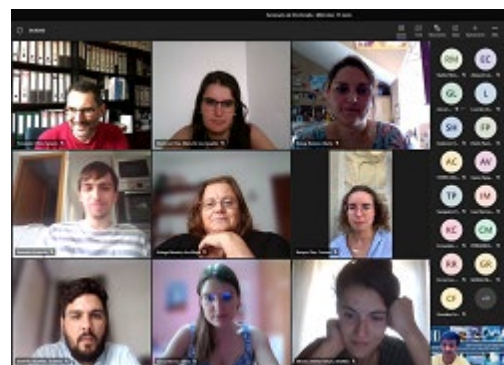
April 1<sup>st</sup>, 2022



The technical workshop “*El Hidrógeno como Solución Energética Sostenible en la Vivienda Social*” organized by Government of Cantabria and University of Cantabria in the frame of the European Project “SUDOE ENERGY PUSH – Efficient Energy for Public Social Housing” (SOE3/P3/E0865) took place on April 1<sup>st</sup>, 2022, at the conference room of ETSIIT.

June 15<sup>th</sup>-16<sup>th</sup>, 2022

The Chemical, Energy and Process Engineering Doctorate Program organized the annual Doctoral Seminars, aimed at promoting the training of PhD students and disseminate their research activities. In this edition, the seminars, open to the members of the doctorate program and to general public, took place virtually. The first session, on June 15<sup>th</sup>, 2022 was dedicated to 3<sup>rd</sup>/4<sup>th</sup> year students, while the second session, on June 16<sup>th</sup>, 2022 were dedicated to 1<sup>st</sup>/2<sup>nd</sup> year students.



July 6<sup>th</sup>, 2022

Prof. Ángel Irabien, leader of DePro research group, taught the opening conference entitled “*Perspectives of the Electrochemical Recycling of CO<sub>2</sub> in the Next Future*” at XLII Meeting of the Electrochemistry Group of The Royal Society of Chemistry (RSEQ)

October 20<sup>th</sup>, 2022

Prof. Inmaculada Ortiz participated in the conference “*Ciclo Protagonistas Cantabria – CIENCIA*” to discuss the evolution and future of science in the region in the debate forum organised by the Parliament of Cantabria.



December 1<sup>st</sup>, 2022

The technical workshop “*El Futuro Energético de las Viviendas Sociales*” organized by Government of Cantabria and University of Cantabria in the frame of the European Project “SUDOE ENERGY PUSH – Efficient Energy for Public Social Housing” (SOE3/P3/E0865) took place on December 1<sup>st</sup>, 2022, at the conference room of ETSIIT.



# RESEARCH ACTIVITIES: Awards & Distinctions

## Ranking of the World's Top 2% Scientists

Prof. Inmaculada Ortiz, Prof. Angel Irabien and Prof. Ane Urtiaga are listed in the world's top 2 % of the most influential scientists list for their career impact. This ranking, which is authored by researchers of Stanford University, is considered the most prestigious worldwide of rankings based on standardized bibliometric information.

## February 23<sup>th</sup>, 2022

Prof. Inmaculada Ortiz read her entrance speech as Academic at the Royal Academy of Exact, Physical and Natural Sciences of Spain, on February 23<sup>th</sup>, 2022. The speech focused on "*Membrane Science and Technology and the 2030 Sustainable Development Goals*".



## March 18<sup>th</sup>, 2022

During the UC academic celebration of Saint Thomas Aquinas, several PhD thesis defended in the last years received the award of outstanding PhD thesis in the field of Engineering: 2019 – Dr. Carolina Fernández, Dr. Mariana Díaz, Dr. Sara Dominguez and Dr. Jara Laso, 2020 – Dr. Jenifer Gómez and 2021 – Dr. Ana Hernández



## June, 2022

Our colleagues Dr. Iván Merino, Dr. Jonathan Albo and Dr. Esther Santos received the RSEQ Chemical Engineering Group awards in the categories "Best PhD thesis defended in 2018", "Young Researchers 2020" and "Young Researchers 2021" respectively at XXXVIII Biannual RSEQ meeting.



## November 23<sup>th</sup>, 2022

Dr. Guillermo Díaz, Assistant Professor of the Chemical & Biomolecular Engineering Dep. received the prize for the "Best PhD Thesis in CO<sub>2</sub> capture, transport, storage and utilization" of Plataforma Tecnológica Española del CO<sub>2</sub> (PTECO<sub>2</sub>).

## November 26<sup>th</sup>, 2022

Prof. Ángel Irabien was awarded with the ANQUE Gold Medal 2021 in recognition of his work throughout his outstanding professional life. The ceremony, was celebrated in Madrid during the LXXII ANQUE National Assembly.



## RESEARCH ACTIVITIES: Awards & Distinctions



December 1<sup>st</sup>, 2022

The European HYLANTIC project received the "Atlantic Project Award" for the best project in the "Marine Renewable Energy". The award ceremony took place in Cadiz, and was collected by Prof. Alfredo Ortiz, principal investigator of the project.

December 2<sup>nd</sup>, 2022

Prof. Ane Urtiaga was awarded by the Chemical Engineering group of the Spanish Royal Society of Chemistry (RSEQ) in recognition of her professional trajectory. Dr. Guillermo Diaz received the RSEQ award "Best PhD. Thesis of 2021".





# DISSEMINATION ACTIVITIES

The Chemical & Biomolecular Engineering Department of the University of Cantabria has been involved in several dissemination activities organized by University of Cantabria during 2022:

✓ **Local Chemistry Olympiad (March)**

✓ **Ciencia con Arte contest (April)**

✓ **Open Doors Day UC (May)**

✓ **Green Week UC (June)**

✓ **UC en tu Barrio (June)**

✓ **European Researchers Night (September)**

✓ **Science Week UC (November)**

✓ **Ciencia Circular programme (November)**



## HIGH SCHOOLS VISITING OUR DEPARTMENT IN 2022

- IES Ría del Carmen (Muriedas)
- IES Alisal (Santander)
- IES Jesús de Monasterio (Potes)
- Colegio Torrevelo Peñalabra (Mogro)
- IES Salvador (Barreda)
- IES José del Campo (Ampuero)
- IES Marques de Santillana (Torrelavega)
- IES San Miguel de Meruelo



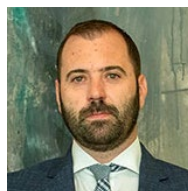
# MANAGEMENT ACTIVITIES: Department

Head of the Chemical & Biomolecular Engineering Department



**Prof. Ane Urtiaga**  
Director

[urtiaga@unican.es](mailto:urtiaga@unican.es)



**Prof. Alfredo Ortiz**  
Deputy Director

[ortizal@unican.es](mailto:ortizal@unican.es)

Administration of the Chemical & Biomolecular Engineering Department:

[secretaria.quimica@unican.es](mailto:secretaria.quimica@unican.es) Tel.: +34 972 20 15 90 / Fax: +34 972 20 15 91



**Rosa Álvarez**  
[alvarezr@unican.es](mailto:alvarezr@unican.es)

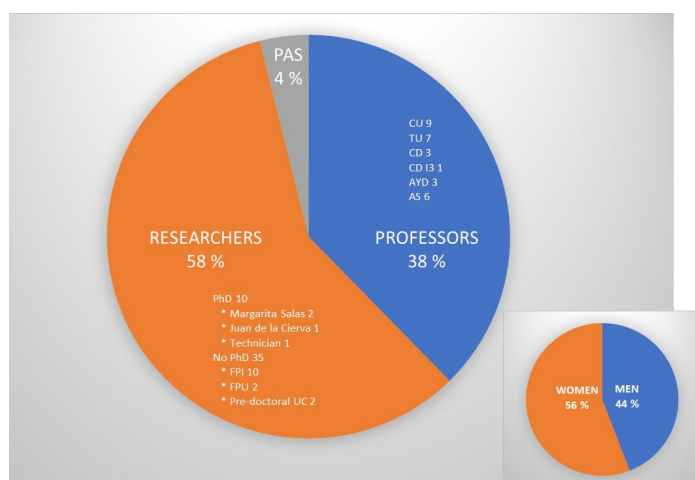


**Domingo Álvarez**  
(until 03/2022)  
[alvaferd@unican.es](mailto:alvaferd@unican.es)



**Sonia Valdivielso**  
(from 09/2022)  
[valdivielsos@unican.es](mailto:valdivielsos@unican.es)

Members of the Chemical & Biomolecular Engineering Department



## DEPARTMENT COUNCIL

- Academic and Research staff: 35 members
- Research staff (doctorate students, others) (20%): 4 members
- Master Students (5%): 1 member
- Undergraduate Students (10%): 2
- Administration (5%): 3 members

## PERMANENT COMMISSION

- Director of the Department
- Deputy Director of the Department
- Department Council Secretary
- 5 representatives of the PDEI – PhD
- 2 representatives of the PDI – No PhD
- 1 representative of master and undergraduate students
- 1 representative of the Administrative personnel

## MANAGEMENT ACTIVITIES: University of Cantabria

UC Senate Members	
Members of the Department	Total Members
8	300

ETSIT Faculty Members	
Members of the Department	Total Members
7	100

Position	Number of Members from the Department
Academic Commission of the Chemical Engineering Degree	5
Academic Commission of the Industrial Engineering Degree	1
Quality Commission of the Chemical Engineering Degree	2
Academic Commission of the Master in Chemical Engineering	3
Quality Commission of the Master in Chemical Engineering	6
Academic Commission of the Doctoral Studies in Chemical Engineering, Energy and Processes	9
Quality Commission of the ETSIT	4
Posgraduate Commission of the ETSIT	2
Quality Commission of the UC	1
Research Commission of the UC	1
Doctorate Commission of the UC	2
Steering Committee of the Doctorate School (EDUC)	3
Quality Commission of EDUC	1
PhD. students representatives of the EDUC	2
Scientific director of the chromatography service (SerCrom) of the Scientific and Technical Research Services of the UC	1

# MANAGEMENT ACTIVITIES: External

- **Academic member of the Royal Academy of Sciences of Spain, Inmaculada Ortiz Uribe.**
- **Government of Cantabria, General Director of Universities, Research and Transfer, Antonio Domínguez Ramos.**
- **UNIBASQ: Angel Irabien Gulias, Member of PDI Accreditation Panel; Inmaculada Ortiz, President of the Engineering and Architecture panel for accreditation of University degrees; Ane Urtiaga Mendia, Member of the committee of evaluation of remuneration supplements.**
- **Agencia de Calidad del Sistema Universitaria de Galicia: Evaluation Panel of PDI teaching activity, member Ane Urtiaga**
- **President of the Commission of Conferencia de Directores y Decanos de Ingeniería Química (CODDIQ), Raquel Ibañez Mendizabal**
- **Agencia Estatal de Investigación, Ministry of Science, Innovation and Universities, Ane Urtiaga, coordinator in the Call of Strategic Research Lines.**
- **Governing Board of Asociación Nacional de Químicos e Ingenieros Químicos de España (ANQUE), Gabriel Zarca, Manuel Álvarez**
- **Editorial Boards of Scientific Journals**
  - Journal of Chemical Technology and Biotechnology (Wiley), Inmaculada Ortiz
  - Science of the Total Environment (Elsevier), Ruben Aldaco
  - Scientific Reports (Nature Publishing portfolio), Ane Urtiaga, Ruben Aldaco
  - Sustainability (Frontiers), Angel Irabien
  - Journal of CO2 Utilization (Elsevier), Clara Casado
  - Chemical Engineering Journal Advances (Elsevier), Maria José Rivero
  - Membranes (MDPI), Daniel Gorri, Clara Casado, Guillermo Diaz, Lucía Gómez, José Manuel Vadillo, Ivan Merino
  - Molecules (MDPI), Jonathan Albo
  - Polymers (MDPI), Jonathan Albo
  - Applied Sciences (MDPI), Ruben Aldaco
  - Frontiers in Sustainable Food Systems (Frontiers), Ruben Aldaco
  - Frontiers in Nutrition, Ruben Aldaco
- **Asociación de Química e Ingeniería Química de Cantabria (AQUIQÁN- ANQUE)**
- **Real Sociedad Española de Química. Grupo Especializado de Ingeniería Química. Sección territorial de Cantabria de la RSEQ**

# SOSPROCAN TRANSFER UNIT: Equipment

The Transfer Unit SOSPROCAN has a **scientific and technological infrastructure** and a set of last generation analytical techniques, that enable to carry out a **complete physico-chemical characterization of a wide variety of samples**. The available equipment allows comprehensive control of a high number of environmental parameters as well as monitoring compliance. The main aim of the **Transfer Unit** is to **collaborate** and make available the extensive analytical capabilities of the equipment to the **productive sector and the Administration**, offering a high quality service.

## ENVIRONMENTAL PARAMETERS AND WATER CHARACTERIZATION

- ✓ Fourier Transform Infrared Spectroscopy – FTIR
- ✓ Ion Chromatography: Determination of anions and cations
- ✓ Total Organic Carbon Analyzer – TOC
- ✓ Biological secure cabinet, sterilization autoclave, incubator, sealer Quanti-Tray and analysis cabinet for fluorescence
- ✓ General lab material for the determination of COD, BOD<sub>5</sub>, NH<sub>4</sub><sup>+</sup>, ...



## CHROMATOGRAPHY TECHNIQUES

- ✓ Sample preparation: Microwave Digestion, Soxhlet Extraction, Solid Phase Extraction, Clean-Up extract Power-Prep, Rotavap, Centrifugator, Liofilizator, ....
- ✓ Gas Chromatography with different detectors and injection systems: GC-MS + HS + SPME; GC-FID; GC-TCD
- ✓ Liquid Chromatography: UPLC/MS-MS; HPLC/PDA



## PLASMA – MASS SPECTROMETRY

- ✓ Inductively Coupled Plasma Mass Spectrometry – ICP-MS
- ✓ Microwave plasma-atomic emission spectrometer (MP-AES)




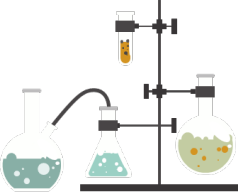



## SOLID CHARACTERIZATION

- ✓ Thermobalance
- ✓ Osmometer
- ✓ Z-sizer and zeta-potential analyser
- ✓ Optical Stereo-microscope





# SOSPROCAN TRANSFER UNIT: Working Team

QUALITY STAFF	Prof. Raquel Ibáñez Director	TECHNICAL STAFF
 Dr. Sonia Gómez		 Dr. Oscar Primo
 Dr. Gema Pérez		 Eng. Beatriz Arce

## SOSPROCAN TRANSFER UNIT: Quality Certification

### ISO 9001:2015 CERTIFICATION FOR:

- Determination of Organic Compounds by GC-MS (Gas Chromatography coupled to Mass Spectrometry)
- Elemental Analysis by ICP-MS (Inductively Coupled Plasma Mass Spectrometry).



## SOSPROCAN TRANSFER UNIT: Customers

		Cátedra de Física Médica Departamento de Ciencias Médicas y Quirúrgicas	 Grupo Dynasol
			
			

## SOSPROCAN TRANSFER UNIT: Contact & more information

 Analytical Services of SOSPROCAN Transfer Unit website:  
<https://web.unican.es/departamentos/ingquimica/servicios>

 Contact e-mail: [sersosprocan@unican.es](mailto:sersosprocan@unican.es)







**Department of Chemical & Biomolecular Engineering**

**Sustainable Production in Cantabria (SOSPROCAN)**

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*This is a summary of the activities developed by the Chemical & Biomolecular Engineering Department of the UC in 2022. The on-line version is available at: <https://web.unican.es/departamentos/ingquimica/informacion-general/anuarios>*