

RESEARCH TEAM FOR SUSTAINABLE PRODUCTION IN CANTABRIA

2016 ACTIVITY





DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING



Sustainable Production in Cantabria
Department of Chemical and Biomolecular Engineering

ETSIIyT – Universidad de Cantabria
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SOSPROCAN TEAM



SOSPROCAN TEAM

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.

The members of SOSPROCAN team belong to four research groups:

DePRO
Development of Environmental
and Production Processes

PAS
Advanced Separation
Processes

TAB
Environmental Technologies
and Bioprocesses

IPS
Sustainable Processes
Engineering



<http://www.unican.es/Departamentos/ingquimica/>
<http://grupos.unican.es/pasep/>
<http://grupos.unican.es/depro/>
<http://grupos.unican.es/tab/>
<http://grupos.unican.es/ips/>



<https://www.facebook.com/IngenieriaQuimicayBiomolecular>

WORKING TEAM



WORKING TEAM

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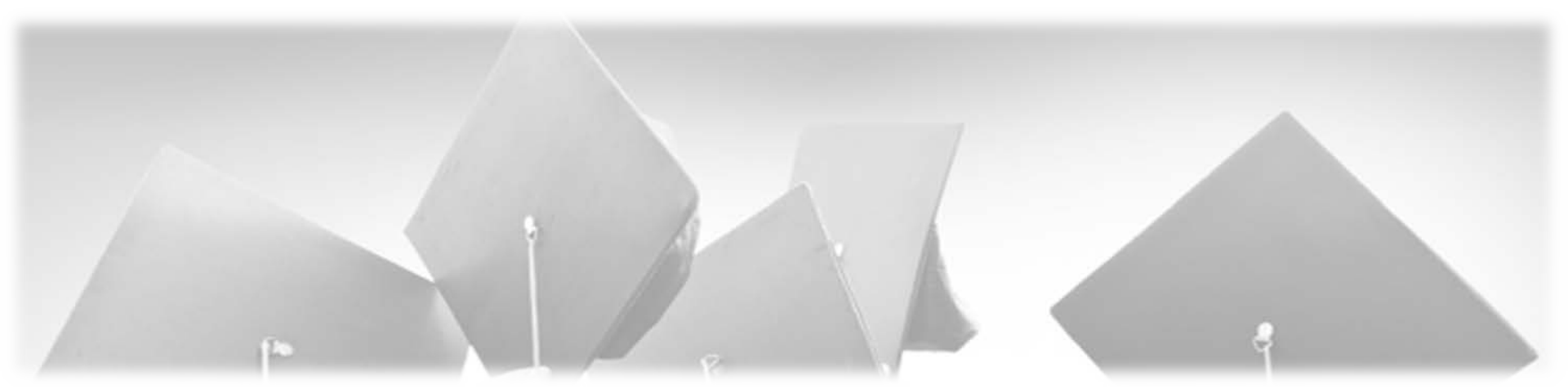
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RESEARCH TOPICS



RESEARCH TOPICS



TRANSFER OF KNOWLEDGE



Transfer of Knowledge: ACADEMY

✓ 2nd Edition - Official Master in Chemical Engineering

The Official Master in Chemical Engineering is jointly taught with the University of the Basque Country promoting an excellent training program with highly specialized Academics. The degree follows the previous editions of the Master in Chemical Engineering “SustainAble Production and Consumption” of the University of Cantabria and the Master in Chemical Process Engineering and Sustainable Development of the University of the Basque Country, both taught since 2007.

The master endorses the guidelines recorded in **BOE A-2009-12977**, June 8th, 2009.

✓ Doctoral Studies in Chemical and Process Engineering

Preliminary Excellence Award MEE2011-0031

- Positive Evaluation of the Doctorate Studies by the Spanish “Consejo de Coordinación Universitaria, October 5th, 2009.

✓ International Academic Exchange **Socrates-Erasmus Programmes.**



UC **UNIVERSIDAD DE CANTABRIA** **Másteres Oficiales de la Universidad de Cantabria**

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 el curso 2014-2015 y surge como continuidad del Máster en Ingeniería Química “Producción y Consumo Sostenible” de la Universidad de Cantabria y del Máster en Ingeniería de Procesos Químicos y Desarrollo Sostenible de la UPV/EHU, ambos impartidos desde 2007. El Máster en Ingeniería Química recoge las directrices de la resolución de 8 de junio de 2009 de la Secretaría General de Universidades acerca de la Profesión del Ingeniero Químico.

Información	
Área de conocimiento:	Ingeniería y Arquitectura
Lugar de impartición:	UC y UPV/EHU
Instituciones participantes:	UC y UPV/EHU
Duración:	1,5 cursos académicos (3 trimestres)
Créditos ECTS:	90 créditos ECTS 60 ECTS teóricos 30 ECTS prácticos (incluyendo el Trabajo Fin de Máster)
Idioma:	Español
Tipo de docencia:	100% presencial
Doctorados de la Universidad de Cantabria a los que da acceso:	Programa de Doctorado en Ingeniería Química, de la Energía y de Procesos
Precio matrícula (curso 2013-2014):	Se impartirá por primera vez en el curso 2014-15
Contacto:	etsiit@unican.es gestion.academica@unican.es

Finalidad
El objetivo fundamental del Máster en Ingeniería Química es formar profesionales que sean capaces de aplicar métodos científicos y técnicos para plantear y resolver problemas de investigación, desarrollo y aplicación industrial en el campo de la industria química y de procesos. También podrán desarrollar su actividad en el campo de la investigación ya que una vez cursado este Máster podrán acceder al Programa de Doctorado en Ingeniería Química, de la Energía y de Procesos de la UC, o a su equivalente en la UPV-EHU.

Perfil del alumnado
El perfil de ingreso ideal de los estudiantes del presente Máster es el de aquellos alumnos que acrediten las competencias correspondientes al

Salidas profesionales
El Ingeniero Químico es un profesional versátil, capacitado para trabajar en gran variedad de sectores industriales, de servicios y Administración, y desempeñar muy diversas funciones profesio-

Graduados en Ingeniería Química. Corresponden a estas competencias los Graduados en Ingeniería Química o Graduados en Ingeniería Química Industrial, los Titulados en Ingeniería Química, así como los titulados en Ingeniería Industrial (especialidad de Química Industrial) o titulados en Ingeniería Técnica Industrial (especialidad de Química Industrial).

Para el resto de las titulaciones la Comisión Académica del Máster estudiará cada caso particular y propondrá la realización de complementos formativos.

La sociedad actual demanda este tipo de profesionales con una formación específica en Ingeniería Química, capacitados para diseñar, mejorar y optimizar procesos, operar plantas de producción, etc., en la Industria Química y de Procesos. Algunas de las áreas para desarrollar su labor profesional serán: diseño e ingeniería de proceso, producción e ingeniería de producto, I+D+i, gestión y dirección, o ventas y marketing.



<http://www.unican.es/Centros/etsiit/postgrado/Master+IQ.htm>

Transfer of Knowledge: ACADEMY

New Associate Professors

Dr. Manuel Alvarez Guerra, Dr. Alfredo Ortiz Sainz de Aja and Dr. Antonio Domínguez Ramos were proposed for recruitment as **Interim Associate Professors** by the committee formed by Prof. Angel Irabien, Prof. Ane Urtiaga and Dr. Aurora Garea.



Dr. Clara Casado, Ramón y Cajal researcher, was proposed for recruitment as **Associate Professor (I3)** by the committee formed by Prof. Angel Irabien, Prof. Ane Urtiaga and Dr. Aurora Garea.



February 9th, 2016

Raquel Onandía's PhD Dissertation: **“Challenges of the chlor-alkali industry under a life cycle assessment approach”**.

Supervisors: Prof. Ángel Irabien and Dr. Rubén Aldaco



February 9th, 2016

Marta Sebastiá's PhD Dissertation: **“Predicción de propiedades en la Gestión de residuos en base cemento”**.

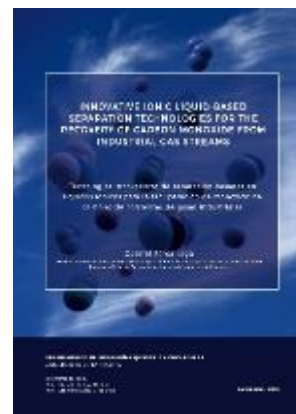
Supervisors: Prof. Ángel Irabien and Dr. Ignacio Fernández



April 29th, 2016

Gabriel Zarca's PhD Dissertation: **“Innovative ionic liquid-based separation technologies for the recovery of carbon monoxide from industrial gas streams”**.

Supervisors: Prof. Ane Urtiaga and Prof. Inmaculada Ortiz



Transfer of Knowledge: ACADEMY

Doctorate Thesis

June 10th, 2016

Isabel Ortiz's PhD Dissertation: **"Recovery of HCl from galvanizing effluents by ion exchange membranes"**.

Supervisors: Prof. Inmaculada Ortiz and Dr. María Fresnedo San Román



July 21st, 2016

Germán Santos' PhD Dissertation: **"Assessment of metal levels in ambient air by statistical models"**.

Supervisor: Dr. Ignacio Fernández



December 16th, 2016

Lucía Gómez's PhD Dissertation: **"Temperature effect on CO₂ recovery by membranes and ionic liquids"**

Supervisors: Prof. Ángel Irabien and Dr. Aurora Garea



Transfer of Knowledge: ACADEMY

Doctorate Thesis

February 10th, 2016

Prof. Inmaculada Ortiz and Dr. Alfredo Ortiz attended the doctoral thesis defense of Mr. Javier Lemus at the University of Zaragoza. The thesis was entitled “Development of proton Exchange membranes based on synergistic combination of polybenzimidazole, ionic liquids and zeolites/zeotypes for high temperature PEM fuel cells.



**Universidad
Zaragoza**

December 19th, 2016

Prof. Ane Urtiaga was part of the evaluation committee of the doctoral thesis “Integration of electrically driven membrane separation processes for water treatment and resources recovery”, defended by Ms. Mónica Reig in the Universitat Politècnica de Catalunya- BarcelonaTech.



**UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH**

July 7th, 2016

Amador Cláver, Marta Fraile and Arantza Basauri presented their final master project of the Master in Chemical Engineering (UC-UPV-EHU). The defense was held in the Facultad de Ciencia y Tecnología of the University of País Vasco and the evaluation committee was constituted by Prof. Miguel Ángel Gutierrez, University of País Vasco and Dr. Rubén Aldaco and Dr. Ignacio Fernández, University of Cantabria.



UPV EHU

October 13th, 2016

Alba Romano, Sergio Carro y Enrique Rodríguez presented their final project in the Master in Chemical Engineering (UC-UPV/EHU). The defense was held in the Facultad de Ciencia y Tecnología of the University of País Vasco and the evaluation committee was constituted by Miguel Ángel Gutierrez Ortiz, from the University of País Vasco, and Ignacio Fernández and Rubén Aldaco, from the University of Cantabria.



December 2nd, 2016

Laura Astoreca, Cristina Fernández, Alvaro Casado, Alejandro Bermejo, Alberto Martín and Asier Sanz defended their final project in the Master in Chemical Engineering (UC-UPV/EHU). The defense was held in the conference room of the University of Cantabria and the evaluation committee was constituted by Prof. Ane Urtiaga (University of Cantabria), Prof. María Pilar Gonzalez and Dr. Javier Ereña from the University of País Vasco.



Transfer of Knowledge: ACADEMY

July 15th, 2016

EUROPEAN PROJECT SEMESTER (EPS)

NEW GRADUATES IN CHEMICAL ENGINEERING

Aitor Marcos, Cristina González, Raquel Barbadillo, Andrea Arguillarena, Carlos Álvarez, Carlos López and Marta Romay, all of them students of the European Project Semester in Chemical Engineering (EPS), presented their final degree project. The evaluation committee was constituted by Dr. Nazely Dibán, Dr. Marcos Fallanza and Dr. Olaia Iglesias.



October 26th, 2016

III PROMOTION OF THE EUROPEAN PROJECT SEMESTER (EPS) IN CHEMICAL ENGINEERING – 2015/2016

The students of the European Project Semester (EPS) in Chemical Engineering at the University of Cantabria received their diplomas awarding their successful completion of the program in the academic year 2015/2016. The ceremony was organized by Prof. Inmaculada Ortiz, the academic coordinator of the EPS program.



11 students of this edition were regular students of the Chemical Engineering Degree at UC, while the other one came from Abo Akademi (Finland).

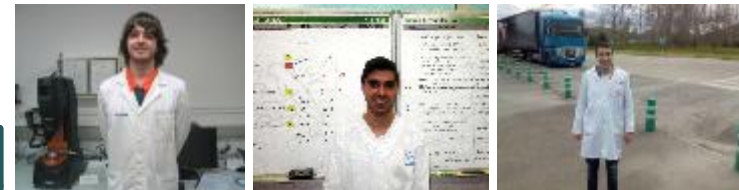
Transfer of Knowledge: ACADEMY

Internships

Students of the Chemical Engineering Degree and of the Master in Chemical Engineering have done internships in several industrial companies, research centers, universities and public administrations, during 2016.

Chemical Engineering Degree

Maria del Mar Rasines	APRIA SYSTEMS 
Laura Gómez	ITM S.L. 
Elena García	GLOBAL STEEL WIRE 
Ignacio Suárez Eduardo Huingo	CONSEJERIA DE UNIVERSIDADES E INVESTIGACIÓN, MEDIO AMBIENTE Y POLÍTICA SOCIAL 



Master in Chemical Engineering

Nestlé La Penilla

Marta Basoa
Julia Rasines
Alberto Romero



Robert Bosch Treto

Guillermo Díaz

Consejería de Universidades e investigaciones,
medio ambiente y política social



Sergio Castro



Bridgestone

Marta Castañeda
Sophie M. Schröder



Cargill

Laura Astoreca
Alba Romano



Yamaguchi University

Paloma Ortiz

Chemical & Biomolecular
Engineering Department

Arantza Basauri
Guillermo García
David Salas



Solvay Química S.L.

Paula Cabezón
Luis Alberto Herrero



Universidad Carlos III

Enrique Rodríguez



Dynasol Elastómeros

Ignacio Nilo Ruiz

Transfer of Knowledge: ACADEMY

CORNELL PROGRAM

Academic year 2015/2016

The second edition of the Undergraduate Chemical Engineering Program between **Cornell University and the University of Cantabria** was developed during the second semester of the academic year 2015-2016. Several members, lecturers and students, belonging to the chemical engineering community of the University of Cantabria welcomed the students coming from the well-regarded institution located in New York (United States). In this edition, more North American students coming from the University of Tulsa (Oklahoma) and Brown University (Rhode Island) joined the international program.



Academic year 2016/2017

Three undergraduate students enrolled in the degree in Chemical Engineering at the UC, Angela Entrecanales, Paula Montes and Carlos de la Peña, spent the first semester of the 2016-2017 academic year at Cornell University (New York, USA).



Transfer of Knowledge: ACADEMY

Academic Visits

January 15th, 2016

Students and professors of the course “Polymerization engineering” of the Chemical Engineering Degree enjoyed an academic visit to the company Bridgestone located in Puente San Miguel, Cantabria.



May 24th, 2016

Students of the Chemical Engineering Degree who follow the courses Wastewater Treatment and European Project Semester visited the WWTP located at San Román and the company Lunagua Ltd.



Transfer of Knowledge: LECTURES AT OUR DEPARTMENT

“Los retos de la ingeniería química en el siglo XXI”

Prof. Ignacio Grossmann
University of Cantabria Doctorate Honoris Causa
Carnegi Mellon University, Pittsburgh, EEUU
January 28th, 2016



“Personal Branding”

Mr. Raúl Pescador Chamorro
HR Site Business Partner – E&T Pillar Leader - Nestlé España
Organized by Cantabria Student Chapter of AIChE
February 25th, 2016



“La biorefinería del siglo XXI”

Dr. Elías Martínez Hernandez
Post-doctoral researcher, Engineering Science Department
University of Oxford
February 26th, 2016



Transfer of Knowledge: LECTURES AT OUR DEPARTMENT

“Electrochemistry of Materials for Energy (addressing Fuel Cells and Hydrogen)”

Dra. Carmen Mireya Rangel

Laboratório Nacional de Energia e Geologia – LNEG, Laboratório de Energia, Unidade de Pilhas de Combustível e Hidrogénio (Lisbon, Portugal).
March 16th, 2016



“Tissue Engineering from an engineer’s perspective”

Dra. Cathy Ye

Institute of Biomedical Engineering (IBME) - University of Oxford
April 8th, 2016



 Consiglio Nazionale delle Ricerche

“Curiosities and anomalies of gas transport phenomena in polymeric membranes”

Prof. John Jansen

Institute of Membrane Technology (ITM-CNR) - Italy
April 28th, 2016



Transfer of Knowledge: LECTURES AT OUR DEPARTMENT

“Diseño molecular para el control de propiedades poliolefinas y del ácido poliláctico”

Dra. Rosario Benavente
Institute of Polymer Science and Technology (ICTP-CSIC)
May 5th, 2016



“La ciencia de la cocción a gas: procesos físico-químicos implicados”

Mr. Saúl Laguillo and Mr. Emilio Placer
BSH Electrodomésticos España S.A.
May 20th, 2016



B/S/H/

“Elaboration of biodegradable polymers for the active substances and for the environment”

Prof. Kaddour GUEMRA
Laboratory of Macromolecular Physical Organic Chemistry, Djillali Liabes
University (Sidi Bel Abbes, Algeria).
September 22nd, 2016



Transfer of Knowledge: LECTURES AT OUR DEPARTMENT

“Presentación de un Proceso Biotecnológico: Producción de levadura”

Mr. Javier Noval Llano
Algist Bruggeman. A Lesaffre Company (Belgium)
October 27th, 2016



“Strategic Research Group Process Technology: Organization, facilities, expertise and portfolio”

Dra. Olga Kattan
Akzo Nobel (The Netherlands)
November 25th, 2016

“Reactores enzimáticos con membranas, cambio de escala, modelado y simulación”

Dr. Jose Sánchez
Directeur de Recherche, Institut Européen des Membranes (Montpellier, France)
December 15th, 2016



Transfer of Knowledge: INVITED LECTURES

February 18th, 2016

Envases sostenibles para el futuro

By Dr. Clara Casado
San Cibrían Cultural Thursdays
Social Center Angel Soto - Santander



March 10th, 2016

Future challenges to improve water quality and availability

By Prof. Inmaculada Ortiz
La Fundación Siglo Futuro of Guadalajara and the Spanish Royal Academy of Science - Guadalajara



May 23 – 27th, 2016

Renewable electricity integration at a regional level: Cantabria case study

By Dr. Antonio Domínguez
WholeSEM Consortium at the Imperial College of London
London



Transfer of Knowledge: INVITED LECTURES

April 13th, 2016

Los Retos de la Sociedad y los Procesos de Separación

By Prof. Inmaculada Ortiz

Royal Academy of Science
Madrid



April 18th, 2016

Future challenges to improve water quality and availability

By Prof. Inmaculada Ortiz

Course jointly organised by the University of Oviedo and the Royal Academy of Science
Oviedo

April 21st, 2016

Future challenges to improve water quality and availability

By Prof. Inmaculada Ortiz

Course jointly organized by the University of Zaragoza and the Royal Academy of Science
Zaragoza



Transfer of Knowledge: INVITED LECTURES

May 17th, 2016

Spanish Higher Education Training System

By Prof. Ángel Irabien

Course in the Institute of Chemical Technology in Tashkent, Uzbekistan



May 17th, 2016

Advanced Analytical Techniques

By Prof. Inmaculada Ortiz

Course in the Institute of Chemical Technology in Tashkent, Uzbekistan

Transfer of Knowledge: INVITED LECTURES



X Ibero-American Congress on Membrane Science and Technology CITEM 2016

May 22 – 25, 2016

Contribution of Membrane Technology to the Societal Challenges in the 21st Century

By Prof. Inmaculada Ortiz

Plenary lecturer at X Ibero-American Congress on Membrane Science and Technology CITEM 2016 – Mexico



Transfer of Knowledge: INVITED LECTURES



SIDISA 2016 - International Symposium on Sanitary and Environmental Engineering

June 19 - 23, 2016

Life Cycle assessment of Waste to Energy Technologies. A case of study: household wastes to energy in Spain and Portugal

By Prof. Ángel Irabien

Plenary lecturer at X International Symposium on Sanitary and Environmental Engineering (SIDISA-SIBESA)
Universita di Roma "La Sapienza" - Roma



Transfer of Knowledge: INVITED LECTURES



June 28th – July 1st, 2016

Electrochemical processes for CO₂ conversion

By Dr. Manuel Álvarez

International Sulcis Summer School on CCS Technologies 2016
Italy

July 12 -13th, 2016

Phase Inversion Polymeric Membranes Applied for Tissue Engineering

By Dr. Nazely Diban

Research group 'Tissue Engineering and Stem Cell Technology' of the Engineering Science Department at the Institute of Biomedical Engineering (IBME) University of Oxford (United Kingdom)



July 17 -20th, 2016

Contribución de la Electroquímica al Desarrollo Sostenible

By Prof. Inmaculada Ortiz

Ceremony Award of CIDETEC 2015
Alicante



Transfer of Knowledge: INVITED LECTURES



6th
EuCheMS
Chemistry Congress

SEVILLE Spain

11th-15th September 2016

Organized by



Carbon dioxide to sustainable products: Electrochemical Process Development

By Prof. Ángel Irabien

Plenary lecturer at 6th EuCheMS Chemistry Congress - Seville



Transfer of Knowledge: INVITED LECTURES



XXVIII CIIQ

CONGRESO
INTERAMERICANO
DE INGENIERÍA QUÍMICA

October 10 – 12, 2016
Cusco, Peru

Ejes de acción de la ingeniería química en el siglo XXI
By Prof. Ángel Irabien
Plenary lecturer at XXVIII Congreso Interamericano de Ingeniería Química



Transfer of Knowledge: INVITED LECTURES



11 DE NOVIEMBRE DE 2016

16:30

Salón de Actos de la Facultad de
Derecho y Ciencias Económicas y Empresariales

SANTANDER

TED^x Sardinero

x = independently organized TED event

Magic Substances or Contemporary Alchemy?

By Dr. María José Rivero

TEDx Sardinero

Faculty of Law and Economics, University of Cantabria

Santander



Transfer of Knowledge: INVITED LECTURES



2016 AIChE® Annual Meeting

November 13 – 18, 2016 • San Francisco, CA

www.aiche.org/annual

November 14th 2016

Nexus Case Study: Tomato production in greenhouses

By Prof. Ángel Irabien

Plenary lecturer at 2016 AIChE Annual Meeting

San Francisco, USA



Transfer of Knowledge: INVITED LECTURES



November 23rd 2016

Design of Advanced Technologies to provide high quality water in the 21st century

By Prof. Inmaculada Ortiz

Workshop “Matemáticas en acción”, organized by the Department of Mathematics, Statistics and Computing Sciences of the University of Cantabria

Santander, Spain

November 29th 2016

Capture and Valorization of CO₂ to fight climate change

By Dr. Manuel Álvarez-Guerra

Course “Crystallization in the School. Training sessions for ESO and Bachillerato teaching staff”, Science Faculty - University of Cantabria.

Santander, Spain



Transfer of Knowledge: NETWORKS AND COLLABORATIVE PROJECTS



January 25th 2016

Excellent Research Network E3TECH

Prof. Ane Urriaga participated in the first meeting of the Project E3TECH. This initiative aims at promoting excellent research in the fields of Environmental and Energy Applications of the Electrochemical Technology.

E3TECH is an excellence network, financed by the Ministry of Economy and Competitiveness under the Call REDES de EXCELENCIA 2015.



March 16th 2016

Consolider Network

Dr. Raquel Ibáñez, on behalf of the PAS research group, participated in the second meeting of the RED CONSOLIDER Tratamiento y Reutilización de Aguas Residuales para una Gestión Sostenible – TRAGUANET, organized by IMDEA AGUA (Instituto Madrileño de Estudios Avanzados del Agua, Alcalá de Henares).

The network encompasses 24 research groups and companies, involved in the project CONSOLIDER TRAGUA.



September 22-23th 2016

FOTOCAT Network

Paula Ribao and María José Rivero attended the IV Reunión Nacional de Grupos de Fotocatálisis, which took place in the University of Extremadura, in Badajoz (Spain). During the meeting, Paula presented the progress on environmental applications of photocatalysis achieved in the Chemical and Biomolecular Engineering Department.



Transfer of Knowledge: NETWORKS AND COLLABORATIVE PROJECTS



November 9th 2016

MEETING OF THE PROJECT “Sustainable Integration of CO₂ capture and valorization processes”

Prof. Angel Irabien and Dr. Manuel Alvarez attended the third meeting of the project “Sustainable Integration of CO₂ capture and valorization processes”, which took place in the University of Alicante.

The objective of the project is the development of sustainable processes for CO₂ capture and valorization, as well as their application for the optimum management of municipal waste. The project coordinates 3 groups experts in: Separation Processes (University of Cantabria), Applied Electrochemistry (University of Alicante) and Environmental Technology (Polytechnic University of Madrid).

MEETINGS OF THE PROJECT “Manganese in urban air: Levels and deposition, physico-chemical characterization and modeling with dispersion mode”

April 28-29th 2016

Dr. Ignacio Fernández and the PhD. Student Ana Hernández visited L'Unité de Chimie Environnementale et Interactions sur le Vivant (UCEIV) de la “Université du Littoral Côte D'Opale, to present the advances in the project.



November 14-16th 2016

Prof. Dominique Courcot and Dr. Frédéric Ledoux visited the Chemical and Biomolecular Engineering Department, within the framework of the collaboration established between the University of Cantabria and Université du Littoral Côte D'Opale.



Transfer of Knowledge: SEMINARS

Research Seminars

May 25 - 26th, 2016

"Membrane Technology in water remediation and water desalination"

Seminar at UNAM (Mexico) for postgraduate students, imparted by Prof. Inmaculada Ortiz



Universidad Nacional
Autónoma de México



June 2016

"Life Cycle Sustainability Assessment and Waste Management"

International Postgraduate Course at Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma, imparted by Prof. Ángel Irabien.

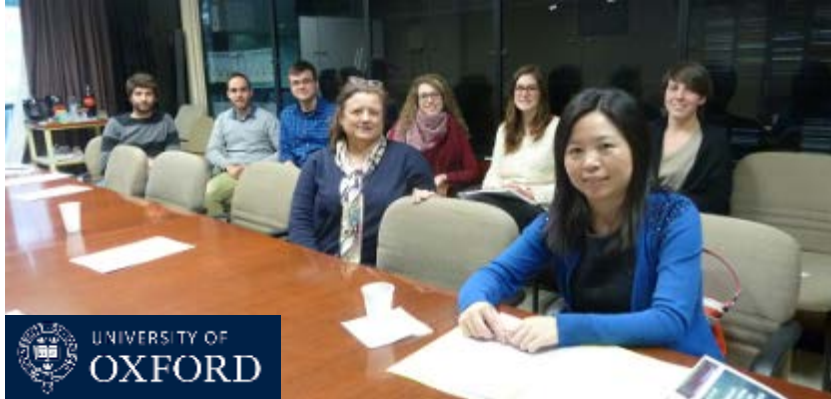
FACOLTÀ DI INGEGNERIA
CIVILE E INDUSTRIALE



SAPIENZA
UNIVERSITÀ DI ROMA

Transfer of Knowledge: SEMINARS

Research Seminars



April 8th, 2016

A research seminar was organized on biomedical engineering and health topics with Dr. Cathy Ye, University of Oxford.

Several presentations were delivered by the members of the Chemical and Biomolecular Engineering Department related to the research developed in the field of biomedicine.

April 19th, 2016

A research seminar was organized to discuss membrane separation topics with Dr. John Jansen, senior researcher at the Istituto per la Tecnologia delle Membrane - Consiglio Nazionale delle Ricerche (Rende, Italy).

Several presentations were delivered by our colleagues Ane Urriaga, Raul Zarca, Clara Casado, Aurora Garea and Nazely Diban. A guided visit to the laboratory facilities in the Department of Chemical and Biomolecular Engineering was included.



Transfer of Knowledge: SEMINARS



Research Seminars



May 2016

Dr. María José Rivero and the PhD. Student Sara Domínguez attended the “III Supervision Training for Doctoral Candidates”, organized by the Doctorate School of the University of Cantabria.



June 13-17th, 2016

The Department of Chemical and Biomolecular Engineering organized the annual "Doctorate Seminar", aimed at promoting the training and dissemination of research activities of PhD students registered in the Doctorate program of Chemical, Energy and Process Engineering of UC.



November - December 2016

Andrés del Castillo, Marta Herrero, Sara Domínguez, Ana Fernández and Claudia Solá attended the Advanced Doctorate Seminar organized by EDUC.

Transfer of Knowledge: SEMINARS



Technical Seminars

February 5th, 2016

Purification of water for the chemistry lab

By Mr. Jorge Nicolás - Field Sales Specialist of Merck-Millipore ETSilyT- University of Cantabria

Aimed at researchers of the Chemical and Biomolecular Engineering Department.



February 24th, 2016

Métodos más usuales de medida de Viscosidad Rotacional en el Laboratorio

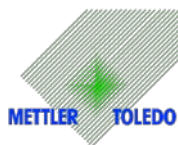
By Mr. Marcel Ripoll, Instrumentación Analítica Organized by Brookfield Santander



May 17th, 2016

Buenas prácticas en el Laboratorio

Organized by Mettler Toledo Science Faculty – University of Cantabria Santander



September 20 - 23th, 2016

Gas chromatography coupled with Mass Spectroscopy. Practical applications

Organized by CSIC Madrid



September 26 - 27th, 2016

High Performance Ion Chromatography

Organized by Vertex Technics

Science and Technology School of the UPV Bilbao



Transfer of Knowledge: SEMINARS



Summer Courses

May 26th, 2016

Selene Cobo, PhD student in the Chemical, Energy and Process Engineering Doctorate Program, attended the summer course "**Thermoconversion Processes**" and the **International Conference on Waste and Biomass Valorization**, both celebrated in Albi (France), where she presented her work "CO₂ capture by accelerated carbonation of MSWI fly ashes".



June 26 – July 1st, 2016

Juan Martínez and Raúl Zarca, PhD. students, attended "**The 2016 European Membrane Society Summer School**" celebrated at the University Residential Center in Bertinoro, Italy. They presented their works "Nitrate reduction through catalytic membrane reactor" and "Propane/propylene separation through facilitated transport composite membranes", respectively with poster contribution.



June 27-30th, 2016

The summer course "Valorización Química Sostenible de Dióxido de Carbono" was celebrated in the auditorium of the School of Industrial Engineering and Telecommunications at the University of Cantabria (Santander), with the participation of 30 students and 12 lectures.



Transfer of Knowledge: EVENTS

January 28th, 2016

Meeting with Prof. Ignacio Grossmann

Prof. Ignacio Grossmann (Carnegie Mellon University, Pittsburgh, USA) spoke about “Challenges in Chemical Engineering in the 21st Century” in a meeting with students, academics and delegates from industry and administration. The meeting was promoted by the Dep. of Chemical and Biomolecular Engineering in collaboration with Professor Angel Irabien, the Cantabria Student Chapter of AIChE and the Association of Chemistry and Chemical Engineering (AQUICAN) of Cantabria.

Encuentro del profesor **Ignacio E. Grossmann** (Carnegie Mellon University, Pittsburgh, USA), Doctor Honoris Causa por la Universidad de Cantabria, con estudiantes egresados y profesionales de la Ingeniería Química en Cantabria.



LOS RETOS DE LA INGENIERIA QUIMICA EN EL SIGLO XXI

Jueves 28 de enero a las 10:00 horas. Salón de actos (ETSIIyT)

ORGANIZA:

- AIChE Cantabria Student Chapter de AIChE. <https://www.facebook.com/page/Student-Chapter-of-AIChE-Universidad-de-Cantabria>
- Departamento de Ingenierías Química y Biomolecular (UC) <https://es-es.facebook.com/ingenieriaQuimicaYBiomolecular/>

APOYAN:

- AQUICAN
- AIChE
- GIQ
- RSEQ

During the meeting, the current president of the Cantabria Student Chapter of AIChE, Mrs. Marta Romay, and the secretary of AQUICAN, Gabriel Zarca, presented the activities developed by the members of both associations. They also acknowledged Prof. Grossmann, who was appointed as Honorable Member of AQUICAN, for his support in the creation of both organizations focused on the dissemination of the role of the chemical engineering profession in the society of the 21st century.



Transfer of Knowledge: EVENTS

Saint Thomas Aquinas' Day, January 28th, 2015



During the ceremony of celebration of the feast of **St. Thomas Aquinas** the nomination of María Margallo, Antía Pérez and Juan Saiz as **Doctors of the University of Cantabria** took place.



Transfer of Knowledge: EVENTS

February 2016

DISSEMINATION WORK

A dissemination workshop focused on high school students was organized by the Department of Chemical and Biomolecular Engineering. Under the slogan **“Encuentros con la Ingeniería Química”** this activity provides students with practical information about Chemical Engineering, including their employment sectors, both in the region and around the world. Moreover, it is an opportunity to introduce students to the Chemical Engineering degree offered at the University of Cantabria.



Transfer of Knowledge: EVENTS

April 8th, 2016

CHEMISTRY OLYMPIAD FOR SECONDARY SCHOOL STUDENTS

The School of Engineering welcomed the regional level “Chemistry Olympiad for Secondary School Students”, organized by the Association of Chemistry and Chemical Engineering of Cantabria (AQUIQÁN). Students of Cantabrian secondary schools took part in the competition. In the afternoon the students had the opportunity to demonstrate their knowledge.

The winners of the gold, silver and bronze medals were David Sordo (IES Leonardo Torres Quevedo, Santander), Arian Ferrero (IES José Zapatero Domínguez, Castro Urdiales) and Fatima Ceballos (IES Santa Clara, Santander). The top two finalists represented Cantabria at the national competition, in Madrid on April 15th, 2016.



May 27th, 2016

II MINIOLYMPIAD OF CHEMISTRY

The Association of Chemistry and Chemical Engineering of Cantabria (AQUIQÁN-ANQUE), in collaboration with the Territorial Section of Cantabria of the Spanish Royal Society of Chemistry (RSEQ), celebrated the II Miniolympiad of Chemistry in Cantabria.

The winners of the gold, silver and bronze in 4th year ESO were Marcos Fernández Montejo (IES José M^a de Pereda, Santander), Carlos Gutiérrez de la Hoz (IES Santa Cruz, Villabáñez) and Jiase Zhang (IES Marqués de Santillana, Torrelavega).

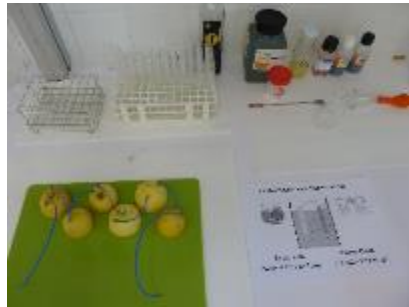
The winners of the gold, silver and bronze in 3th year ESO were Daniel Arias Rodado (IES José Zapatero Domínguez, Castro Urdiales), Alejandro Senás González (IES Valle de Camargo, Camargo) and Mario Alonso Muñoz (Colegio Sagrada Familia, Herrera de Camargo).



Transfer of Knowledge: EVENTS

April 19th, 2016

A group of kids in the 4th course of Primary School CEIP Flavio San Roman (Cicero) visited our laboratories and witnessed and put hands on different experiments of chemical reactions.



Transfer of Knowledge: EVENTS

May 23 - 27th, 2016

Dr. Clara Casado was part of an Evaluation Committee of Engineering Degrees at the University of Huelva for the DEVA (Dirección de Evaluación y Acreditación de la Agencia Andaluza del Conocimiento).



Transfer of Knowledge: EVENTS

May 16-20th, 2016

Professor Angel Irabien and Professor Inmaculada Ortiz, met the Rector and Academic Authorities of the **University of Tashkent (Uzbekistan)**, with the objective of establishing collaborative programs for teaching and research.



Transfer of Knowledge: EVENTS

May 2016

During the month of May, the Department of Chemical and Biomolecular Engineering participated in the Open Doors Days aimed to provide information to future students and their families, a program organized by the University of Cantabria.

During the event, all visitors could participate in a guided tour through the academic facilities that UC offers to future students, including the Research Laboratories of the School of Engineering.



Transfer of Knowledge: EVENTS



August 5th, 2016

MEETING ALUMNI DISTINGUIDOS

Prof. Inmaculada Ortiz, Head of our Department, and Dr. Raquel Onandía, doctor in Chemical Engineering and member of the Alumni distinguidos programme of the University of Cantabria, participated in the III Encuentro de Verano Alumni Distinguidos organized by the University of Cantabria.



Transfer of Knowledge: EVENTS



September 9th, 2016

Prof. Bogdan Dlugogorski and Dr. Mohammednoor Altarawneh, from the School of Engineering and Information Technology of the Murdoch University, Perth, Australia, visited the Department of Chemical and Biomolecular Engineering of the University of Cantabria. Fruitful discussions followed the scientific presentations that hopefully will lead to future collaboration agreements.



Transfer of Knowledge: EVENTS

September 26th, 2016

European PEMFC-SUDOE project: Kick-Off Meeting

The European PEMFC-SUDOE Project consortium partners met in Santander at the University of Cantabria for the official kick-off meeting with the participation of 16 scientists belonging to nine different research centers and companies from the SUDOE region. The event was officially opened by Dr. Javier León Serrano, Vice chancellor for research and knowledge transfer of the University of Cantabria, which acts as the main beneficiary of the project and conducted by Dr. Alfredo Ortiz, project coordinator.



The main goals of the project, work packages, structures, administrative and financial management and dissemination activities were discussed.



Moreover on 26 and 27 September the seminar organized by the joint secretariat of the Interreg SUDOE program on management of projects took place at the Santemar hotel (Santander) The FEDER contract-signing event took place between the legal representative of the University of Cantabria, Dr. Javier León Sanchez and the Counselor of Economy, Finance and Employment of the Government of Cantabria, Juan Jose Sota, management authority of the European Southwest cooperation program.

Transfer of Knowledge: EVENTS

September 30th, 2016

EUROPEAN RESEARCHERS NIGHT

Members of DePRO, IPS, TAB and ASP research groups of the Chemical and Biomolecular Engineering Department offered a demonstration of research topics to the general public during the European Researchers Night, as part of the team of the University of Cantabria. The event took place in Plaza de Pombo in Santander.



November 16th, 2016

SCIENCE WEEK

In the frame of the celebration of the *Science Week* of the University of Cantabria, the Department of Chemical and Biomolecular Engineering prepared several experiments to show its research activity to students of three high schools of the region, IES Foramontanos (Cabezón de la Sal), Torreanaz (Anaz) and IES Cantabria (Santander).



Transfer of Knowledge: EVENTS

November 19th, 2016

GRADUATION CEREMONY

The Graduation ceremony for Graduates and Masters in Chemical Engineering took place in the Paraninfo of the University of Cantabria. The new Graduates and Masters received their diplomas awarding the completion of their studies during the academic year 2015-2016.

Our former students were accompanied by Dr. Eugenio Bringas, Coordinator for International Relations (Chemical Engineering).



Transfer of Knowledge: EVENTS

November 26th, 2016

LXVI GENERAL ASSEMBLY

Ángel Irabien and Manuel Álvarez, President and Assembly member of the Association of Chemistry and Chemical Engineering of Cantabria (AQUIQÁN), on behalf of AQUIQÁN, participated in the LXVI General Assembly of the National Association of Chemists of Spain (ANQUE), celebrated in Madrid.



More info about the association:

<http://web.unican.es/departamentos/ingquimica/aquiqan>

Transfer of Knowledge: EVENTS

November 28th, 2016

The University of Cantabria celebrates the meeting “**Conecta**”, to promote the relations between Companies and Universities.

During this day, which had the collaboration of the Cluster of Nuclear Industry in Cantabria, good practices between the research groups of the UC and companies in the field of Nuclear Industry are promoted.

The Department of Chemical and Biomolecular Engineering was represented by **Dr. Raquel Ibáñez**.



November 30th, 2016

The University of Cantabria and the Company ENSA, organized the **7th annual meeting to explore new collaborations in the field of research and development**. In this edition the Technological Components Center, CTC joined the event.

Raquel Ibáñez and María Fresnedo San Roman attended the event on behalf of the Chemical and Biomolecular Engineering Department.



Transfer of Knowledge: EVENTS

December 19th, 2016

SANTANDER COATED SOLUTIONS OPENING

Prof. Inmaculada Ortiz and Prof. Ane Urtiaga were invited to the opening ceremony of the new plant Santander Coated Solutions located in the port of Santander. The inauguration was held last December 20, 2016, with the presence of the Vice-Prime Minister Soraya Sainz de Santamaria, the president of the company Oscar Heckh, and other national, regional and local authorities.



December 20th, 2016

GENERAL ASSEMBLY CODDIQ

Dr. Raquel Ibáñez and Dr. María José Rivero attended the General Assembly CODDIQ (Conference of Directors and Deans of Chemical Engineering), to inform about the progress in the organization of the IV Congress of Educational Innovation in Chemical Engineering (CIDIQ), which will be organized by the Chemical and Biomolecular Engineering Department at the University of Cantabria next January 2018.



RESEARCH & DEVELOPMENT



R&D: MOBILITY

Research mobility of the faculty members

Eugenio Bringas



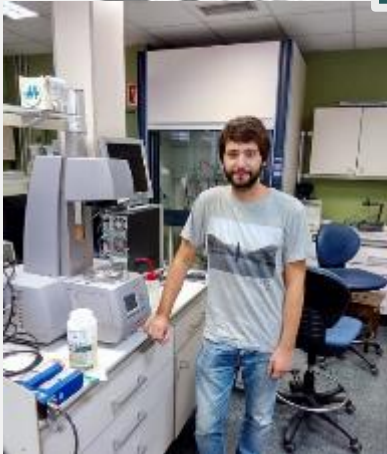
Olaia Iglesias

Photoactivated Process Unit
IMDEA Energy Institute
(Madrid, Spain)
September 5th –November 25th, 2016



Poznan University of Technology (Polland)
Erasmus+ Programme (April 2nd-8th, 2016)

Gabriel Zarca



“Procesos de separación e equilibrio entre fases” research group. Univeristy of Santiago de Compostela (Galicia, Spain)
(September 18th-30th, 2016)



Institut Químic de Sarrià
Universitat Ramon Llull
(Barcelona, Spain)
(October – December 2016)

Ricardo Abejón



“Forest Process Engineering” research group.
Chemical Engineering Institute -Universidad de la República (Uruguay)
(September 9th – December 10th, 2016)

R&D: MOBILITY

Research mobility of post-graduate students

Jenifer Gómez



Dep. Chemical and Biological Engineering -University at Buffalo
The State University of New York (SUNY) (Buffalo, USA)
(April – June, 2016)

Jara Laso



Pontificia Universidad Católica del Perú
Lima, Perú
(March – June, 2016)

Carolina Fernández



Dep. Civil and Environmental Engineering of the Georgia
Institute of Technology (Atlanta, USA)
(February – May, 2016)



Dep. Chemical and Biomolecular Engineering of the
University of Sydney (Sydney, Australia)
(June – August, 2016)

R&D: MOBILITY

Research mobility of post-graduate students

Pablo Fernández



Fire Safety and Combustion Kinetics Laboratory at Murdoch University (Perth, Australia) (July – October, 2016)



Beatriz Gómez



Electrochemical and Corrosion Engineering Universidad Politécnica de Valencia (Valencia, Spain) (June 27th – July 15th, 2016)

Carlos Javier Escudero



Department of Chemistry in the Division of Natural Sciences of the University of Guanajuato, (Guanajuato, Mexico) (August 1st – 14th, 2016)

Raúl Zarca



Department of Chemical and Biomolecular Engineering of the National University of Singapore (Singapore) (September – December, 2016)

R&D: MOBILITY

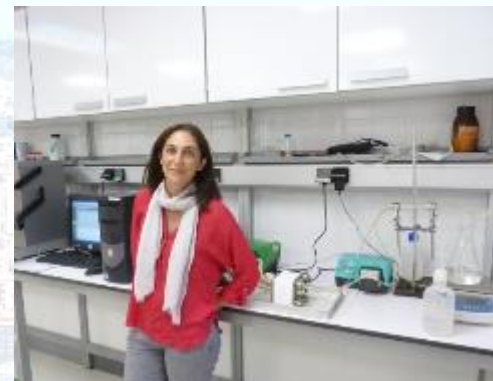
Incoming researchers at University of Cantabria

Lamia Bennabi



University IBN Khaldoun
(Argelia)
April 2016

Dr. Fátima Arroyo



Department of Chemical Engineering of
the University of Seville (Seville, Spain)
September 2016

Dr. Magdalena Regel-Rosocka and Dr. Katarzyna Staszak



Poznan University of Technology (Poland)
February 29th – March 1st, 2016

R&D: AWARDS

Doctor Honoris Causa: Prof. Ignacio Grossmann



Prof. Ignacio E. Grossmann, Professor at Carnegie Mellon University (Pittsburgh, USA), receives the Honoris Causa Doctorate of the University of Cantabria. This initiative, promoted by the Department of Chemical and Biomolecular Engineering of the University of Cantabria, and specially by Prof. Angel Irabien, represents a relevant milestone in the field of the Chemical Engineering in Spain.



The ceremony organised to confer the honor to Prof. Grossmann, took place on the 27th January 2016, 12:00, at Paraninfo de la Universidad de Cantabria.



R&D: AWARDS

RESEARCH AWARD CIDETEC 2015



The **Group of Electrochemistry of the Department of Chemical and Biomolecular Engineering**, chaired by **Prof. Inmaculada Ortiz Uribe**, received the **CIDETEC Scientific Research Award 2015**, to the best research work in Electrochemistry developed along the last four years, entitled "*Contributions of Electrochemistry to the Sustainable Development*".

The prize was awarded during the celebration of the annual conference of the Electrochemistry Group of the Spanish Royal Society of Chemistry, in Alicante, July 17-20, 2016.

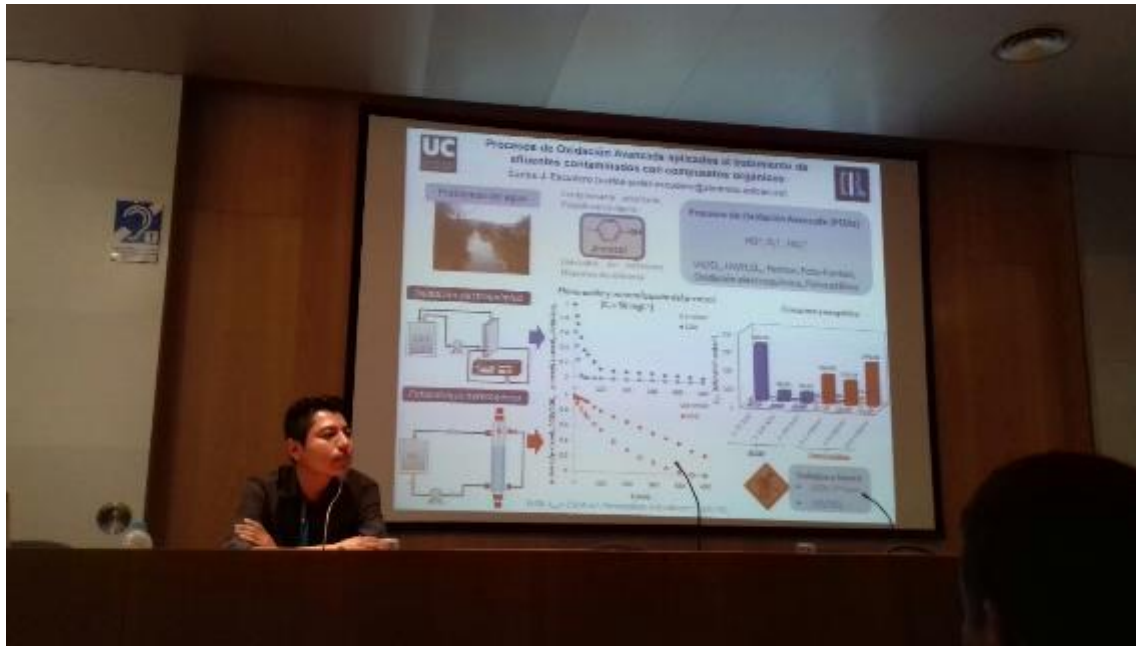
During the ceremony, Inmaculada Ortiz delivered an invited lecture where she reviewed different examples on development of new knowledge, technology transfer and innovation in the field of electrochemical processes carried out by the members of the SOSPROCAN team.



R&D: AWARDS

T3M AWARD

The PhD. Student **Carlos Javier Escudero** was awarded with the **1st Prize in the Competition “Three Minutes Thesis – T3M”** for PhD Mexican students in Spain, which took place in June 13th – 15th, 2016 at the Universitat Politècnica de Catalunya (Barcelona, Spain) together with the 3rd Cooperation Conference CONACYT – CATALUNYA (JCCC2016).



R&D: AWARDS

SPANISH IBERDROLA FOUNDATION

Dr. Gabriel Zarca was awarded by the **Spanish Iberdrola Foundation** to develop the project “*Contribución a la sostenibilidad ambiental: Nuevos procesos de recuperación de hidrógeno y monóxido de carbono de emisiones industriales*”. The research project, aimed at the development of new separation technologies for the recovery of valuable compounds from industrial gas streams, will be carried out at the Chemical and Biomolecular Engineering Department, in collaboration with **Prof. Ane Urtiaga** and **Prof. Inmaculada Ortiz**.



R&D: AWARDS

DISTINGUISHED PhD THESIS

Dr. Ricardo Abejón receives the **Award 2013** to Distinguished PhD thesis in the field of Engineering, of the University of Cantabria.

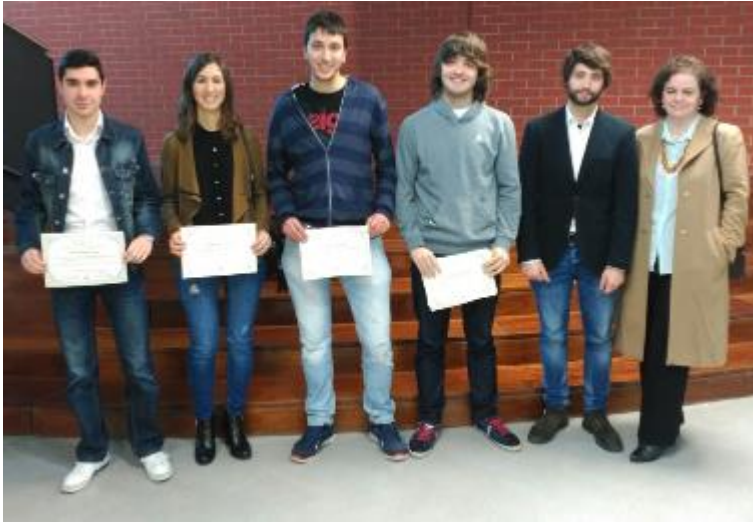


Dr. Enrique Álvarez, Dr. María Margallo and Dr. Esther Santos have been proposed by the University of Cantabria for the **2014 Award** of Distinguished Doctorate Thesis in the field of Engineering.



R&D: AWARDS

Saint Joseph's Day, March 18th, 2016



During the celebration of Saint Joseph's day, the different diplomas awarding those students who have obtained the best marks after graduation were given

Claudia Solá: "Modelado Matemático y Simulación de Procesos con Membranas Líquidas Selectivas para la Separación de PGMs",

Ignacio Nilo Ruiz: "CO₂ valorization: Experimental study and modelling of residence time distribution in an electrochemical filter press cell",

Alberto Romero: "Design of a CHEM-E-CAR prototype based on a chemical reaction", y

Guillermo Díaz: "CHEM-E-CAR: Iodine Clock Reaction".

Cantabria AIChE Student Chapter organised a scientific posters contest on occasion of the feast of Saint Joseph 2016.

Andrea Arguillarena: "Production of Low Alcohol Craft Beer and Improvement of their properties by Evaporative Pertraction" **Carlota Guati:** "AIChE Chem-E-Car competition"

Cristina González: "Design and application of continuous flow system for the separation of magnetic particles"

Carlos Álvarez: "Ionic Liquids as solvent agents for carbon monoxide capture"



R&D: Participation in national and international organisms



President of the Chemical Engineering Specialized Group for the RSEQ
President of AQUIQÁN - Asociación de Química e Ingeniería Química de Cantabria
Member of Acredita Expert Panel (ANECA)
ACADEMIA Expert (Engineering and Architecture)
External evaluator DAAD (Germany)
External Evaluator Slovenian Research Agency (Slovenia)



Secretary of the Assessment Committee "Engineering and Architecture" of UNIBASQ, 2012 –
Member of the scientific board of JPI-Water, 2015 –
Member of the scientific committee of EuCheMS 2016 Conference, ECCE-6. Chair of the "Environment, Energy and Sustainability", 2016.
Member of the Editorial Board of the Journal of Chemical technology and Biotechnology
Member of the Scientific Committee of ICRA, 2012-



President of the Quality Commission for the Master in Chemical Engineering (UC), 2014-present
Scientific director of the chromatography service (SerCrom) of the Scientific and Technical Research Services of the University of Cantabria, 2016-present
Member of the technical evaluation commission of research projects submitted to the Chemical and Environmental Technology R&D programs, Ministry of Economy and Competitiveness
Member of the evaluation commission of the Program Ramon y Cajal, Chemical Technology Area, Ministry of Economy and Competitiveness
Member of the Scientific committee, 2nd E3 Mediterranean Symposium: Electrochemistry for Environment and Energy, Italy 2016.

Vice-Chair of the program Environmental Technologies of the Technological and Environmental Sciences (CTM) area of the Technical Department of Environment and Natural Resources of the state secretary for Research, Development and Innovation of the Ministry of Economy and Competitiveness
Member of the commission of Conferencia de Directores y Decanos de Ingeniería Química (CODDIQ)
Vice-dean School of Industrial and Telecommunications Engineering of the University of Cantabria
Member of the Quality Commission of the University of Cantabria
Advisor of Cantabria Student Chapter de AIChE



R&D: Projects

Title: **Diseño multiescala de proceso de captura y utilización de dióxido de carbono (CTQ2016-76231-C2-1-R)(AEI/FEDER, UE)**

Financial support: Agencia Estatal de Investigación

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 30/12/2016 – 29/12/2019

Title: **Estudio para la recuperación de metales no férricos en la fracción fina de la escoria de la incineración**

Financial support: TIRCANTABRIA S.L.

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 07/11/2016 – 06/11/2017

Title: Proyecto para el Desarrollo del Doctorado Industrial: **Valorización de cenizas volantes de incineración de RSUS mediante carbonatación**

Financial support: Universidad de Cantabria – Parlamento de Cantabria

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 01/08/2016 – 31/11/2019

Title: **Estudio de la estabilización de cenizas volantes de incineración mediante carbonatación**

Participant entities: Universidad de Cantabria, SADER

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 31/03/2015 – 31/03/2016

Title: **Colaboración como experto en la certificación de proyectos I+D+i**

Financial support: AENOR

Main Researcher: : Prof. Ángel Irabien Gulías

Dates: 02/09/2014 – 31/12/2016

Title: **Desarrollo e integración de procesos con membranas para la captura y valorización de dióxido de carbono (CTQ2013-48280-C3-1-R)**

Financial support: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD

Main Researcher: Prof. Ángel Irabien Gulías / Aurora Garea

Dates: 01/01/2014 – 31/12/2016

R&D: Projects

Title: **Valorización química sostenible de dióxido de carbono (CTQ2014-55716-REDT)**

Financial support: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 01/01/2014 – 31/12/2016

Title: **Sostenibilidad de la producción de Cantabria**

Financial support: Universidad de Cantabria

Main Researcher: : Prof. Ángel Irabien Gulías

Dates: 10/01/2012 – 09/01/2016

Title: **Ensayos Sosprocan: Ensayos e informes de caracterización de muestras sólidas y líquidas mediante ensayos físico-químicos**

Participant entities: Universidad de Cantabria, Convenio FLTQ

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 02/2008 –

Title: **Aplicaciones avanzadas de separación. Modelado y validación experimental (CTQ2015-66078-R) (MINECO/FEDER, UE)**

Financial support: Ministerio de Economía y Competitividad

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 01/01/2016 – 31/12/2018

Title: **Diseño y caracterización de Nano-materiales magnéticos como agentes de separación**

Financial support: Ayudas para la Incentivación de Proyectos de I+D, SODERCAN – Universidad de Cantabria

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 01/06/2015 – 31/05/2016

Title: **Apoyo técnico al estudio de viabilidad técnico-económica de producción de cauchos hidrogenados con propiedades ópticas**

Financial support: Dynasol Elastómeros, FLTQ

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 01/06/2015 – 31/12/2016

R&D: Projects

Title: **Participación como experto en certificación de proyectos de I+D+i**

Financial support: DNVGL Business Assurance España S.L.

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 15/06/2015 – 25/03/2018

Title: **Estrategias innovadoras para la recuperación sostenible de recursos a partir de efluentes y residuos industriales, EUIN2015-62719**

Financial support: Universidad de Cantabria

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 01/01/2015 – 31/12/2016

Title: **Colaborador como experto en la certificación de proyectos (Evaluación AENOR)**

Financial support: AENOR

Main Researcher: : Prof. Inmaculada Ortiz Uribe

Dates: 11/08/2014 – 31/12/2016

Title: **Evaluación de proyectos**

Financial support: EQA CERTIFICADOS I+D+I, S.L.U.

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 27/07/2014 – 31/12/2017

Title: **Líneas de investigación del grupo procesos avanzados de separación**

Financial support: Universidad de Cantabria

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 27/07/2012 – 26/07/2018

Title: **Estrategias avanzadas de integración de membranas y procesos electrocatalíticos y fotocatalíticos para la eliminación de contaminantes persistentes (CTM2016-75509-R) (AEI/FEDER, UE)**

Financial support: Agencia Estatal de Investigación

Main Researcher: Prof. Ana María Urtiaga Mendía

Dates: 30/12/2016 – 29/12/2019

R&D: Projects

Title: **Evaluación de proyectos de investigación del programa CONECTA PYME 2016**

Financial support: Agencia Gallega de Innovación

Main Researcher: Prof. Ana María Urriaga Mendía

Dates: 03/11/2016 – 02/02/2017

Title: **Participación como personal técnico para evaluación de proyectos**

Financial support: SGS INTERNATIONAL CERTIFICATION SERVICES IBERICA, SA.

Main Researcher: Prof. Ana María Urriaga Mendía

Dates: 24/02/2016 – 15/02/2018

Title: **Nuevos nanomateriales funcionalizados basados en grafeno como soportes para la regeneración de tejido nervioso**

Financial support: Convocatoria Cantabria Explora del Parlamento de Cantabria / Universidad de Cantabria

Main researcher: Prof. Ana María Urriaga Mendía

Date: 16/04/2015 – 15/04/2017

Title: **Desarrollo y caracterización de filmes multicapas extruidos en base polimérica aplicando tratamiento de entrecruzamiento mediante radiación ionizante**

Financial support: Universidad de Cantabria

Main Researcher: Prof. Ana María Urriaga Mendía

Dates: 01/02/2015 – 31/01/2018

Title: **Proyecto para el Desarrollo de Doctorado Industrial "Desarrollo y caracterización de filmes multicapa extruidos en base polimérica aplicado al entrecruzamiento mediante radiación ionizante"**

Financial support: Universidad de Cantabria - Parlamento de Cantabria

Main researcher: Prof. Ana María Urriaga Mendía

Date: 2015 - 2018

Title: **Desarrollo de tecnologías innovadoras para el tratamiento de contaminantes perfluorados en aguas (CTM2013-44081-R)**

Financial support: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD

Main researcher: Prof. Ana María Urriaga Mendía and Dr. Daniel Gorri

Date: 01/01/2014 – 31/12/2016

R&D: Projects

Title: **Líneas de investigación del grupo tecnologías ambientales y bioprocesos**

Financial support: UNIVERSIDAD DE CANTABRIA

Main researcher: Prof. Ana María Urutiaga Mendía

Date: 08/09/2014 – 07/09/2016

Title: **Estrategias de recuperación de salmueras (CTM2014-57833-R)**

Financial support: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD

Main researcher: Dr. Raquel Ibáñez Mendizábal

Date: 01/01/2015 – 31/12/2017

Title: **Valorización sostenible de concentrados de procesos de desalación (EUIN2013-50956).**

Financial support: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD

Main researcher: Dr. Raquel Ibáñez Mendizábal

Date: 14/10/2013 – 13/10/2016

Title: **Identificación y cuantificación de las variables responsables de la potencial formación de PCDD/Fs en procesos de oxidación avanzada (CTM201-58029-R)**

Financial support: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD

Main researcher: Dr. María Fresnedo San Román San Emeterio

Date: 01/01/2015 - 31/12/2017

Title: **Membranas compuestas selectivas y su incorporación en dispositivos microfluídicos (CTQ2016-75158-R) (AEI/FEDER, UE)**

Financial support: Agencia Estatal de Investigación

Main researcher: Dr. E. Daniel Gorri Cirella

Date: 30/12/2016 – 29/12/2019

Title: **Study of separation of the NH₃ and HCl contained in the respective aqueous solution at different concentrations by membrane technologies**

Financial support: SOLVAY QUÍMICA S.L.

Main researcher: Dr. E. Daniel Gorri Cirella

Date: 01/05/2015 – 31/07/2016

R&D: Projects

Title: Manganeso en aire urbano: niveles de concentración y depósito, caracterización físico-química y modelización mediante modelos de dispersión (CTM2013-43904-R)

Financial support: Ministerio de Economía y Competitividad

Main Researcher: Ignacio Fernández Olmo

Dates: 01/01/2014 – 31/12/2017

Title: Nuevos desarrollos en fotocatalisis para aplicaciones medioambientales (CTM2015-69845-R) (FEDER, UE)

Financial support: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD

Main researcher: Dr. María José Rivero Martínez

Date: 01/01/2016 – 31/12/2018

Title: Estrategias de producción alimentaria para la mitigación del cambio climático: Hacia una economía circular de los alimentos (CTM2016-76176-C2-R) (AEI/FEDER, UE)

Financial support: Agencia Estatal de Investigación

Main Researcher: Dr. Rubén Aldaco García

Dates: 30/12/2016 – 29/12/2019

Title: Gestión sostenible de la anchoa del cantábrico: estrategias locales para un desarrollo global (CTM2013-43539-R)

Financial support: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD

Main Researcher: Dr. Rubén Aldaco García

Dates: 01/01/2014 – 31/12/2016

Title: Desarrollo y aplicación de herramientas para la gestión ambiental de procesos y productos bajo una perspectiva de ciclo de vida

Financial support: UNIVERSIDAD DE CANTABRIA

Main Researcher: Dr. Rubén Aldaco García

Dates: 24/11/2014 – 23/11/2016

Title: Production of electricity from natural gas with virtually zero air pollution

Financial support: Eliot S. Gerber

Main Researcher: Dr. Clara Casado Coterillo

Dates: 06/11/2016 – 05/11/2017

R&D: Projects

Title: **Nuevas membranas selectivas para la separación de CO₂ (CTQ2012-31229)**

Financial support: MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD

Main Researcher: Dr. Clara Casado Coterillo

Dates: 01/01/2013 – 31/12/2016

Title: **PEMFC-SUDOE: Sostenibilidad energética en la región SUDOE: Red PEMFCSUDOE**

Financial support: Programa Interreg Sudoeste apoya el desarrollo regional en el sudoeste de Europa financiando proyectos transnacionales a través del Fondo Europeo de Desarrollo Regional (FEDER).

Main Researcher: Dr. Alfredo Ortiz Sainz de Aja

Dates: 01/07/2016 – 30/06/2019

Title: **Estrategias de diseño de producto como contribución al desarrollo de la tecnología de gas**

Financial support: BSH ELECTRODOMESTICOS, S.A.

Main Researcher: Dr. Eugenio Bringas Elizalde

Dates: 04/02/2016 – 03/02/2018

Title: **Extraction and Purification of Lignin by Means of Supported Ionic Liquid Membranes (CTQ2014-56820-JIN)**

Financial support: MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD

Main Researcher: Dr. Ricardo Abejón Elías

Dates: 10/2015 – 09/2018

Title: **Contribución a la sostenibilidad ambiental: Nuevos procesos de recuperación de hidrógeno y monóxido de carbono de emisiones industriales**

Financial support: FUNDACIÓN IBERDROLA

Main Researcher: Dr. Gabriel Zarca Lago

Dates: 04/02/2016 – 03/02/2018

R&D PUBLICATIONS

The results of our research activity are **published in international journals** after their peer review evaluation by specialized referees who support the quality of our research.



R&D: Publications

R. Abejón, A. Abejón, P. Biasi, N. Gemo, A. Garea, T. Salmi, A. Irabien. **Hydrogen peroxide obtained via direct synthesis as alternative raw material for ultrapurification process to produce electronic grade chemical.** Journal of Chemical Technology and Biotechnology 91, 1136-1148, 2016.

R. Abejón, A. Abejón, M.P. Belleville, J. Sánchez Marcano, A. Garea, A. Irabien. **Multiobjective optimization of membrane networks for fractionation of protein hydrolysate from fish by-products.** Computer Aided Chemical Engineering 38, 415-420, 2016.

R. Abejón, A. Abejón, A. Garea, T. Tsuru, A. Irabien, M.P. Belleville, J. Sánchez Marcano. **In silico evaluation of ultrafiltration and nanofiltration membrane cascades for continuous fractionation of protein hydrolysate from tuna processing by-product.** Industrial & Engineering Chemistry Research 55, 7493-7504, 2016.

R. Abejón, A. Abejón, M.P. Belleville, A. Garea, A. Irabien, J. Sánchez Marcano. **Water recovery and reuse in the fractionation of protein hydrolysate by ultrafiltration and nanofiltration membranes.** Chemical Engineering Transactions 52, 283-288, 2016.

J. Albo, D Vallejo, G Beobide, O Castillo, P Castaño, A Irabien. **Copper-Based Metal–Organic Porous Materials for CO₂ Electrocatalytic Reduction to Alcohols.** Chem Sus Chem, DOI: 10.1002/cssc.201600693. 2016.

J Albo, A Irabien. **Cu₂O-loaded gas diffusion electrodes for the continuous electrochemical reduction of CO₂ to methanol.** Journal of Catalysis 343, 232-239, 2016.

E. Álvarez-Guerra, S.P.M. Ventura, M. Álvarez-Guerra, J.A. P. Coutinho, A. Irabien. **Modeling of the binodal curve of ionic liquid/salt aqueous systems.** Fluid Phase Equilibria 426, 10-16, 2016.

J. Carrillo-Abad, M. García-Gabaldón, V. Pérez-Herranz. **pH effect on zinc recovery from the spent pickling baths of hot dip galvanizing industries.** Separation and purification, accepted 2016.

R&D: Publications

P. R. Anizelli, J.P. T. Baú, D. F. Valezi, L.C. Canton, C.E.A. Carneiro, E. Di Mauro, A.C.S. Da Costa, D. Galante, A.J. Braga, F. Rodrigues, J. Coronas, C. Casado-Coterillo, C. Zaia, T.B.V., Zaia, A.M. Dimas. **Adenine interaction with and adsorption on Fe-ZSM-5 zeolites: A prebiotic Chemistry study using different techniques**. Microporous and Mesoporous Materials 226, 493-504, 2016.

J. Carrillo-Abad, M. García-Gabaldón, V. Pérez-Herranz. **Kinetic modelling of the electrochemical recovery of zinc present in spent pickling baths**. Submitted to Chemical Engineering Journal 2016.

C. Casado-Coterillo. **Chitosan membranes for sustainable packaging**. Austin Biomolecules, 1(2) 1008.

A. Domínguez-Ramos, C. Triantafyllidis, S. Samsatli, N. Shah, A. Irabien. **Renewable electricity integration at regional level: Cantabria case study**. Computer Aided Chemical Engineering 38, 211-216, 2016.

S. Domínguez, M.J. Rivero, P. Gómez, R. Ibáñez, I. Ortiz. **Kinetic modeling and energy evaluation of sodium dodecylbenzenesulfonate photocatalytic degradation in a new LED reactor**. Journal of Industrial and Engineering Chemistry 37, 237-242, 2016.

S. Dominguez, M. Huebra, C. Han, P. Campo, M.N. Nadagouda, M.J. Rivero, I. Ortiz, D. D. Dionysiou. **Magnetically recoverable TiO₂-WO₃ photocatalyst to oxidize bisphenol A from model wastewater under simulated solar light**. Environmental Science and Pollution Research, DOI 10.1007/s11356-016-7564-6.

C.J. Escudero, O. Iglesias, S. Domínguez, M.J. Rivero, I. Ortiz. **Performance of electrochemical oxidation and photocatalysis in terms of kinetics and energy consumption. New insights into the p-cresol degradation**. Journal of Environmental Management, article in press, 2016. <http://dx.doi.org/10.1016/j.jenvman.2016.04.049>.

A. Fernández-Barquín, C. Casado-Coterillo, S. Valencia, A. Irabien. **Mixed matrix membranes for O₂/N₂ separation: Influence of temperature**. Membranes 6 (2), 28 doi:10.3390/membranes6020028.

R&D: Publications

- A. Fernández-Barquín, C. Casado-Coterillo, M. Palomino, S. Valencia, A. Irabien. **Permselectivity improvement in membranes for CO₂/N₂ separation.** Separation and Purification Technology 157, 102-111, 2016.
- P. Fernández-Castro, M.F. San Román, I. Ortiz. **Theoretical and experimental formation of low chlorinated dibenzo-p-dioxins and dibenzofurans in the Fenton oxidation of chlorophenol solutions.** Chemosphere 161, 136-144, 2016.
- C. Fernández-González, A. Dominguez-Ramos, R. Ibáñez, A. Irabien. **Electrodialysis with bipolar membranes for valorization of brines.** Separation and Purification Reviews 45(4), 275-287, 2016.
- C. Fernandez-Gonzalez, A. Dominguez-Ramos, R. Ibañez, Y. Chen, and A. Irabien. **Valorization of desalination brines by electrodialysis with bipolar membranes using nanocomposite anion exchange membranes.** Desalination <http://dx.doi.org/10.1016/j.desal.2016.07.033>, 2016.
- I. Fernández-Olmo, C Andecochea, S Ruiz, J.A .Fernández-Ferreras, A. Irabien. **Local source identification of trace metals in urban/industrial mixed land-use areas with daily PM10 limit value exceedances.** Atmospheric Research 171, 92-106, 2016.
- I. Fuertes, S. Gómez-Lavín, M.P. Elizalde, A. Urriaga. **Perfluorinated alkyl substances (PFASs) in northern Spain municipal solid waste landfill leachates.** Chemosphere 168, 399-407, 2017.
- L. García-Cruz, C. Casado-Coterillo, J. Iniesta, V. Montiel, A. Irabien. **Chitosan: Poly(vinyl) alcohol composite alkaline membrane incorporating organic ionomers and layered silicate materials into a PEM electrochemical reactor.** Journal of Membrane Science 498, 395-407, 2016.
- L. García-Cruz, C. Casado-Coterillo, A. Irabien, V. Montiel, J. Iniesta. **High performance of alkaline anionic exchange membranes based on chitosan/poly (vinyl) alcohol doped with graphene oxide for the electrooxidation of primary alcohols.** Journal of Carbon Research 2(2), 10; doi:10.3390/c2020010, 2016.

R&D: Publications

- L. García-Cruz, C. Casado-Coterillo, A. Irabien, V. Montiel, J. Iniesta. **Performance assessment of a polymer electrolyte membrane electrochemical reactor under alkaline conditions- a case of study with the electrooxidation of alcohols.** *Electrochimica Acta* 206, 165-175, 2016.
- I. García-Herrero, M. Álvarez-Guerra, A. Irabien. **Electrosynthesis of dimethyl carbonate from methanol and CO₂ using potassium methoxide and the ionic liquid [bmim][Br] in a filter-press cell: a study of the influence of cell configuration.** *Journal of Chemical Technology & Biotechnology* 91(2), 1433-1438, 2016.
- I. García-Herrero, R.M. Cuéllar-Franca, V. Enríquez-Gutiérrez, M. Álvarez-Guerra, A. Irabien, A. Azapagic. **Environmental Assessment of Dimethyl Carbonate Production: Comparison of a Novel Electrosynthesis Route Utilizing CO₂ with a Commercial Oxidative Carbonylation Process.** *ACS Sustainable Chemistry and Engineering* 4, 2088-2097, 2016
- I. Garcia-Herrero, M. Margallo, R. Onandía, R. Aldaco, A. Irabien. **Environmental challenges of the Chlor-Alkali production: seeking answers from a life cycle approach.** *Science of the Total Environment*. DOI: 10.1016/j.scitotenv.2016.10.202.
- L. Gómez-Coma, a. Garea, J.C. Rouch, T. Savart, J.F. Lahitte, J.C. Remigy, A. Irabien. **Membrane modules for CO₂ capture based on PVDF hollow fibers with ionic liquids immobilized.** *Journal of Membrane Science* 498, 218-222, 2016.
- L. Gómez-Coma, A. Garea, A. Irabien. **Carbon dioxide capture by [emim][Ac] ionic liquid in a polysulfone hollow fiber membrane contactor.** *International Journal of Greenhouse Gas Control* 52, 401-409, 2016.
- L. Gómez-Coma, A. Garea, A. Irabien. . **Hybrid solvent ([emim][Ac]+water) to improve the CO₂ capture efficiency in a PVDF hollow fiber contactor.** *ACS Sustain. Chem. Eng.* Accepted. 2016.
- J. Gómez-Pastora, X. Xue, I.J. Karampelas, E. Bringas, E. P. Furlani, I. Ortiz. **Analysis of separators for magnetic beads recovery: From large systems to multifunctional microdevices.** *Separation and Purification Technology* 172, 16-31, 2017.

R&D: Publications

- J. Gómez-Pastora, S. Domínguez, E. Bringas, M.J. Rivero, I. Ortiz, D.D. Dionysiou. **Review and perspectives on the use of magnetic nanophotocatalysts (MNPCs) in water treatment.** Chemical Engineering Journal 310, 407-427, 2017,
- J. Gómez-Pastora, E. Bringas, I. Ortiz. **Design of novel adsorption processes for the removal of arsenic from polluted groundwater employing functionalized magnetic nanoparticles.** Chemical Engineering Transactions 47, 241-246, 2016.
- S.S. Hosseini, E. Bringas, N.R. Tan, I. Ortiz, M. Ghahramani, M. A.A. Shahmirzadi. **Recent Progress in Development of High Performance Polymeric Membranes and Materials for Metal Plating Wastewater Treatment: A Review.** Journal of Water Process Engineering 9, 78-110, 2016.
- O. Iglesias, M.J. Rivero, A.M. Urtiaga, I. Ortiz. **Membrane-based photocatalytic systems for process intensification.** Chemical Engineering Journal 305, 136-148, 2016.
- A Irabien, RC Darton. **Energy–water–food nexus in the Spanish greenhouse tomato production.** Clean Technologies and Environmental Policy 18, 1307–1316, 2016.
- D.L. Keairns, R.C. Darton, A Irabien. **The Energy-Water-Food Nexus.** Annual Review of Chemical and Biomolecular Engineering 7, 239-262, 2016.
- J. Laso, M. Margallo, J. Celaya, P. Fullana, A. Bala, C. Gazulla, A. Irabien, R. Aldaco. **Waste management under a life cycle approach as a tool for a circular economy in the canned anchovy industry.** Waste Management & Research 34 (8), 724-733, 2016.
- J. Laso, M. Margallo, P. Fullana, A. Bala, C. Gazulla, A. Irabien, R. Aldaco. **Introducing life cycle thinking to define best available techniques for products: Application to the anchovy canning industry.** Journal of Cleaner Production DOI: 10.1016/j.jclepro.2016.08.040.

R&D: Publications

J. Laso, M. Margallo, J. Celaya, P. Fullana, C. Gazulla, R. Aldaco, A. Irabien. **Finding the Best Available Techniques for an Environmental Sustainable Waste Management in the Fish Canned Industry.** Chemical Engineering Transactions 52, 385-390, 2016.

M. Margallo, R. Onandía, R. Aldaco, A. Irabien. **When Life Cycle Thinking is Necessary for Decision Making: Emerging Cleaner Technologies in the Chlor-Alkali Industry.** Chemical Engineering Transactions 52, 475-480, 2016.

M. Margallo, J. Laso, R. Aldaco, J. Celaya, C. Gazulla, P. Fullana, A. Irabien. **Life cycle modelling of a handicraft sector: the anchovy anning industry in Cantabria (Northern Spain).** Computer Aided Chemical Engineering 38, 1989-1994, 2016.

I. Merino, E. Álvarez-Guerra, J. Albo, A. Irabien. **Electrochemical membrane reactors for the utilisation of carbon dioxide.** Chemical Engineering Journal 305, 104-120, 2016.

J. Pinedo, C.V. García-Prieto, A.A. Dálessandro, R. Ibáñez, S. Tonelli, M.S. Díaz, A. Irabien. **Microalgae Biorefinery Alternatives and Hazard Evaluation.** Chemical Engineering Research and Design 107, 117-125, 2016.

P. Ribao, M. J. Rivero, I. Ortiz. **TiO₂ structures doped with noble metals and/or graphene oxide to improve the photocatalytic degradation of dichloroacetic acid.** Environmental Science and Pollution Research, DOI 10.1007/s11356-016-7714-x.

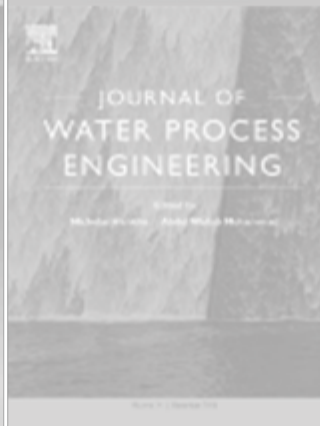
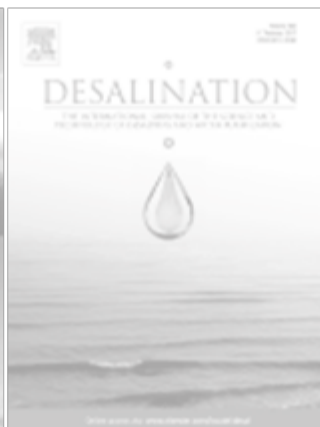
G. Santos, I Fernández-Olmo. **A proposed methodology for the assessment of arsenic, nickel, cadmium and lead levels in ambient air.** Science of the Total Environment 554, 155-166, 2016.

G. Santos, I Fernández-Olmo, Á Irabien, F Ledoux, D Courcot. **Estimating airborne heavy metal concentrations in Dunkerque (northern France).** Arabian Journal of Geosciences 9 (3), 1-10, 2016.

R&D: Publications

G. Zarca, W.J. Horne, I. Ortiz, A. Urriaga, J.E. Bara. **Synthesis and gas separation properties of poly(ionic liquid)-ionic composite membranes containing a copper salt.** Journal of Membrane Science 515, 109-114, 2016.

R. Zarca, A. Ortiz, D. Gorri, I. Ortiz. **Facilitated transport of propylene through composite polymer-ionic liquid membranes. Mass transfer analysis.** Chemical Product and Process Modeling 11(1), 77-81, 2016.



R&D CONGRESS AND CONFERENCE CONTRIBUTIONS



R&D: Congresses and Conferences

Some pictures during the celebration of the congresses and conferences



R&D: Congresses and Conferences

Some pictures during the celebration of the congresses and conferences



R&D: Congresses and Conferences

Some pictures during the celebration of the congresses and conferences



R&D: Congresses and Conferences

The main progress achieved during our research activity is internationally disseminated through scientific congresses.

E. Bringas, R. Ibañez. “Intensificación de la internacionalización en Ingeniería Química a través de programas específicos de intercambio de estudiantes”, **III Congreso de Innovación Docente en Ingeniería Química**, January 21-23, 2016, Alicante, Spain.

A. Domínguez, R. Ibañez. “Innovación y mejora en el programa de prácticas curriculares del Grado y Master en Ingeniería Química en la Universidad de Cantabria”, **III Congreso de Innovación Docente en Ingeniería Química**, January 21-23, 2016, Alicante, Spain.

M.J. Rivero, M. Álvarez, I. Ortiz. “Estrategia de aprendizaje transversal basada en casos de estudio: Fabricación industrial de caucho sintético”, **III Congreso de Innovación Docente en Ingeniería Química**, January 21-23, 2016, Alicante, Spain.

C. Fernández-González, A. Mazón, A. Dominguez-Ramos, R. Ibañez, A. Irabien, Y. Chen. Valorization of desalination brines by means of electrodialysis with bipolar membranes using nanocomposite anion exchange membranes. **2nd International Conference on Desalination and Environment**. January, 23-26, 2016. Doha, Qatar.

C. Fernández-González, A. Mazón, A. Dominguez-Ramos, R. Ibañez, A. Irabien, Y. Chen. Integration of electrodialysis with bipolar membranes with photovoltaic solar energy for the autonomous and continuous production of acid and bases from desalination brines. **2nd International Conference on Desalination and Environment**. January, 23-26, 2016. Doha, Qatar.

G. Santos, S. Terán, I. Fernández-Olmo. “Influence of atmospheric stability on the estimation of trace metal concentrations by means of linear statistical models”, **10th International Conference on Air Quality (Air Quality 2016)**, March 14 – 18, 2016, Milan, Italy.

R&D: Congresses and Conferences

M. Díaz, A. Ortiz, J. Pringle, M. Forsyth, I. Ortiz. “Membranas basadas en [DMEDAH][TFO] soportado sobre nanofibras de PVDF y SPEEK como electrolitos para PEMFCs sin humidificación externa”. **Iberconappice 2016**, April 20-22, 2016, Torremolinos, Spain.

M.M. López-Guerrero, C. Casado-Coterillo, C. Rubio, C. Téllez, A. Irabien. Improving gas barrier properties using mixed matrix membranes based on ion exchange capacities of the polymers and fillers. **23rd International Academic Conference**. April 27-30, 2016. Venice, Italy.

N. Diban, S. Sánchez-González, I. Ortiz, A.M. Urtiaga “Effect of degradation of poly(epsilon-caprolactone) films on functional properties for tissue engineering bioreactors”, **10th World Biomaterials Congress**, May 17 – 22, 2016, Montreal, Canada.

A. Ortiz, M. Díaz, I. Ortiz. “Design of proton exchange membranes based on polymeric ionic liquids for fuel cell applications”, **X Ibero-American Congress on Membrane Science and Technology (CITEM 2016)**, May 22- 25, 2016, Mexico City, Mexico.

A. Ortiz, R. Zarca, D. Gorri, I. Ortiz. “Propane/propylene separation through facilitated transport composite membranes”, **X Ibero-American Congress on Membrane Science and Technology (CITEM 2016)**, May 22- 25, 2016, Mexico City, Mexico.

S. Sánchez-González, N. Diban, A.M. Urtiaga, I. Ortiz. “Hydrolytic degradation of porous poly(ε-caprolactone) membranes for neural tissue engineering”, **X Ibero-American Congress on Membrane Science and Technology (CITEM 2016)**, May 22- 25, 2016, Mexico City, Mexico.

S. Gómez-Lavín, I. Fuertes, M. P. Elizalde, A. Urtiaga. “Perfluorinated compounds (PFASs) in Northern Spain municipal solid waste landfill leachates”. **SETAC Europe 26th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC)**. May 22 – 26, 2016, Nantes, France.

R&D: Congresses and Conferences

J. Laso, M. Margallo, R. Aldaco, J. Celaya, C. Gazulla, P. Fullana, A. Irabien. “Eco-design of packaging for a circular economy in the food canned industry”. **SETAC Europe 26th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC)**. May 22 – 26, 2016, Nantes, France.

M. Margallo, R. Onandía, R. Aldaco, A. Irabien. “A normalisation and weighting procedure (ESA) to assist the decision making process: The case study of salt mining in the chlor-alkali industry”, **SETAC Europe 26th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC)**. May 22 – 26, 2016, Nantes, France.

D. Gorri, R. Zarca, A. Ortiz, M. Fallanza, I. Ortiz. “Assessment of mass transfer parameters in olefin facilitated transport through polymer-ionic liquid composite membranes”, **14th International Conference on Properties and Phase Equilibria for Product and Process Design (14th PPEPPD 2016)**, May 22-26, 2016. Porto, Portugal.

G. Zarca, I. Ortiz, A. Urtiaga. “Ionic Liquids in Gas Separation Processes: Influence of Metal Salts and Water Contents on the Viscosity”, **14th International Conference on Properties and Phase Equilibria for Product and Process Design (14th PPEPPD 2016)**, May 22-26, 2016. Porto, Portugal.

S. Cobo, E. Santos, A. Fernández, A. Irabien. “CO₂ capture by accelerated carbonation of MSWI fly ashes”, **The 6th International Conference on Engineering for Waste and Biomass Valorisation (WasteEng 2016)**. May 23-26, 2016. Albi, France.

A. Dominguez-Ramos, C. Tryantafyllidis, S. Samsatli, N. Shah, A. Irabien. “Renewable electricity integration at a regional level: Cantabria case study”, **wholeSEM Whole Systems Energy Modelling Consortium**, May 23-27, 2016. London, United Kingdom.

R. Abejón, A. Abejón, M.P. Belleville, J. Sánchez Marcano, A. Garea, A. Irabien. “Multiobjective optimization of membrane networks for fractionation of protein hydrolysate from fish by-products”. **26th European Symposium on Computer Aided Process Engineering (ESCAPE26)**. June, 12-15, 2016. Portoroz, Slovenia.

R&D: Congresses and Conferences

A. Dominguez-Ramos, C. Tryantafyllidis, S. Samsatli, N. Shah, A. Irabien, “Renewable electricity integration at a regional level: Cantabria case study”, **26th European Symposium on Computer Aided Process Engineering (ESCAPE26)**, June 12-15, 2016, Portoroz, Slovenia.

M. Margallo, J. Laso, R. Aldaco, J. Celaya, C. Gazulla, P. Fullana, A. Irabien, “Life cycle modelling of a handicraft sector: the anchovy canning industry in Cantabria (Northern Spain)”, **26th European Symposium on Computer Aided Process Engineering (ESCAPE26)**, June 12-15, 2016, Portoroz, Slovenia.

I. Fernández-Olmo, C. Laita, A. Hernández-Pellón, M. Puente, “Levels and sources of polycyclic aromatic hydrocarbons in the soluble fraction of the atmospheric deposition in Cantabria (northern Spain)”, **II International Conference on Atmospheric Dust, DUST 2016**, June 12-17, 2016, Taranto, Italy.

A. Hernández-Pellón, I. Fernández-Olmo, “Monitoring the levels of particle matter-bound manganese: an intensive campaign in an urban/industrial area”, **II International Conference on Atmospheric Dust, DUST 2016**, June 12-17, 2016, Taranto, Italy.

C. J. Escudero, M. J. Rivero, I. Ortiz, “Procesos de Oxidación Avanzada aplicados al tratamiento de efluentes contaminados con compuestos orgánicos”, **Jornadas de Cooperación CONACYT-CATALUNYA 2016 – JCCC2016**, June 13-14, 2016, Barcelona, Spain.

S. Domínguez, C. Han; M.N. Nadagouda, M. J. Rivero, I. Ortiz, “Magnetically Recoverable TiO₂/WO₃ Photocatalyst to Oxidize Bisphenol A from Model Wastewater under Simulated Solar Light”, **9th European meeting on Solar Chemistry and Photocatalysis: Environmental Applications - SPEA9**, June 13-17, 2016, Strasbourg, France.

R&D: Congresses and Conferences

P. Ribao, M. J. Rivero, I. Ortiz, “Graphene Oxide/TiO₂ Structures Doped with Noble Metals to Improve the Photocatalytic Degradation of Dichloroacetic Acid”, **9th European meeting on Solar Chemistry and Photocatalysis: Environmental Applications - SPEA9**, June 13-17, 2016, Strasbourg, France.

I. Merino-Garcia, J. Albo, A. Irabien. “Methane production from gas phase CO₂ electrochemical reduction”. **Curso de Verano: Valorización Química Sostenible de dióxido de carbono**”, June 27-30, 2016. Santander, Spain.

L. García-Cruz, C. Casado-Coterillo, A. Irabien, V. Montiel, J. Iniesta. “Graphene oxide as an effective filler in anion exchange alkaline polymer membranes”, **Carbon – The World Conference on Carbon Common fundamentals, remarkably versatile applications**, July 10-15, 2016, Pennsylvania, USA.

E. Bringas, J. Carrillo-Abad, M. García-Gabaldón, A.M. Urtiaga, V. Pérez-Herranz, I. Ortiz. “Recuperación de zinc de baños de decapado agotados mediante la combinación de tecnologías de membranas y electrodeposición”, **XXXVII GE-RSEQ. XXXVII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química**, July 17 – 20, 2016, Alicante, Spain

C. Casado-Coterillo, A. Marcos, I. Merino-García, J. Albo, A. Irabien. “Preparación y caracterización de membranas de intercambio iónico para electrorreducción de CO₂”, **XXXVII GE-RSEQ. XXXVII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química**, July 17 – 20, 2016, Alicante, Spain.

M. Díaz, A. Ortiz, I. Ortiz. “[DMEDAH][TFO]soportado sobre nanofibras de PVDF, SPEEK y PBI como membranas para PEMFC sin humidificación externa”, **XXXVII GE-RSEQ. XXXVII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química**, July 17 – 20, 2016, Alicante, Spain.

R&D: Congresses and Conferences

A. Del Castillo, M. Alvarez-Guerra, J. Solla-Gullón, A. Sáez, V. Montiel, A. Irabien. “Síntesis y uso de nanopartículas de Sn en GDEs para la conversión electroquímica de CO₂ a formiato” **XXXVII GE-RSEQ. XXXVII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química**, July 17 – 20, 2016, Alicante, Spain.

L. García-Cruz, C. Casado-Coterillo, E. M. Acurio-Ortega, V. Montiel, A. Irabien, J. Iniesta. “Incorporación de materiales de grafeno en una matriz polimérica mixta de quitosano y alcohol de polivinilo para la mejora de las propiedades de intercambio iónico en medio alcalino”, **XXXVII GE-RSEQ. XXXVII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química**, July 17 – 20, 2016, Alicante, Spain.

B. Gómez-Ruiz, N. Diban, A. Urtiaga. “Oxidación electroquímica del ácido perfluorooctanoico y estudio del efecto de fluoruro mediante ánodo de diamante dopado con boro”, **XXXVII GE-RSEQ. XXXVII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química**, July 17 – 20, 2016, Alicante, Spain.

I. Merino-Garcia, J. Albo, A. Irabien. “Hydrocarbons production from gas phase CO₂ electrochemical reduction using copper-based gas diffusion electrodes”. **XXXVII GE-RSEQ. XXXVII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química**, July 17 – 20, 2016, Alicante, Spain.

A. Soriano, D. Gorri, A. Urtiaga, “Eliminación de ácido perfluorohexanoico (PFHxA) mediante un proceso integrado de nanofiltración y oxidación electroquímica con electrodos BDD”, **XXXVII GE-RSEQ. XXXVII Reunión del Grupo de Electroquímica de la Real Sociedad Española de Química**, July 17 – 20, 2016, Alicante, Spain.

R. Aldaco, J. Laso, M. Margallo, I. Vázquez, P. Fullana, A. Bala, C. Gazulla, A. Irabien, “Environmental indicators for the ecolabelling of seafood canned products: the case study of the Cantabrian anchovy”, **IUFOST 2016**, August 21-25, 2016, Dublin, Ireland.

R&D: Congresses and Conferences

J. Carrillo-Abad, M. García-Gabaldón, E. Ortega, V. Pérez-Herranz. “The effect of pH on Zinc recovery from the spent pickling baths of hot dip galvanizing industries”. **67th Annual Meeting of the International Society of Electrochemistry**. August 21-26, 2016. The Hague, The Netherlands.

R. Abejón, A. Abejón, M.P. Belleville, A. Garea, A. Irabien, J. Sánchez Marcano. “Water recovery and reuse in the fractionation of protein hydrolysate by ultrafiltration and nanofiltration membranes”. **22nd International Congress of Chemical and Process Engineering (CHISA) 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction PRES 2016**. August 27-31, 2016. Prague, Czech Republic.

A. Fernández-Barquín, C. Casado-Coterillo, M. Etxebarria-Benavides, J. Zúñiga, A. Irabien. “Development of membranes for CO₂/N₂ separation: Comparison of homogeneous flat, asymmetric disk-type and composite hollow fiber morphologies”. **22nd International Congress of Chemical and Process Engineering (CHISA) 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction PRES 2016**. August 27-31, 2016, Prague, Czech Republic.

A. Irabien, M. Alvarez-Guerra, J. Albo, A. Dominguez-Ramos, E. Alvarez-Guerra, A. Del Castillo, I. Merino-Garcia. “Electrocatalytic approach to carbon dioxide utilization”. **22nd International Congress of Chemical and Process Engineering (CHISA) 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction PRES 2016**. August 27-31, 2016. Prague, Czech Republic.

J. Laso, M. Margallo, R. Aldaco, C. Gazulla, P. Fullana, A. Irabien. “Sustainable Assessment of Emerging Technologies in the Chlor-Alkali Industry under a Life Cycle Approach”. **22nd International Congress of Chemical and Process Engineering (CHISA) 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction PRES 2016**. August 27-31, 2016, Prague, Czech Republic.

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M. Margallo, R. Onandía, R. Aldaco, A. Irabien. "Sustainable Assessment of Emerging Technologies in the Chlor-Alkali Industry under a Life Cycle Approach". **22nd International Congress of Chemical and Process Engineering (CHISA) 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction PRES 2016**. August 27-31, 2016, Prague, Czech Republic.

E. Santos, S. Cobo, A. Fernández, A. Irabien. "Accelerated carbonation of MSWI fly ash for CO₂ fixation, asymmetric disk-type and composite hollow fiber morphologies". **22nd International Congress of Chemical and Process Engineering (CHISA) 19th Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction PRES 2016**. August 27-31, 2016, Prague, Czech Republic.

I. Merino-Garcia, J. Albo, A. Irabien. "Trends in the electrochemical reduction of CO₂ into value-added products". **3rd International Symposium on Catalysis for Clean Energy and Sustainable Chemistry (CCESC 2016)**, September 7-9, 2016. Madrid, Spain.

J. Albo, I. Merino-Garcia, C. Casado-Coterillo, A. Irabien. "Copper-coated ion exchange membrane electrodes for the continuous electrosynthesis of CH₄ from CO₂", **6th European Chemistry Congress (EuCheMS 2016)**, 11 - 15 Septiembre, 2016, Seville, Spain.

S. Cobo, I. García-Herrero, M. Margallo, A. Dominguez-Ramos, A. Irabien. "Turning waste into valuable products: The case of carbonated MSWI fly ash for clinker production", **6th European Chemistry Congress (EuCheMS 2016)**, 11 - 15 Septiembre, 2016, Seville, Spain.

C.J. Escudero, O. Iglesias, M.J. Rivero, I. Ortiz. "Comparative behavior of advanced oxidation treatments, electrochemical oxidation and photocatalysis, in terms of kinetics and energy efficiency", **6th European Chemistry Congress (EuCheMS 2016)**, 11 - 15 Septiembre, 2016, Seville, Spain.

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B. Gómez-Ruiz, N. Diban, M.J.Rivero, I. Ortiz, A. Urtiaga. "Efficient photocatalytic degradation of perfluorooctanoic acid", **6th European Chemistry Congress (EuCheMS 2016)**, 11 - 15 Septiembre, 2016, Seville, Spain.

M. Herrero-González, B. Muñiz-Rodríguez, C. Fernández-González, A. Dominguez-Ramos, R. Ibáñez, A. Irabien. "Evaluation of performance of tailored nanocomposite anion exchange membranes in the valorization of desalination brines by means of bipolar membranes electro dialysis", **6th European Chemistry Congress (EuCheMS 2016)**, 11 - 15 Septiembre, 2016, Seville, Spain.

I. Merino-Garcia, J. Albo, A. Irabien. "Cu-based gas diffusion electrodes for the electrochemical reduction of CO₂ into hydrocarbons". **6th European Chemistry Congress (EuCheMS 2016)**, September 11-15, 2016. Seville, Spain.

A. Norkobilov, D. Gorri, I. Ortiz. "Process flowsheet analysis of pervaporation-based hybrid processes in the production of ethyl tert-butyl ether", **6th European Chemistry Congress (EuCheMS 2016)**, September 11-15, 2016, Seville, Spain.

A. Romero, G. Díaz, A. del Castillo, M. Álvarez-Guerra, A. Dominguez-Ramos, R. Ibañez. "Pressure-based Chem-E-Car project in the framework of the Student Chapter of AIChE at Universidad de Cantabria", ", **6th European Chemistry Congress (EuCheMS 2016)**, September 11-15, 2016, Seville, Spain.

S. Sánchez-González, N. Diban, A.M. Urtiaga, I. Ortiz. "Poly(ϵ -caprolactone) membranes functionalized with graphene-based nanomaterials for neural cell growth stimulation", **6th European Chemistry Congress (EuCheMS 2016)**, September 11-15, 2016, Seville, Spain.

C. Solá-Gutiérrez, M.F. San Román, I. Ortiz. "Research of polychlorodibenzo-p-dioxins and dibenzofurans (PCDD/Fs) precursors in the application of advanced oxidation processes", **6th European Chemistry Congress (EuCheMS 2016)**, September 11-15, 2016, Seville, Spain.

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G. Zarca, I. Ortiz, A. Urtiaga. "Towards a toluene-free reactive separation process for carbon monoxide recovery from industrial gas mixtures", **6th European Chemistry Congress (EuCheMS 2016)**, September 11-15, 2016, Seville, Spain.

A. Hernández-Pellón, I. Fernández-Olmo, F. Ledoux, L. Courcot, D. Courcot. "Physico-chemical characterization of manganese-bearing particles in an urban area located close to a manganese alloy production plant", **18th International Conference on Heavy Metals in the Environment, ICHMET 2016**, September 12-15, 2016, Ghent, Belgium.

P. Gómez, A. Arruti, J. Pinedo, E. Santos, R. Ibáñez, I. Ortiz, A. Urtiaga, "Electrochemical performance of an innovative water treatment technology in aquaculture: ELOXIRAS", **2nd E3 Mediterranean Symposium: Electrochemistry for environment and energy**, September 14-16, 2016, Gargnano, Italy.

A. Soriano, D. Gorri, A. Urtiaga, "Removal of Perfluorohexanoic Acid (PFHxA) from Industrial Effluents by Nanofiltration Followed by Electrochemical Oxidation of the NF Concentrate", **2nd E3 Mediterranean Symposium: Electrochemistry for environment and energy**, September 14-16, 2016, Gargnano, Italy

I. Merino-Garcia, J. Albo, A. Irabien. "Gas diffusion electrocatalytic reactors for CO₂ utilisation". **XXII International Conference on Chemical Reactors CHEMREACTOR-22**, September 19-23, 2016. London, United Kingdom.

A. Norkobilov, D. Gorri, I. Ortiz. "Comparative study of conventional, reactive-distillation and pervaporation integrated hybrid process for ethyl tert-butyl ether production", **XXII International Conference on Chemical Reactors (CHEMREACTOR-22)**, September 19-23, 2016, London, United Kingdom.

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A. Del Castillo, M. Alvarez-Guerra, J. Solla-Gullón, A. Sáez, V. Montiel, A. Irabien. “Electrochemical reactor for continuous CO₂ valorization: synthesis and use of Sn nanoparticles on GDEs” **XXII International Conference on Chemical Reactors CHEMREACTOR XXII**, September 19-23, 2016. London, UK.

P. Gómez, A. Arruti, J. Pinedo, E. Santos, R. Ibáñez, A. Urtiaga, I. Ortiz. ELOXIRAS: Innovative water treatment process based on electrochemical oxidation for the regeneration and reuse of water in marine recirculating aquaculture systems. **Aquaculture Europe 2016**. September, 21-23, 2016. Edinburgh, Scotland.

R. Aldaco, M. Margallo, J. Laso, M. Rodrigo, A. Irabien, “Towards a global energy performance certification of buildings: a new approach based on Life Cycle Energy Assessment”, **12th Biennial International Conference on EcoBalance, EcoBalance 2016**, October 3-6, 2016, Tokyo, Japan.

R. Aldaco, J. Laso, M. Margallo, C. Gazulla, A. Bala, P. Fullana, A. Irabien, “Creating environmental value in the fish canning industry based on circular economy thinking”, **12th Biennial International Conference on EcoBalance, EcoBalance 2016**, October 3-6, 2016, Tokyo, Japan.

R. Aldaco, M. Margallo, I. García-Herrero, R. Onandía, A. Irabien, “Evaluating emergent technologies under a life cycle approach: the chlor-alkali electrolysis using oxygen depolarized cathodes (ODC)”, **12th Biennial International Conference on EcoBalance, EcoBalance 2016**, October 3-6, 2016, Tokyo, Japan.

R. Aldaco, R. Pascal, R. Onandía, M. Margallo, I. Garcia-Herrero, A. Irabien, “Toward an economy of sustainable energy in the chlor-alkali industry: impact of European Union carbon emission trade directive”, **12th Biennial International Conference on EcoBalance, EcoBalance 2016**, October 3-6, 2016, Tokyo, Japan.

R&D: Congresses and Conferences

J. Laso, R. Aldaco, M. Margallo, C. Gazulla, A. Bala, P. Fullana, A. Irabien, “Environmental assessment under a life cycle approach of the Cantabrian anchovy (*Engraulis encrasicolus*) season in the Cantabria region (Northern of Spain), **10th International Conference on Life Cycle Assessment of Food 2016**, October 19 – 21, 2016, Dublin, Ireland.

J. Laso, M. Margallo, P. Fullana, A. Bala, C. Gazulla, A. Irabien, R. Aldaco. Achieving a more sustainable production and consumption of the Cantabrian canned anchovy: environmental assessment under a life-cycle perspective, **10th International Conference on Life Cycle Assessment of Food 2016**, October 19 – 21, 2016, Dublin, Ireland.

J. Albo, A. Del Castillo, M. Alvarez-Guerra, I. Merino-Garcia, A. Irabien. “Electrocatalysis for CO₂ conversion into value-added products”. **1st FOTOFUEL School and Conference: current challenges in solar fuels production**, October 25-27, 2016. Almería, Spain.

O. Iglesias, P. Ribao, M.J. Rivero, I. Ortiz. “Comparative kinetics of composite photocatalysts in the production of hydrogen from methanol”, **1st FOTOFUEL Conference: Current Challenges in Solar Fuels Production**, October 25-27, 2016. Almería, Spain.

A. Del Castillo, M. Alvarez-Guerra, J. Solla-Gullón, A. Sáez, V. Montiel, A. Irabien. “Improvement of Sn electrodes for CO₂ conversion into formate”. **2016 AIChE Annual Meeting**, November 13-18, 2016. San Francisco, USA.

C. Fernandez-Gonzalez, B. Zhang, A. Dominguez-Ramos, A. Irabien, Y. Chen. ”Improving the Performance of Commercial Polyethylene Based Anion Exchange Membranes in an Electrodialysis Process Using Functionalized Iron Oxide Nanoparticles”, **2016 AIChE anual meeting**, November 13-18, 2016, San Francisco, USA.

K. Hjaila, L. Puigjaner, A. Espuña. “Optimal decision-making of decentralized multi-participant multi-period supply chains under uncertainty”. **2016 AIChE Annual Meeting**, November 13-18, 2016. San Francisco, USA.

R&D: Congresses and Conferences

J. Gómez-Pastora, I. H. Karampelas, X. Xue, E. Bringas, E.P. Furlani, I. Ortiz. "Analysis of Magnetic Bead Separation in Continuous-Flow Magnetophoretic Microsystems for Biomedical Applications". **2016 AIChE Annual Meeting**, November 13-18, 2016. San Francisco, USA.

R. Ibáñez, P. Gómez, A. Arruti, J. Pinedo, E. Santos, A. Urtiaga, I. Ortiz. ELOXIRAS: Innovative water treatment process based on electrochemical oxidation for the regeneration and reuse of water in marine recirculating aquaculture systems. **2016 AIChE Annual Meeting**. November, 13-18, 2016. San Francisco, USA.

ANALYTICAL SERVICES



ANALYTICAL SERVICES

The **Analytical Services of the SOSPROCAN Unit** has a scientific and technological infrastructure and a set of last generation analytical techniques able to carry out a complete physico-chemical characterization of a wide range 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 Analytical Services of the SOSPROCAN Unit is to collaborate and make available to the productive sector and the administration, the extensive analytical capabilities of the available equipment, offering a high quality service.

CURRENTLY WE ARE WORKING ON:



ENVIRONMENTAL PARAMETERS AND
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SOCIAL EVENTS



Goodbye Cornell Students

May, 2015

The second edition of the Undergraduate Chemical Engineering Program between Cornell University (New York, United States) and the University of Cantabria, finished at the end of May. In this edition, other American students coming from the University of Tulsa (Oklahoma) and Brown University (Rhode Island) also participated in the international programme. The academic semester was closed with a visit to “El Castillo” cave located in Puente Viesgo (Cantabria).



Welcome Summer

July 22nd, 2015

The Department of Chemical and Biomolecular Engineering of the University of Cantabria organizes a trip to visit Behetría wine Cellar, located in Villayuso de Cieza, Cantabria to welcoming the summer.

After the visit all the assistants had lunch in San Felices de Buelna.



Christmas Party

16th December 2015

Christmas Party of the Department of Chemical and Biomolecular Engineering with the assistance of more than 100 people that are part of the faculty, research, administration and services staff.

This year, a cocktail at Silken Rio restaurant was organized, where we had the opportunity to meet our Department's friends.





DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING



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Department of Chemical and Biomolecular Engineering

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