

RESEARCH TEAM FOR SUSTAINABLE PRODUCTION IN CANTABRIA

2017 ACTIVITY

CHEMICAL & BIOMOLECULAR
ENGINEERING DEPARTMENT



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



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 aim 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



WORKING TEAM



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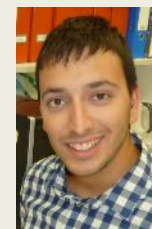
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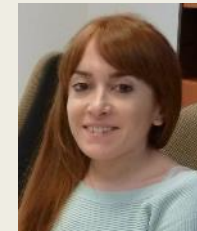
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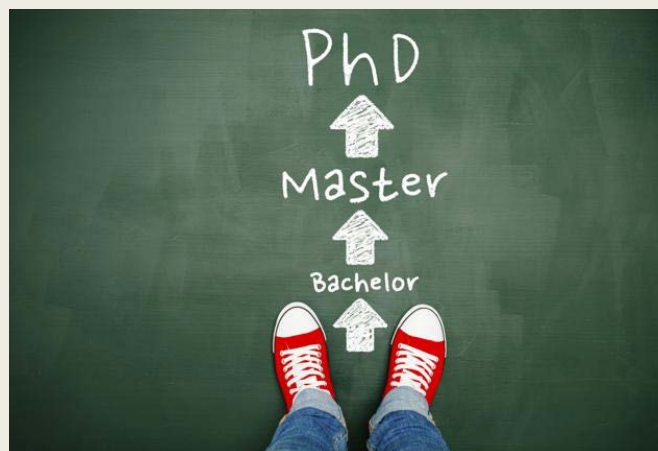
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Raúl Zarca
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INDUSTRIAL DOCTORATE

- Juan Andrés Álvarez
- Ángela Fernández
- Saúl Laguillo

RESEARCH TOPICS

The illustration depicts a chemistry laboratory scene on a chalkboard background. In the center, there is a large Erlenmeyer flask containing a liquid, with a smaller flask nested inside it. To the right, two test tubes are held in a rack, one containing a white precipitate. A red sphere with a spiral pattern is positioned above the test tubes. The background is filled with handwritten mathematical and chemical notations:

- Mathematical Equations:**
 - $F(x, y, y') = 0$ (multiple instances)
 - $0 \leq q < 1$
 - $\sqrt{1 + (y'_x)^2}$
 - $\cot(-x) = -\cot(x)$
 - $P(x)y = \frac{dy}{dx}$
 - $\cos^2 \alpha = 1$
 - $P = C e^{rt}$
 - $\cos(z) = 1 \cos(z)$
 - $4px = y^2$
 - $xcty_x$
 - ≤ 0
- Chemical Structures:**
 - Acetic acid: CC(=O)O
 - Acetylene: C#C
 - Amine: NC
 - Hexagons labeled 'F' at the bottom.
- Other Notations:**
 - $mC(p)$
 - xy
 - xy
 - $xcty_x$
 - $(x1 + 1000 \times 85)$
 - $= 1$
 - y
 - xy
 - xy

RESEARCH TOPICS



TRANSFER OF KNOWLEDGE



✓ **Doctoral Studies in Chemical, Energy and Process Engineering,**

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

✓ **3rd 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.

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

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

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

DOCTORADO EN INGENIERÍA QUÍMICA, LA ENERGÍA Y DE PROCESOS

La formación que ofrece este programa desarrolla la actividad profesional, la producción de bienes y servicios públicos en los ámbitos de la administración y la enseñanza.



INFORMACIÓN BÁSICA

- **Calendario:** Se puede realizar (programa de 3 años) o de formación y realización.
- **Instituciones responsables:** Universidad de Cantabria y Universidad del País Vasco.
- **Estado de impartición:** Se imparte desde octubre.
- **Lugar de impartición:** La Universidad de Cantabria y el País Vasco.
- **Idiomas habitualmente impartidos:** castellano e inglés.
- **Formación Transversal:** La EDUC desarrolla actividades de formación transversal con el doctorado que refuerza el aprendizaje de los contenidos de los cursos de doctorado con el refuerzo de la formación de los estudiantes de doctorado/actividades transversales.

Ingeniería Química. El doctorado se admitirá según su currículo académico previo en relación con la investigación del programa.

OBJETIVOS

El doctorado se imparte en universidades de Cantabria y País Vasco con apoyo a la investigación, así como con los temas del programa.

Unión Daniel Gorri Cirella (UC)



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.

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 idóneo de los estudiantes del presente Máster es el de aquellos alumnos que acrediten las competencias correspondientes al Grado de 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.

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-

Grado de 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.

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-

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 cuatrimestres)

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 2016-2017): 2485,80 €

Contacto: etsiit@unican.es
gestion.academica@unican.es

La sociedad actual demanda este tipo de profesionales con una formación específica en Ingeniería Química, capacitados para desarrollar, 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 serían: diseño e ingeniería de proceso, producción e ingeniería de producto, I+D+i, gestión y dirección, o ventas y marketing.

PERMANENT STAFF APPOINTMENTS

Full Professor

October 30th, 2017

Raquel Ibáñez was proposed for recruitment as Full Professor by the evaluation committee formed by Prof. Javier León (Vice-chancellor of Research at UC) Prof. Ángel Irabien (University of Cantabria), Prof. Ane Urtiaga (University of Cantabria), Prof. Juan José Rodríguez Jiménez (Autonomous University of Madrid) and Prof. Javier Bilbao (University of the Basque Country).



Permanent Associate Professors

October 18th, 2017

Dr. Eugenio Bringas was proposed for recruitment as Permanent Associate Professor by the evaluation committee formed by Prof. Javier León, Prof. Ángel Irabien, Prof. Inmaculada Ortiz, Dr. Raquel Ibáñez and Dr. Aurora Garea.



October 31st, 2017

Dr. Clara Casado was proposed for recruitment as Permanent Associate Professor (I3) by the evaluation committee formed by Dr. Mario Mañana, Prof. Ángel Irabien, Prof. Inmaculada Ortiz, Prof. Raquel Ibáñez and Dr. Aurora Garea.



February 8th, 2017

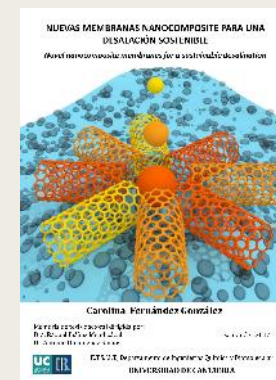
Mariana Díaz's PhD Dissertation: "Development of new high-performance conductive membranes based on polymerized ionic liquids for their use in fuel cells"

Supervisors: Prof. I. Ortiz and Dr. A. Ortiz

March 23rd, 2017

Mariano Puente's PhD Dissertation: "Levels and sources of trace elements and polycyclic aromatic hydrocarbons in atmospheric deposition in Cantabria"

Supervisors: Dr. I. Fernández



June 16th, 2017

Pablo Fernández's PhD Dissertation: "Progress in the reactivity of advanced oxidation media: Application to the Fenton treatment of 2-chlorophenol solutions"

Supervisors: Prof. I. Ortiz and Dr. M.F. San Román

June 30th, 2017

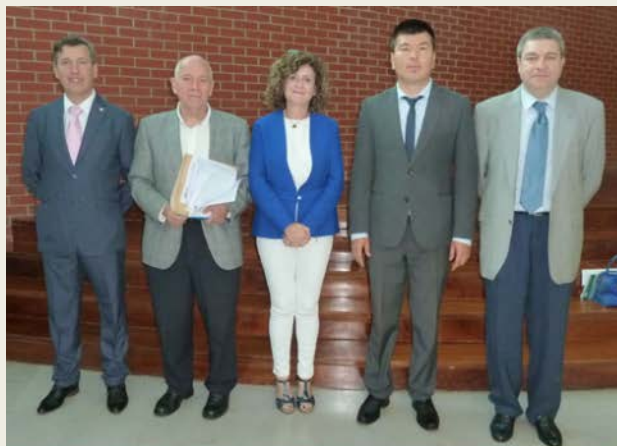
Carolina Fernández's PhD Dissertation: "Novel nanocomposite membranes for a sustainable desalination"

Supervisors: Prof. R. Ibáñez and Dr. A. Domínguez

July 11th, 2017

Adham T. Norkobilov's PhD Dissertation: "Design of hybrid separation processes incorporating membrane technologies"

Supervisors: Dr. E. D. Gorri



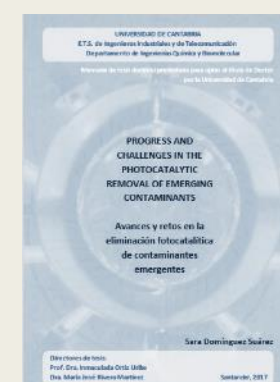
July 24th, 2017

Albert Barceló's PhD Dissertation: "Contribution to the industrialization process of the evaporative pertraction technology to control the alcoholic content of red and white wines"

Supervisors: Prof. I. Ortiz and Dr. N. Diban.



ACADEMY



December 21st, 2017

Carlos Javier Escudero's PhD Dissertation: "Progress on the performance of photocatalysis and electrochemical oxidation technologies applied to wastewater remediation"

Supervisors: Prof. I. Ortiz and Dr. M.J. Rivero

December 21st, 2017

Sara Domínguez's PhD Dissertation: "Progress and challenges in the photocatalytic removal of emerging contaminants"

Supervisors: Prof. I. Ortiz and Dr. M.J. Rivero

Almacenamiento electroquímico de energía: Retos presentes y futuros

Dr. Rebeca Marcilla, Electrochemical Process Group – IMDEA – Madrid

February 7th, 2017

Deep eutectic solvents: Designing solvents for the future

Prof. Isabel Marrucho, Instituto Superior Técnico Lisboa

February 8th, 2017



Alimentos funcionales. Un ejemplo del papel de la Química

Prof. Prof. Manuel Valiente Malmagro, Professor of Analytical Chemistry, Department of Chemistry, Universitat Autònoma de Barcelona

February 24th, 2017

The extended soft-SAFT equation of state: a thermodynamic modeling tool for an accurate description of fluids and mixtures

Dr. Félix Llóvell, from the Instituto Químico de Sarrià, Universitat Ramon Llull, Tarragona

March 8th, 2017

Sustainability through service

Prof. Adi Wolfson, head of the Chemical Engineering Department of the Shamoon College Engineering, Beér-Sheva, Israel

March 31st, 2017

*Chemical insights into drug discovery*

Prof. Pilar Goya Laza, Research Professor at CSIC and President of EuCheMS (European Association for Chemical and Molecular Sciences)

May 26th, 2017

New and integrated bioproduction systems for bioeconomy

Prof. An-Ping Zeng, Institute of Bioprocess and biosystems Engineering, Hamburg University of Technology (TUHH)

November 21st, 2017

*Role of process systems engineering in chemical engineering*

Prof. Ignacio Grossmann, Honoris Causa Doctorate of the University of Cantabria, from Center for Advanced Process Decision-making, Department of Chemical Engineering, Carnegie Mellon University (Pittsburgh, USA)

June 12th, 2017

Application of Membrane Separation Processes for Wastewater Reclamation and Reuse

Prof. Nalan Kabay, Chemical Engineering Department – Ege University (Turkey)

June 29th, 2017

Carbon Dioxide Utilization: Capture and Electrochemical Reduction to Useful Products

Invited lecture: QAFCO TEXAS A&M University of Qatar Conference 2017 on the Water, Food & Energy Nexus

Prof. Ángel Irabien Gulías

January 27th, 2017



Novel Separations Processes based on the Facilitated Transport Mechanism

Oriented to the Faculty members and postgraduate students of the Chemical Engineering Department at Carnegie Mellon University

Fullbright Programme

Prof. Inmaculada Ortiz Uribe

March 30th, 2017



Sustainability metrics as a tool for decision-making/makers

Invited lecture in the conference “Managing sustainability challenges in urban and rural areas”

Achva Academic College, Be’er Sheva, Israel

Dr. Antonio Domínguez Ramos

May 5-12th, 2017





Procesos de oxidación avanzada, una forma de tratar agua contaminada de manera fácil, rápida y segura.

Invited lecture to post-graduate students of the University of Guanajuato.

Mr. Carlos Javier Escudero Santiago

May 18th, 2017



Dando a los residuos una nueva vida: criterios ambientales para la toma de decisiones

Campus PUCP - Complejo de Innovación Académica

Perú – Lima

Organized by Red Peruana de Ciclo de Vida

Dr. María Margallo Blanco

September 21st, 2017



Electrochemical processes for CO₂ conversion

Invited lecture in the 5th Annual International Sulcis CCS Summer School

Sotacarbo Research Center in Carbonia, Sardinia (Italy)

Dr. Manuel Álvarez Guerra

June 19-23th, 2017



Charla | Dando a los residuos una nueva vida: criterios ambientales para la toma de decisiones



Fecha:
21 de setiembre del 2017

Hora:
de 4:00 pm a 6:00 pm

Lugar:
Campus PUCP - Complejo de Innovación Académica, Aula Polivalente A100

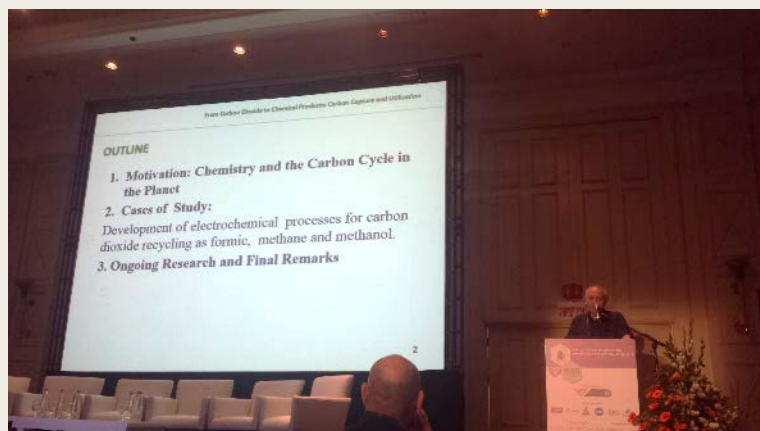
Costo:
Ingreso Libre

Carbon Capture and Utilization: from carbon dioxide to different chemicals.

Plenary lecture in the 82 Annual Meeting of the Israel Institute of Chemical Engineering

Prof. Ángel Irabien Gulías

June 26th, 2017



January 26th, 2017

INNOVACIÓN EN ESPECTROSCOPIA ATÓMICA Y MOLECULAR

Organized by Agilent Technologies and Chemical & Biomolecular Engineering Department of the University of Cantabria



April 6th, 2017

Prof. Adi Wolfson, head of the Chemical Engineering Department of the Shamoon College of Engineering, Beér-Sheva, Israel meets researchers of the Chemical & Biomolecular Engineering Department to show and discuss current projects.



April 7th, 2017

Dr. Audrey Luiz, researcher of the University of Sydney (Australia) presents the main research projects currently developed by the Department of chemical and Biomolecular Engineering of the University of Sydney as well as her current work "TREATMENT OF BIO-REFINERY EFFLUENTS BY ELECTRODIALYSIS". Members of the Chemical & Biomolecular Engineering Department attended her presentation followed by questions from the audience and a visit to the department facilities.



September 18-19th, 2017

Workshop “Sustainable carbon dioxide capture and utilisation”

The workshop “Sustainable carbon dioxide capture and utilisation” was held at the University of Cantabria and was organized in the framework of the Excellence Network “Valorización química sostenible de dióxido de carbono” (<https://www.valco2.unican.es/index.html>), financed by the Ministry of Economy and Competitiveness (CTQ2014-55716-REDT) and coordinated by Prof. Angel Irabien.

The workshop counted with invited international speakers and the network outcomes and future actions were discussed for the improvement of the coordination between key research groups in the area; potential collaboration in European projects within the main strategic topics of Horizon 2020 programme were also discussed.



October 27th, 2017

Workshop: Simposio de la Red Española de Ciclo de Vida

The research group Desarrollo de Procesos Químicos y Control de Contaminantes (DEPRO) of the University of Cantabria organized the IV Simposio de la Red Española de Ciclo de Vida, focused on at life cycle assessment and circular economy: decision-making tool in waste management.



March 29th, 2017

LIFE WIRE PROJECT

Prof. Ane Urriaga was one of the international experts that provided scientific and technical advice in the meeting of the Advisory Board of Project LIFE WIRE, celebrated in Barcelona.

The project was coordinated by CETAQUA and received funding from the LIFE EU program, that supports environmental, nature conservation and climate action projects.



June 23rd, 2017

PEMFC-SUDOE PROJECT



The PEMFC-SUDOE European Project 2017 annual meeting place in Porto (Portugal). Prof. Inmaculada Ortiz, Dr. Alfredo Ortiz and the PhD. Student María Yáñez participated as members of the leader beneficiary, University of Cantabria.



GRADISAL PROJECT

Several meetings of GRADISAL project have taken place. In the meetings the participants reviewed and debated the activities carried out by the partner companies, APRIA SYSTEMS and MARE as well as by the members of the UC Advanced Separation Processes Group (project coordinator).



October 19th, 2017

TRAGUANET



Prof. Ane Urriaga and Dr. Gema Pérez, on behalf of the Advanced Separation Processes research group, attended the final project meeting of the CONSOLIDER-TRAGUA NET celebrated in Madrid.



December 5th, 2017

The HYLANTIC project (Atlantic Network for Renewable Generation and Supply of Hydrogen to promote High Energy Efficiency) organized the Kick Off Meeting in Santander (Spain). The main objective of this project is to promote renewable energy COMPETITIVENESS IN THE ATLANTIC AREA BY INTRGREGATION of THE HYDROGEN ENERGY MARKET THROUGH THE DEVELOPMENT OF NEW AND ADVANCED SYSTEMS TO SUPPLY strategic SECTORS along the Atlantic coast and developing a world leading position in the field of energy efficiency through the use of renewable energy.

The project is led by University of Cantabria and Coordinated by Dr. Alfredo Ortiz Sainz de Aja (Dep. Chemical & Biomolecular Engineering) and the partnership involves 11 organizations from the five Atlantic Area countries and 15 associated partners, including Public administration, clusters, platforms, partnerships for regional development, policy makers, end users and stakeholders which will collaborate on technical activities, and transfer and dissemination of results.

HYLANTIC is funded by the European Regional Development Fund (ERDF) through the INTERREG Atlantic Area Programme with a budget of 2,5 million euros and a period of 3 years between 2017 -2020.



SAINT THOMAS AQUINAS' DAY

During the ceremony of the celebration of St. Thomas Aquinas the nomination of Isabel García, Raquel Onandía, Isabel Ortiz, Germán Santos, Marta Sebastiá and Gabriel Zarca as Doctors of the University of Cantabria took place.



January, 2017

DISSEMINATION WORK “MEETINGS WITH CHEMICAL ENGINEERING”

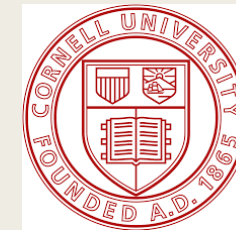
A new edition of the dissemination work “Meetings with Chemical Engineering” was organized by the Chemical & Biomolecular Engineering Department. This activity provides the students with practical information about Chemical Engineering, including their employment sectors, both in the region and outside. Moreover, it is an opportunity to introduce students to the Chemical Engineering degree offered by the University of Cantabria.



February 2nd, 2017

CORNELL PROGRAMME

Stephen Capobianco, Educational Abroad Advisor in Cornell University (New York, USA) visited the Chemical & Biomolecular Engineering Department of the University of Cantabria. Mr. Capobianco was welcomed by Prof. Ane Urtiaga (Assistant Director of the Chemical & Biomolecular Engineering Department), Dr. Raquel Ibáñez (Vice-Dean of the School of Industrial and Telecommunication Engineering) and Dr. Eugenio Bringas (International Relation Coordinator in the area of Chemical Engineering). The meeting was an opportunity to analyze the benefits and opportunities of the international programme that allows the bilateral exchange of students between Cornell University and the University of Cantabria.



June 12th, 2017

CORNELL PROGRAMME

Dr. Raquel Ibáñez (Vice-Dean of the School of Industrial and Telecommunication Engineering) and Dr. Eugenio Bringas (International Relation Coordinator in the area of Chemical Engineering) visited Cornell University (Ithaca, NY, USA) in order to participate in an assessment meeting with the faculty members involved in the mobility programme between Cornell and Cantabria Universities whose third edition has been recently closed. During the visit, Raquel and Eugenio enjoyed the opportunity of visiting the breathtaking waterfalls located at Cornell University campus.



March 3rd, 2017

CHEMISTRY OLYMPIAD FOR SECONDARY SCHOOL STUDENTS

The Local Chemistry Olympiad took place at the ETSIIyT of the University of Cantabria with the participation of more than 60 secondary school students of Cantabria. The event was organized by the Association of Chemistry and Chemical Engineering of Cantabria (AQUIQÁN) in collaboration with the Spanish Royal Society of Chemistry (RSEQ). The winners of the gold, silver and bronze medals were: Jose Luis Matabuena Serrano (IES Marqués de Santillana, Torrelavega), Gloria González Lavín (IES Lope de Vega, Santa María de Cayón) and Isabel Palacio Solórzano (IES Santa Clara, Santander), respectively.

Jose Luis and Gloria attended the National Chemistry Olympiad celebrated in Madrid, in May 6th-7th, 2017.



May 5th, 2017

CHEMISTRY MINIOLYMPIAD

The Association of Chemistry and Chemical Engineering of Cantabria (AQUIQÁN-ANQUE), in collaboration with the Cantabria Territorial Section of the Spanish Royal Society of Chemistry (RSEQ), celebrated the III Miniolympiad of Chemistry in Cantabria for 3rd and 4th year ESO students. The winners of the gold, silver and bronze medals were: 4th ESO: Claudia Cojocariu Bordino (IES Valle de Camargo, Revilla de Camargo), Pablo Sáez Alonso (Colegio Sagrada Familia, Herrera de Camargo) and Alejandro Senas González Bordino (IES Valle de Camargo, Revilla de Camargo), respectively; and 3rd ESO: Mikel de Domingo Gutiérrez (IES José Zapatero Domínguez, Castro Urdiales), Isabel Barquinero Bolado (Colegio Bilingüe Apostolado del Sagrado Corazón, Ceceñas) and Ana Landeta Pérez (IES José Zapatero Domínguez, Castro Urdiales), respectively.



April 3th, 2017

OPEN DOORS DAY

Members of the Chemical & Biomolecular Engineering Department participated in the Open Doors Day organized by the University of Cantabria to show the Academic Offer to secondary school students. During the day, the students had the opportunity to visit the facilities and ask questions about the Chemical Engineering Degree.

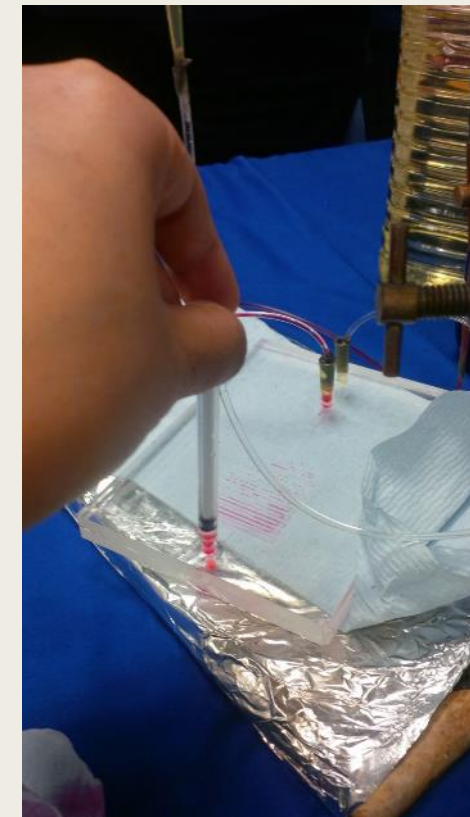
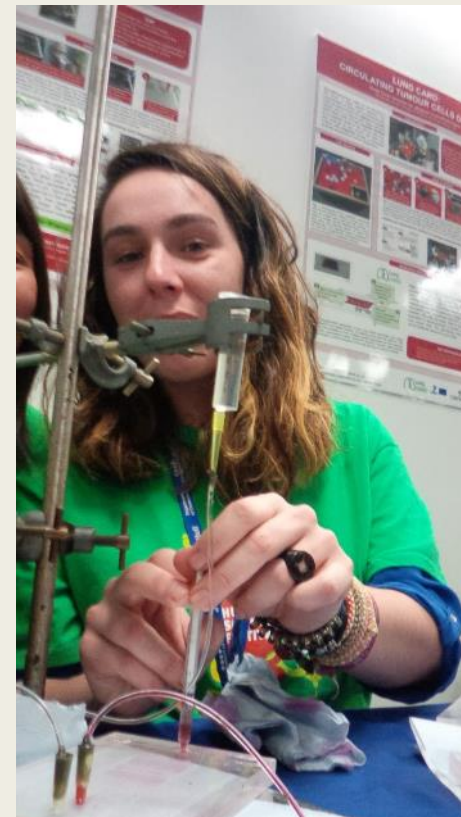


April 2nd - 4th, 2017

SCIENCE FESTIVAL AT THE UNIVERSITY OF HULL

The PhD. Student Jenifer Gómez participated in the workshop “Lab on a Chip” of the Science Festival of Hull, during her research stay at that University.

The event was oriented to children from 7 to 12 years old.



June 1st, 2017

ECO-DESING EXHIBITION

Students of the Master in Chemical Engineering (UC-UPV/EHU) who follow the subject “Life Cycle Assessment of Processes and Products”, showed their works in the hall of the ETSIIyT of the University of Cantabria.

The students used eco-design strategies and tools in their works to propose new eco-designed products.

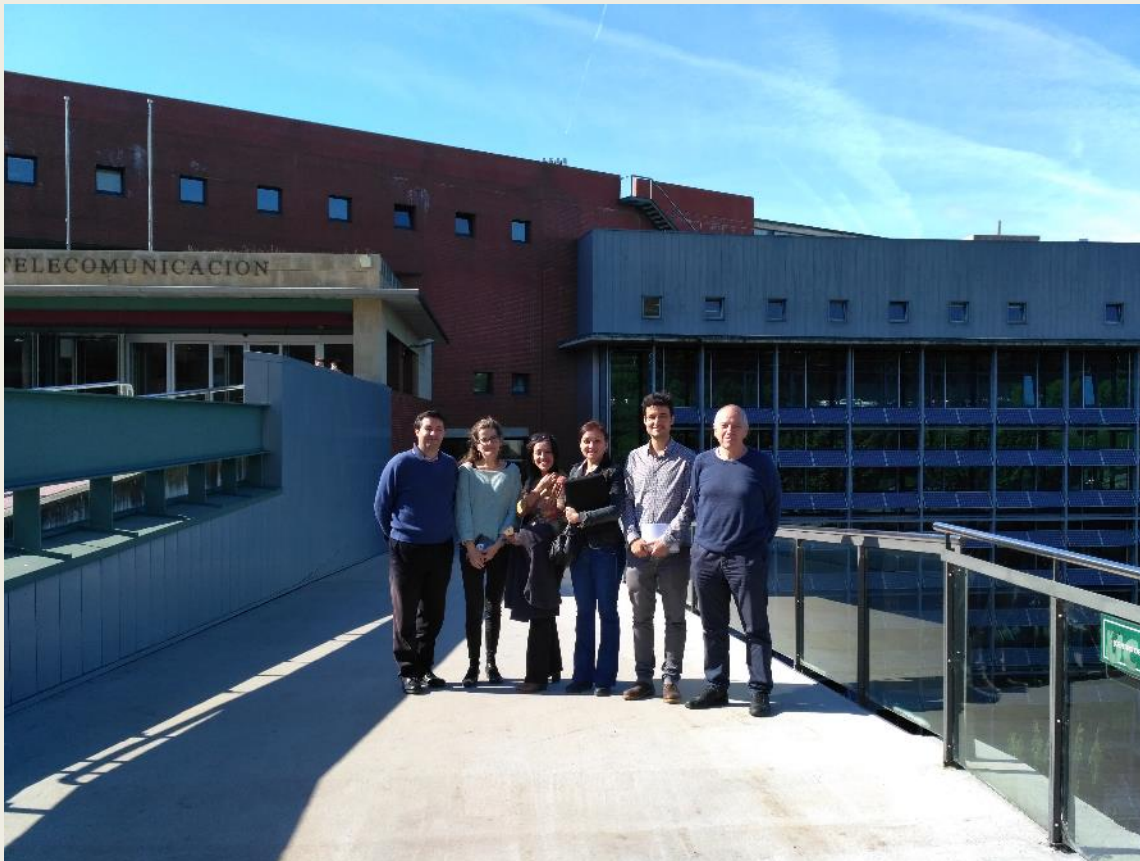
It was a good opportunity to acknowledge their creativity and learn the concepts applied to products eco-design.



June 5th, 2017

VISIT

Joyce Villachic and Leslye Villachica, from the company Smallvill s.a.c., located in Peru, visited the Chemical and Biomolecular Engineering Department of the University of Cantabria, where they met with several researchers of the Development of Chemical Processes and Pollution Control (DEPRO) research group led by Prof. Ángel Irabien. They were interested in establishing new collaborations between the two institutions in the field of the development of new carbon captures processes.



SmallvillSAC

June 14th, 2017

VISIT TO UPM

Prof. Inmaculada Ortiz Uribe joined the visit to the UPM Campus de Montegancedo organized by the Physico-Chemistry Section of the Spanish Royal Academy of Sciences. The Academy group visited the R&D Centers for Biomaterials and Microgravimetry and held a meeting with the UPM academic authorities.



October 1st, 2017

Chem-E-Car Competition



The team of students of the Degree in Chemical Engineering of Universidad de Cantabria participated in the Chem-E-Car competition that took place within the 10th World Congress of Chemical Engineering in Barcelona.

The success of the Cantabrian expedition was acknowledged with the award to the “Best Inherent Safety in Design of Car”), which reveals the excellent work carried out by the team of students.

18 teams from different countries, like Canada, Iran, Qatar, Poland, United States or Spain, were able to finally take part in the competition. The car “CantabriCar” of UC achieved the best place among the Spanish teams that participated in the event, and the sixth place in the global ranking of the competition. The winner of the contest was the prototype of the team from the Persian Gulf University (Iran), which was able to place the vehicle only 0,6 cm away from the target distance of 21 m, showing the extraordinarily high level of the participants.

The team has been supervised by a group of professors from the Department of Chemical and Biomolecular Engineering and it has been financially supported by the company Birla Carbon Spain, which made the dream of taking part in this competition a reality.



October 1st, 2017



SOLVAY – UC MEETING

Prof. Inmaculada Ortiz and Prof. Ane Urriaga, on behalf of the Chemical & Biomolecular Engineering Department, attended the meeting between the company Solvay and some leaders of the research groups of the University of Cantabria whose main activity are related to the Company interests, last October 26th, 2017. The event, organized by Foro UC-Empresa and coordinated by Vicerrectorado de Investigación, was aimed at the promotion of the relationship between UC and Solvay.


Inmaculada Ortiz, head of the Chemical and Biomolecular Engineering Department was in charge of the presentation of the main research activity of the 4 research groups of the department.


The poster features a white background with a dark blue L-shaped border. At the top, it displays the logos for Solvay, UC Universidad de Cantabria, and the Department of Chemical and Biomolecular Engineering. The central text reads 'SOLVAY - UC MEETING'. Below this, it lists Prof. Inmaculada Ortiz as the Head of the Department and Prof. Ane Urriaga as the Deputy Head. A URL is provided: <http://web.unican.es/Departamentos/ingquimica>. At the bottom left is a photograph of a modern university building, and at the bottom right, the date 'Santander, October 26th, 2017' is printed.

SOLVAY - UC MEETING

Prof. Inmaculada Ortiz
Head of the Department of Chemical & Biomolecular Engineering

Prof. Ane Urriaga
Deputy Head of the Department of Chemical & Biomolecular Engineering

 <http://web.unican.es/Departamentos/ingquimica>

 **Santander, October 26th, 2017**

November 24-26th, 2017

National Assembly of ANQUE

The Association of Chemistry and Chemical Engineering of Cantabria (AQUIQÁN) was in charge of the organization of the National Assembly of the Association of Chemist of Spain. The event took place in the ETSIIT of the University of Cantabria (Santander) and was attended by around 50 assemblymen from all over Spain.



November 25th, 2017

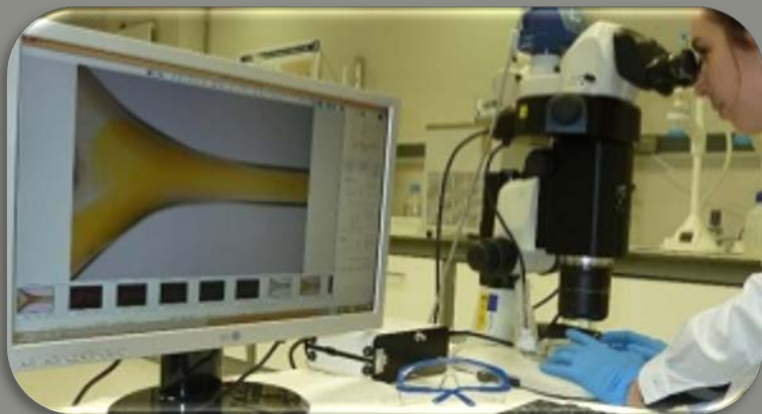
Graduation Ceremony

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 2016-2017,



ANALYTICAL SERVICES





ANALYTICAL SERVICES OF SOSPROCAN UNIT



**ENVIRONMENTAL
PARAMETERS AND WATER
CHARACTERIZATION**



**CHROMATOGRAPHIC
TECHNIQUES**



**PLASMA MASS
SPECTROMETRY**



**SOLID
CHARACTERIZATION**



sersosprocan@unican.es



[http://web-unican.es/
departamentos/ingquimica/servicios](http://web-unican.es/departamentos/ingquimica/servicios)





ENVIRONMENTAL PARAMETERS AND WATER CHARACTERIZATION

- ✓ Determination of F^- , Cl^- , Br^- , SO_4^{2-} , Na^+ , Ca^{2+} in purified waters for industrial uses by Ion Chromatography.
- ✓ Determination of carbonates and bicarbonates in natural waters by volumetric titration.
- ✓ Determination of SiO_2 in purified water for industrial uses by colorimetric methods.
- ✓ Determination of anions (F^- , Cl^- , Br^- , NO_2^- , NO_3^- , SO_4^{2-} , PO_4^{3-}) and cations (Na^+ , K^+ , Ca^{2+} , Mg^{2+}) in natural waters by Ion Chromatography.
- ✓ Determination of pH, COD and BOD in natural waters.
- ✓ Determination of Total Organic Carbon (TOC) in natural waters by using a TOC analyzer.
- ✓ Leaching tests in wastes according to UNE-EN-12457



CHROMATOGRAPHIC TECHNIQUES

- ✓ Quantification of Total Petroleum Hydrocarbons (TPHs) and their fractions in soils by Gas Chromatography coupled with flame ionization detector (GC_FID).
- ✓ Quantification of Polycyclic Aromatic Hydrocarbons (PAHs) in personal care products by Gas Chromatography coupled with mass spectrometry detector (GC_MS).
- ✓ Determination of Organic Impurities in pharmaceutical products by Gas Chromatography coupled with mass spectrometry detector (GC_MS).
- ✓ Determination of cations (Na^+ , K^+ , Ca^{2+} , Mg^{2+}) in pharmaceutical products by Ion Chromatography.
- ✓ Determination of residual solvents in pharmaceutical products Gas Chromatography coupled with mass spectrometry detector (GC_MS).
- ✓ Determination of dioxins, furans and PCBs in food, biota and environmental samples.



PLASMA MASS SPECTROMETRY

- ✓ Determination of trace elements (Al, As, B, Ni, Fe, Pb, Pd, ...) in pharmaceutical products.
- ✓ Quantitative analysis of elements (Fe, As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sn, Hg, Sb, Se, Zn.....) in landfill leachates.
- ✓ Quantitative analysis of elements (As, Cd, Cr, Cu, Ni, Pb, Zn, Mn, Fe, Mo, V.....) in air collection filters, after microwave digestion.
- ✓ Elementary semiquantitative analysis (70 elements) in pharmaceutical products.
- ✓ Determination of elements (Cr, Cd, Ni, Zn, As, Pb, Cu....) in contaminated soils and sediments, after microwave digestion.
- ✓ Determination of elements (Cr, Cd, Ni, Zn, As, Pb, Cu....) in biological samples (molluscs, tissues, ..), after microwave digestion.
- ✓ Determination of Bi in copper wires.
- ✓ Determination of Cr, Zn and Fe in passivation and pickling baths



SOLID CHARACTERIZATION

- ✓ Characterization of solid samples by thermogravimetric analysis.
- ✓ Determination of BET surface
- ✓ Global and specific migration of food contact materials

CUSTOMERS OF THE ANALYTICAL SERVICES



Cátedra de Física Médica
Departamento de Ciencias Médicas
y Quirúrgicas

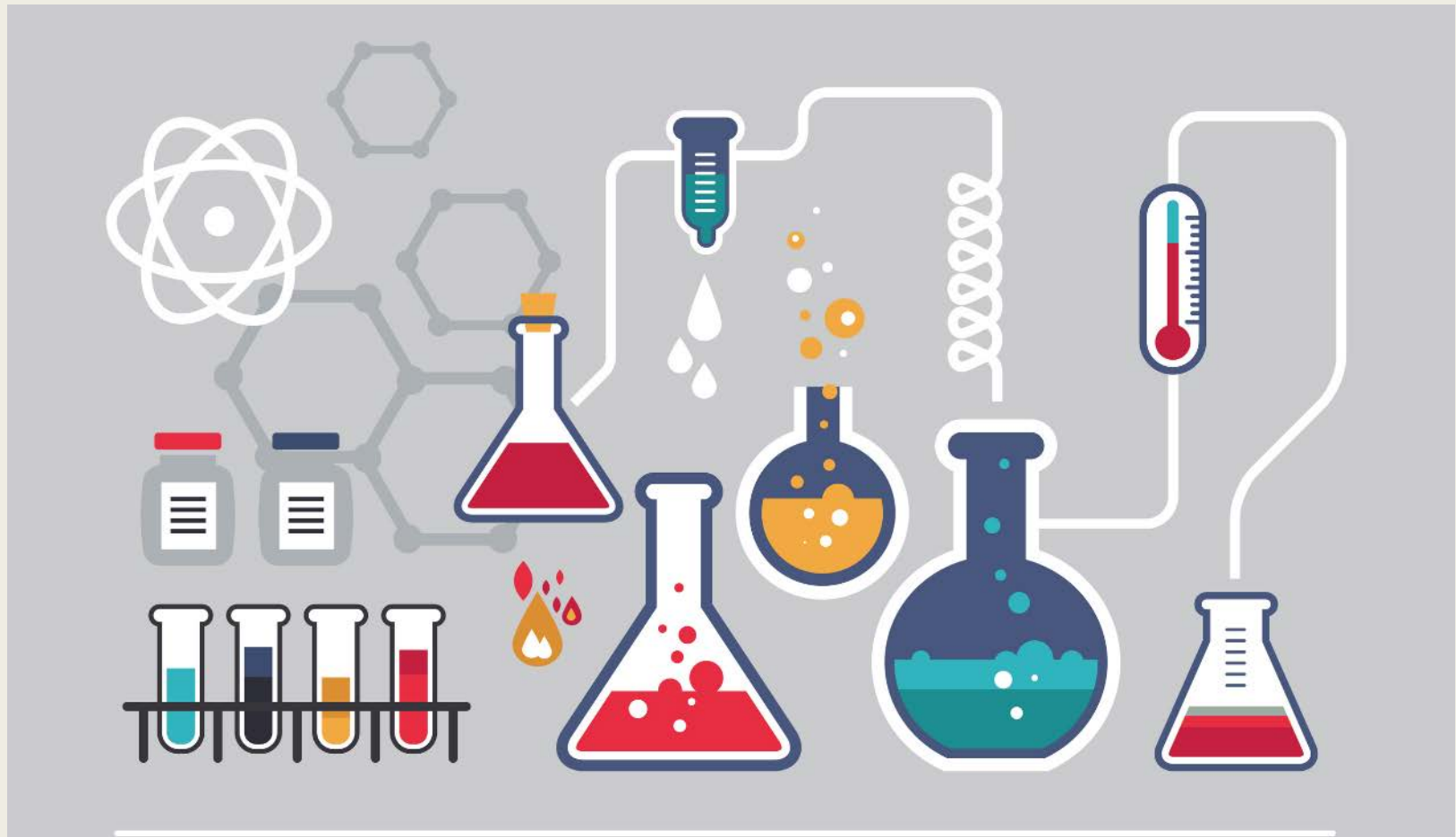


SERCAMAT



B/S/H/

R&D OUTCOMES



RESEARCH MOBILITY OF THE FACULTY MEMBERS

Inmaculada Ortiz Uribe

Chemical Engineering Department
Carnegie Mellon University
Pittsburgh, USA
Collaboration with Prof. Ignacio Grossmann
March – May 2017



Ángel Irabien Gulías and Antonio Domínguez Ramos

Chemical Engineering Department
Shamoon College of Engineering
Be'er Sheva, Israel
Teaching stay
Erasmus + Programme
May - June, 2017



Gabriel Zarca Lago

Department of Chemical Engineering
Carnegie Mellon University
Pittsburgh, USA
Supervisor: Prof. Lorenz T. Biegler.
June 12th – July 21st, 2017



María Margallo

Engineering Department of the Pontificia
Universidad Católica del Perú
Lima, Peru
August 28th - September 28th, 2017



RESEARCH MOBILITY OF POST-GRADUATE STUDENTS



Ana Fernández Barquín

Diffusion in polymers and membrane separation research group

Department of Civil, Chemical, Environmental and Materials Engineering

University of Bologna

Bologna, Italy

Supervisor: María Grazi de Angelis

January – April 2017



Andrés del Castillo Martín

Pierre et Marie Curie University

Paris, France

Supervisor: Dr. Carlos Sánchez

January – April 2017



Sara Domínguez Suarez

Nanocatalysis & Photoreactions Engineering Group

Department of Chemical Engineering

Loughborough University

United Kingdom

Supervisor: Prof. Gianluca Li Puma

February – May 2017



RESEARCH MOBILITY OF POST-GRADUATE STUDENTS



Jenifer Gómez Pastora

University of Hull

Hull, United Kingdom

Supervisor: Prof. Nicole Pamme

February – May 2017



Iván Merino García

Photocatalytic Synthesis (PCS) group

University of Twente

The Netherlands

Supervisor: Prof. Guido Mull

March – May 2017



Jara Laso Cortabitarte

Red Peruana de Ciclo de Vida

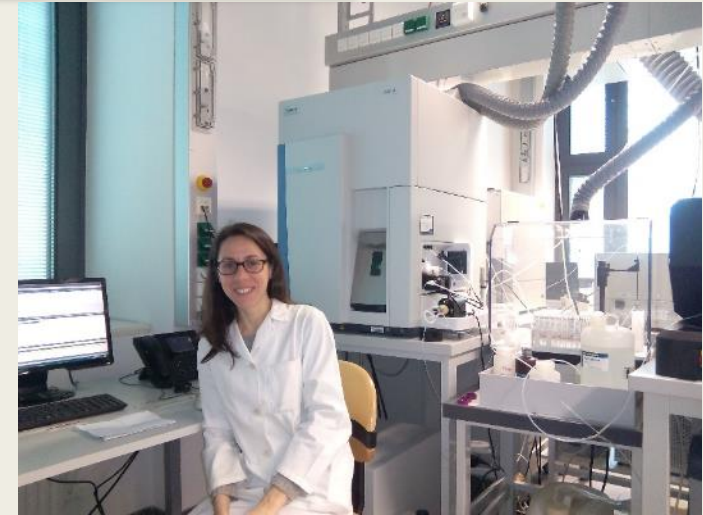
Lima, Peru

Supervisor: Mr. Ramzy Kahhat

March – April 2017



RESEARCH MOBILITY OF POST-GRADUATE STUDENTS



Ana María Hernández Pellón

Institute of Chemical Technologies and Analytics

Vienna University of Technology

Vienna, Austria

Supervisor: Prof. Andreas Limbeck

April – June 2017



Carlos Javier Escudero Santiago

Department of Chemistry

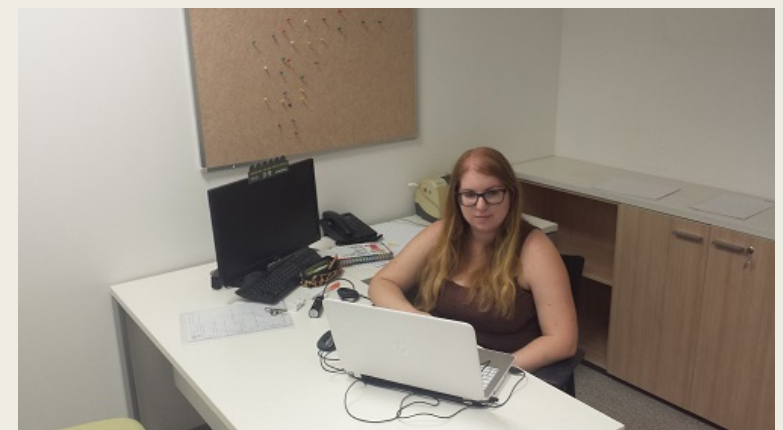
Division of Nature and Exacts Sciences

University of Guanajuato

Guanajuato, Mexico

Supervisor: Dr. Juan Manuel Peralta Hernández

April – June 2017



Marta Herrero González

Chemical Engineering Department

Shamoon College of Engineering

Be'er Sheva, Israel

Supervisor: Prof. Adi Wolfson

May - August 2017



RESEARCH MOBILITY OF POST-GRADUATE STUDENTS

Beatriz Gómez Ruiz

Department of Civil and Environmental Engineering

Colorado School of Mines

Golden, Colorado, USA

Supervisor: Prof. Timmothy Strathmann

June – September 2017



Raúl Zarca Lago

Department of Chemical Engineering

Carnegie Mellon University

Pittsburgh, USA

Supervisor: Prof. Lorenz T. Biegler.

June 12th – July 21st, 2017



Paula Ribao Martínez

Laboratório Nacional de Energia e Geologia (LNEG)

Lisboa, Portugal

Supervisor: Dr. Carmen Rangel

September – December 2017



Sandra Sánchez González

Institute of Biomedical Engineering

University of Oxford

United Kingdom

Supervisor: Dr. Hua Ye

September – December 2017



RESEARCH MOBILITY OF GRADUATE STUDENTS



Paloma Ortiz Albo
Yamaguchi University
Supervisor: Dr. Izumi Kumakiri
October 2016 – July 2017

Students of Chemical Engineering and Dr. Izumi Kumakiri
University of Yamaguchi
Japan
October – November 2017



Andrea Arguillarena, Cristina González, Marta Romay
Yamaguchi University
Supervisor: Dr. Izumi Kumakiri
April 2017



MOBILITY

INCOMING RESEARCHERS AT THE UNIVERSITY OF CANTABRIA

Adi Wolfson

Chemical Engineering Department
Shamoon College of Engineering
Be'er Sheva, Israel
Erasmus + Programme
March 2017



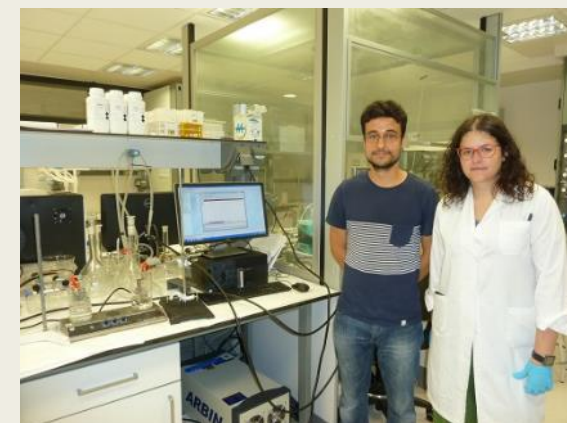
Diego Cilla

University of La Rioja
April – June 2017
Supervisor at UC: Dr. María José Rivero
Martínez



Verónica Verdugo

Universidad Autónoma de Barcelona, UAB
June 7-25, 2017
Supervisors at UC: Dr. Manuel Álvarez Guerra
and Dr. Jonathan Albo Sánchez



INCOMING RESEARCHERS AT THE UNIVERSITY OF CANTABRIA

Prof. Ignacio E. Grossmann

Chemical Engineering Department

Carnegie Mellon University

Pittsburgh, USA

June 2017



Prof. Kaddour Gemra

Laboratoire de Chimie Organique, Physique et
Macromoléculaire LCOPM

Faculté des Sciences

Université Sidi Bel Abbès, Algeria

September 2017



INCOMING RESEARCHERS AT THE UNIVERSITY OF CANTABRIA



Stas Shaklein

Shamoon College of Engineering

Be'er Sheva, Israel

Erasmus +

July – October, 2017

Supervisor at UC: Dr. Jonathan Albo

Karin Sadia and Noy Admon

Shamoon College of Engineering

Be'er Sheva, Israel

Erasmus +

July – October, 2017

Supervisor at UC: Dr. Antonio Domínguez



Murilo Leite Alcântara

Universidade Federal da Bahia, UFBA, Salvador, Brasil

Capes Grant

Supervisor at UC: Dr. Alfredo Ortiz

September 2017 – September 2018

INCOMING RESEARCHERS AT THE UNIVERSITY OF CANTABRIA



Omar González

Aguascalientes Institute of Technology
Mexico

September 2017 – March 2018

Supervisors at UC: Prof. Inmaculada Ortiz and
Dr. Eugenio Bringas

Dr. Lamia Bennabi

University Ibn Khaldun of Tiaret
Algeria

October – November 2017

Supervisors at UC: Prof. Ane Urriaga and Dr. Nazely Diban



Dr. Enrique Álvarez, Dr. María Margallo and Dr. Esther Santos received the Award to Distinguished PhD Thesis in the field of Engineering



Cristina González receives the Best Academic Record among new graduates in the Chemical Engineering Degree. Academic year 2016 - 2017

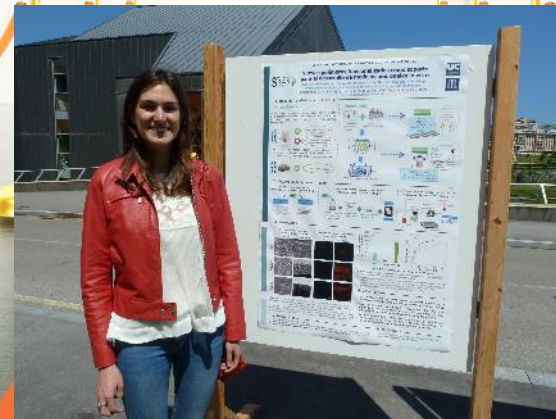


Jenifer Gómez received the first prize to the best presentation in the 17th Flow-3D European Users Conference, in Barcelona.



Sandra Sánchez receives the award to the best video in the “2 minutes thesis contest” organized by the ETSIIyT of the University of Cantabria

Sandra Sánchez receives the award to distinguish the best poster in the field of Engineering and Architecture organized by EDUC, during the celebration of the inauguration of the PhD. School of the University of Cantabria



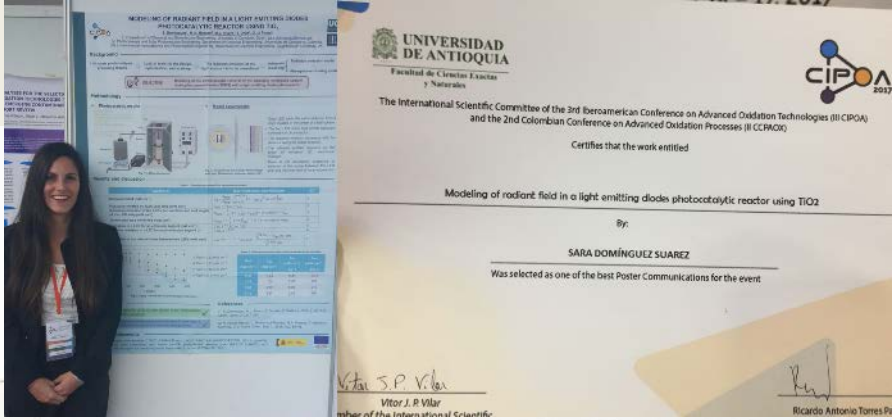
Dr. Gabriel Zarca receives the award to distinguish best PhD thesis in the field of Engineering granted by the Societal Council of the University of Cantabria





Prof. Ángel Irabien, Dr. Rubén Aldaco, Dr. Isabel García, Dr. María Margallo and the PhD. Student Jara Laso received the award to the best poster presentation in the 12th International Food Data Conference, in Argentina.

The PhD. student Sara Domínguez was awarded as one of the best poster communications at the Conference on Advanced Oxidation Technologies (III CIPOA), in Colombia.



Dr. was distinguished in Madrid with Juan López de Peñalver Medal of the Royal Academy of Engineering



Prof. Ángel Irabien was awarded the AQUIQÁN 2017 prize in recognition of his work to the constitution and start-up of the Association of Chemistry and Chemical Engineering in Cantabria



Dr. Lucía Gómez was awarded the AQUIQÁN – Doctorate Thesis Prize 2017

10th World Congress of Chemical Engineering

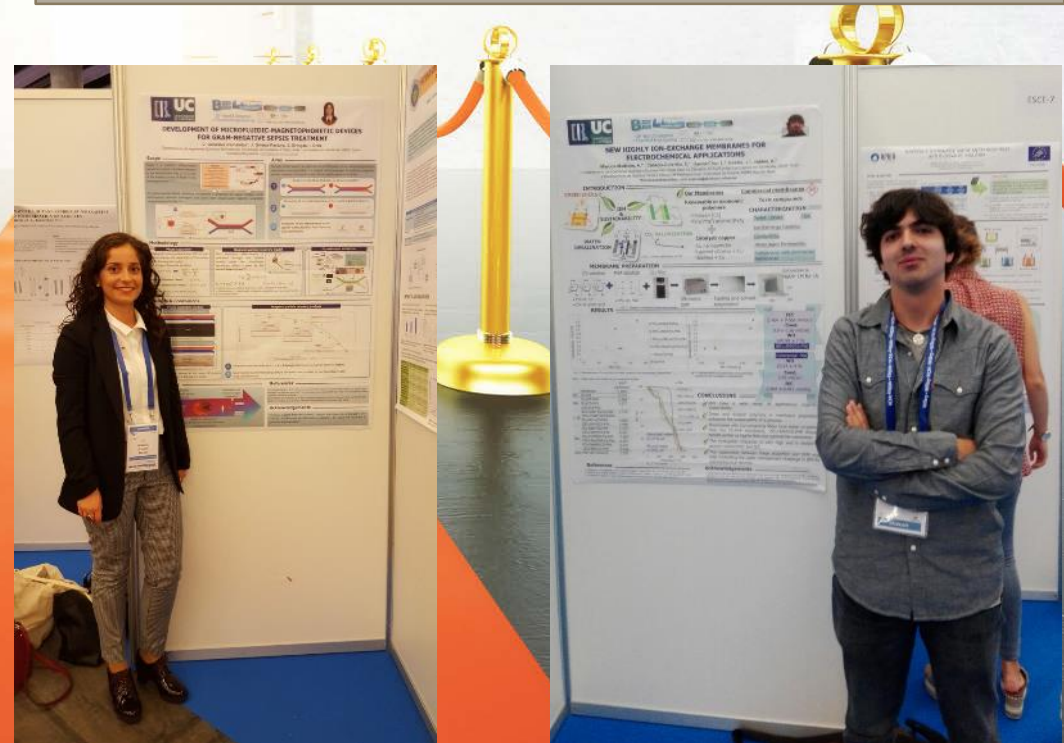
Prof. Ángel Irabien was distinguished with the Award for Excellence in the Organization of the International Conference of Sustainable Science and Engineering, ICOSSE '17



Dr. María José Rivero received the award to distinguish the best oral presentation in the 10th World Congress of Chemical Engineering.



The students of the Master in Chemical Engineering Cristina González and Aitor Marcos received the award to distinguish the best student's poster in the 10th World Congress of Chemical Engineering.



AWARDS

SAINT JOSEPH'S DAY

The ETSIT of the University of Cantabria celebrated Saint Joseph Day. Two Chemical Engineering students received awards to their academic works:

- **Master in Chemical Engineering: Álvaro Soriano.** "Separación mediante nanofiltración de ácido perfluorohexanoico (PFHxA) procedente de efluentes industriales", supported by the Company Solvay.



- **Degree in Chemical Engineering: Cristina González.** "Contribución al diseño de sistemas microfluídicos para la separación de partículas magnéticas", supported by the Company Apria Systems

Universidad de Cantabria AIChE Student Chapter gave three prizes to the most outstanding contributions to the scientific posters competition:

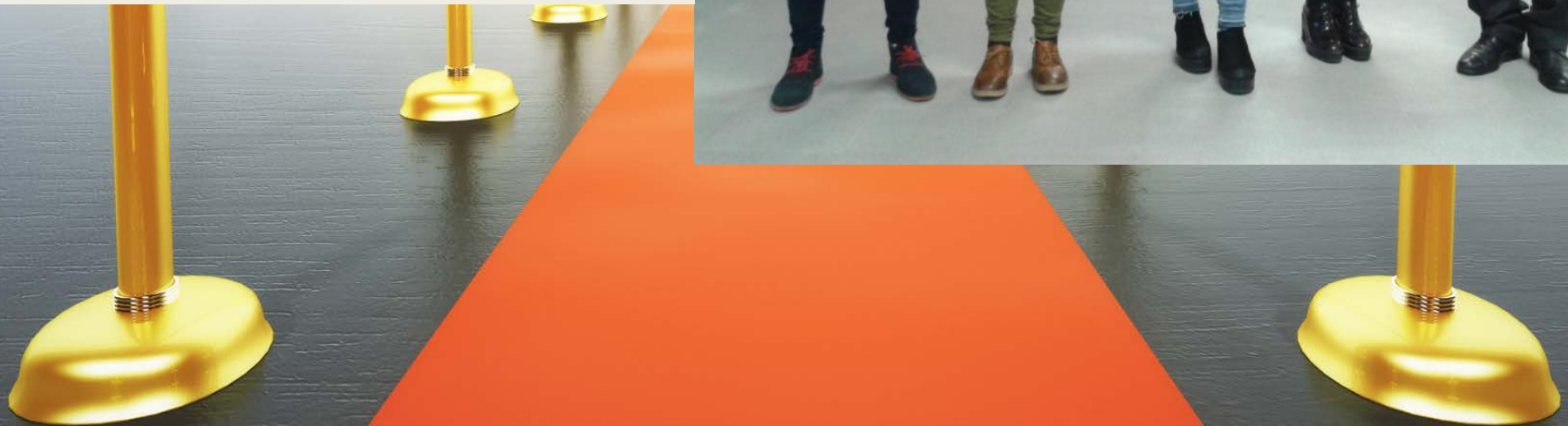
- **1st Prize.** "Chem-e-car work team" - AIChE work team and "Design of a solvent microextraction process" – Angela Entrecanales.
- **2nd Prize.** "Techno-economic assessment for hydrogen recovery from industrial effluents" – M^a del Mar Rasines



SAINT JOSEPH'S DAY

The Association of Chemistry and Chemical Engineer of Cantabria (AQUIQÁN) participated at the San José celebration of the Graduate School of Engineering of the University of Cantabria by the 2nd call to the best Graduate final thesis in Chemical Engineering Degree presented during the academic year 2015/2016.

- **1ST Prize.** “Contribución al Diseño de Sistemas Microfluídicos para la Separación de Partículas Magnéticas” – Cristina González and “Optimización Ambiental y Económica de la Generación de Energía Eléctrica en Cantabria mediante Energía Eólica” - Andrea Arguillarena.
- **2nd Prize.** “Estudio de la Degradabilidad in vitro de Nuevas Membranas de Poly (ϵ -caprolactona) Funcionalizadas con Grafeno para Regeración de Tejido Neuronal” – Marta Romay.





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)

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



INTERNATIONAL PROJECTS

Title: **Atlantic Network for Renewable Generation and Supply of Hydrogen to promote High Energy Efficiency EAPA_204/2016**

Financial support: European Commission

Participants: University of Cantabria, coordinator (Spain), U. Porto (Portugal), LNEG (Portugal), Dublin City University DCU (Ireland), University of Brest (France), Ulster University, Hydrogen Safety Engineering and Research Centre (HySAFER), Coleraine, United Kingdom, APRIA SYSTEMS (Spain), UlemCo Ltd Liverpool (UK), Pure Energy® Centre (UK), Auriga Energy Limited (UK), A. Silva Matos (Portugal)

Coordinator UC: Dr. Alfredo Ortiz Sainz de Aja

Scientific PI Prof. Inmaculada Ortiz Uribe

Dates: 01/10/2017 – 30/09/2020

Title: **LIFE-II-ACID**

Financial support: European Commission / APRIA SYSTEMS

Project in collaboration with : MARE S.A., GALVANIZADORA VALENCIANA S.L.U., APRIA SYSTEMS, S.L., INSTITUTO TECNOLÓGICO MATALMECANIMICO, MUEBLE, MADERA, EMBALAJES Y AFINES, ASOCIACIÓN DE INDUSTRIAS DE ACABADOS DE SUPERFICIES, UNIVERSIDAD DE CANTABRIA, UNIVERSIDAD POLITÉCNICA DE VALENCIA.

Main Researcher: Prof. Ana María Urriaga Mendía

Dates: 01/07/2017 – 31/12/2020

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

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

Participants: University of Cantabria (Coordinator), Université Montpellier. Centre National de la Recherche Scientifique, Universidade do Porto, LNEG - Laboratório Nacional de Energia e Geologia, Institut National Polytechnique de Toulouse, Ariema Energía y Medioambiente. S.L., Apria Systems. S.A, Institut de la Filtration et des Techniques Séparatives. IFTS, NanoInnova Technologies S.L.

Main Researcher: Dr. Alfredo Ortiz Sainz de Aja

Dates: 01/07/2016 – 30/06/2019

NATIONAL PROJECTS

Title: **Separador magnético en endotoxinas bacterianas (LPS) en el tratamiento de la sepsis (CTQ2015-72364-EXP) (AEI)**

Financial support: MINECO

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 01/05/2017 – 30/04/2019

Title: **Dotación Adicional Jonathan Albo Sánchez. Convocatoria Subprograma Estatal de Formación. Ayuda Ramón y Cajal.**

Financial support: MINECO

Main Researcher: Dr. Jonathan Albo Sánchez

Dates: 01/12/2016 – 30/11/2020

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

Financial support: MINECO – FEDER, UE

Main Researcher: Prof. Ángel Irabien Gullías

Dates: 01/04/2014 – 31/12/2017

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

Financial support: MINECO - FEDER, UE

Main Researcher: Prof. Ane Urtiaga Mendía

Dates: 01/01/2014 – 31/12/2017

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

Financial support: MINECO

Main Researcher: Dr. Rubén Aldaco García

Dates: 01/01/2014 – 31/12/2017

Title: **Manganeso en aire urbano: Niveles de concentración de depósito, caracterización físico-química y modelización mediante modelos de dispersión (CTM2013-430904-R).**

Financial support: MINECO - FEDER, UE

Main Researcher: Prof. Ignacio Fernández Olmo

Dates: 01/01/2014 – 31/12/2017

NATIONAL PROJECTS

Title: **Identificación y cuantificación de las variables responsables de la potencial formación de PCDD/Fs en procesos de oxidación avanzada (CTM2014-58029-R)**

Finantial support: MINECO – FEDER, UE

Main Researcher: Dr. María Fresnedo San Román San Emeterio

Dates: 01/01/2015 – 30/06/2018

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

Finantial support: MINECO – FEDER, UE

Main Researcher: Prof. Raquel Ibáñez Mendizábal

Dates: 01/01/2015 – 31/07/2018

Title: **Extracción y purificación de lignina mediante membranas soportadas con líquidos iónicos (CTQ2014-56820-JIN)**

Finantial support: MINECO – FEDER, UE

Main Researcher: Dr. Ricardo Abejón Elías

Dates: 01/10/2015 – 30/09/2018

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

Finantial support: MINECO

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 01/01/2015 – 31/12/2018

Title: **Nuevos desarrollos en fotocátalisis para aplicaciones medioambientales (CTM2015-69845-R)**

Finantial support: MINECO – FEDER, UE

Main Researcher: Dr. María José Rivero Martínez

Dates: 01/10/2015 – 31/12/2018

Title: **Aplicaciones avanzadas de separación. Modelado y validación experimental (CTQ2015-66078-R)**

Finantial support: MINECO – FEDER, UE

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 01/01/2015 – 31/12/2018

Title: **Diseño multiescala de procesos de captura y utilización de dióxido de carbono (CTQ2016-76231-C2-1-R)**

Financial support: Agencia Estatal de Investigación, FEDER, UE

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 01/10/2015 – 31/12/2017

Title: **Membranas compuestas selectivas y su incorporación en dispositivos microfluídicos (CTQ2016-75158-R)**

Financial support: Agencia Estatal de Investigación, FEDER, UE

Main Researcher: Dr. Daniel Gorri Cirella

Dates: 30/12/2016 – 29/12/2019

Title: **Estrategias de producción alimentaria para la mitigación del cambio climático: Hacia una economía circular de los alimentos (CTM2016-76176-C2-1-R)**

Financial support: Agencia Estatal de Investigación, FEDER, UE

Main Researcher: Dr. Rubén Aldaco García

Dates: 01/10/2015 – 29/12/2019

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

Financial support: Agencia Estatal de Investigación, FEDER, UE

Main Researcher: Prof. Ane Urriaga Mendía

Dates: 30/12/2016 – 29/12/2019

EXCELLENCE NETWORKS

Title: Red Temática: Valorización Química Sostenible de Dióxido de Carbono – VALCO2 (CTQ 2014 – 55716 - REDT)

Financial Support: MINECO

Participants: Universidad de Cantabria (UC), Universidad del País Vasco (UPV-EHU), Universidad Complutense de Madrid (UCM), Universidad de Alicante (UA) y Universidad Autónoma de Madrid (UAM).

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 2014 - 2017

Title: Red CONSOLIDER TRAGUANET (CTM2014-53485-REDC)

Financial support: MINECO

Participants: 23 research groups of different Spanish Universities

Main Researcher: Prof. Eloy García Calvo

Main Researcher at UC: Prof. Inmaculada Ortiz Uribe

Dates: 2014 - 2017

Title: Red de Excelencia de Aplicaciones Medioambientales y Energéticas de la Tecnología Electroquímica – E3TECH

Financial support: MINECO

Participants: Universidad de Cantabria, Universidad de Barcelona, Universidad de Castilla La Mancha, Instituto de Nanociencia y Nanotecnología de la Universidad de Barcelona, Universidad de Alicante, Universidad Autónoma de Barcelona, Universidad Politécnica de Valencia, Universidad de Vigo, CSIC, Instituto Nacional del Carbón.

Main Researcher at UC: Prof. Ane Urtiaga Mendía

Dates: 2015 - 2018

Title: Red Española de ciclo de vida esLCA

Financial support: MINECO

Participants: Universidad de Cantabria, Centro tecnológico del Agua CETAQUA, Instituto de Investigación y tecnología agroalimentaria IRTA, Universitat Rovira i Virgili URV, Universitat Politècnica de València UPV, Universidad Rey Juan Carlos URJC, Universidade de Santiago de Compostela, Universitat Autònoma de Barcelona UAB, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas CIEMAT, IMDEA

Main Researcher at UC: Dr. Rubén Aldaco García

Dates: 2016 - 2017

REGIONAL PROJECTS

Title: Equipos de plasma de acoplamiento inductivo (ICP)

Finantial Support: Gobierno de Cantabria, Universidad de Cantabria

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 17/07/2017 – 15/08/2017

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

Finantial support: Convocatoria EXPLORA – Parlamento de Cantabria

Main Researcher: Prof. Ane Urtiaga Mendía

Dates: 16/04/2015 – 15/04/2017

Title: GRADISAL: Aplicación en Cantabria de la Tecnología EDR (Electrodialisis Reversa) a la obtención de energía renovable marina mediante gradiente salino. Fase I: Viabilidad técnico económica (RM16-XX-046)

Finantial Support: SODERCAN – FEDER

Participants: Universidad de Cantabria, MARE S.A., Apria Systems

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 30/12/2016 – 29/03/2019

Title: Estudio para la recuperación de metales no férricos en la fracción fina de la escoria de incineración (TF16-XX-002)

Finantial support: Plan Regional SODERCAN - FEDER

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 07/11/2016 – 06/11/2017

Title: Desarrollo y caracterización de filmes multicapas extruidos en base polimérica aplicando tratamiento de entrecruzamiento mediante radiación ionizante. Convenio con la empresa Grupo Armando Álvarez para el desarrollo de Doctorado Industrial.

Finantial Support: Universidad de Cantabria

Main Researcher: Prof. Ane Urtiaga Mendía

Dates: 01/02/2015 – 27/11/2018

Title: Valorización de cenizas volantes de incineración de RSUS mediante carbonatación. Proyecto para el desarrollo de Doctorado Industrial.

Financial support: Universidad de Cantabria
Main Researcher: Prof. Ángel Irabien Gulías
Dates: 01/08/2016 – 31/07/2019

P.A.R. PROJECTS

Title: Sostenibilidad de la producción en Cantabria

Financial Support: Universidad de Cantabria
Main Researcher: Prof. Ángel Irabien Gulías
Dates: 10/01/2012 – 09/01/2018

Title: Líneas de investigación del grupo Procesos Avanzados de Separación

Financial support: Universidad de Cantabria
Main Researcher: Prof. Inmaculada Ortiz Uribe
Dates: 17/07/2014 – 26/07/2018

Title: Líneas de investigación del grupo Tecnologías Ambientales y Bioprocesos

Financial Support: Universidad de Cantabria
Main Researcher: Prof. Ane Urriaga Mendía
Dates: 08/09/2014 – 07/09/2018

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 – 23/11/2018

Title: Separaciones con membranas selectivas

Financial Support: Universidad de Cantabria
Main Researcher: Dr. Daniel Gorri Cirella
Dates: 31/10/2017 – 30/10/2015

Title: Líneas de investigación del grupo de Procesos Avanzados de Separación (RSEPARACIÓN)

Financial support: Fundación Leonardo Torres Quevedo

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 16/10/2017 – 31/12/2018

Title: Resource Efficiency in the Process Industry

Financial Support: Fundación Leonardo Torres Quevedo

Main Researcher: Prof. Ane Urtiaga Mendía

Dates: 19/05/2017 – 18/05/2019

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

Financial support: BSH Electrodomésticos España S.L.

Main Researcher: Dr. Alfredo Ortiz Sainz de Aja

Dates: 04/02/2016 – 03/02/2018

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

Financial Support: TIR CANTABRIA

Main Researcher: Prof. Ángel Irabien Gulías

Dates: 07/11/2016 – 07/11/2017

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

Title: Valorización de una corriente residual de gases del proceso de producción de negro de carbono

Financial Support: Columbian Carbon Spain

Main Researcher: Prof. Ane Urtiaga Mendía

Dates: 10/02/2017 – 30/12/2018

Title: **Desarrollo de un sistema fotocatalítico avanzado para la eliminación de contaminantes emergentes (FOTOEMERG)**

Financial support: OXITAL S.L.

Main Researcher: Dr. María José Rivero Martínez

Dates: 02/02/2017 – 30/09/2018

Title: **Desarrollo de recubrimientos funcionalizados con nanopartículas de grafeno para laminados prelacados con elevada resistencia a la corrosión**

Financial Support: SANTANDER COATED SOLUTIONS

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 06/02/2017 – 15/12/2017

Title: **Proyecto de investigación industrial para el diseño de un proceso de recuperación de Níquel a partir de ácidos residuales industriales.**

Financial support: LUNAGUA S.L.

Main Researcher: Dr. Eugenio Bringas Elizalde

Dates: 02/02/2017 – 30/09/2018

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

Financial Support: Universidad de Cantabria

Main Researcher: Prof. Ángel Irabien Gullías

Dates: 27/02/2017 -

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

Financial support: Fundación Leonardo Torres Quevedo.

Main Researcher: Prof. Ángel Irabien Gullías

Dates: 2008 -

Title: **Desarrollo de actuaciones de análisis de ciclo de vida del cemento y concreto y en Perú**

Financial Support: Pontificia Universidad Católica del Perú

Main Researcher: Dr. Rubén Aldaco García

Dates: 11/05/2017 – 30/11/2017

Title: **Desarrollo de inventarios de ciclo de vida de rellenos sanitarios en el Perú**

Financial support: Pontificia Universidad Católica del Perú

Main Researcher: Dr. Rubén Aldaco García

Dates: 30/04/2017 - 15/07/2017

Title: **Desarrollo de recubrimientos funcionalizados con nanopartículas de grafeno para laminados prelacados con elevada resistencia a la corrosión**

Financial Support: SANTANDER COATED SOLUTIONS

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 06/02/2017 – 15/12/2017

Title: **Investigating electrocatalytic and catalytic approaches from in situ treatment of perfluoroalkyl contaminants in groundwater**

Financial support: APTIM FEDERAL SERVICES

Main Researcher: Prof. Ane Urtiaga Mendía

Dates: 25/08/2017 – 31/12/2017

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: 01/09/2016 – 31/08/2017

Title: **Evaluación de Proyectos**

Financial support: EQA Certificados I+D+i

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 27/07/2014 – 15/07/2017

Title: **Colaboración como experto en la certificación de proyectos I+D+i (Evaluación AENOR)**

Financial Support: AENOR

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 11/08/2014 – 31/12/2017

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

Financial support: DETNORSKE VERITAS BUSINESS ASSURANCE ESPAÑA S.L.

Main Researcher: Dr. Rubén Aldaco García

Dates: 30/04/2017 15/07/2017

Title: **Desarrollo de recubrimientos funcionalizados con nanopartículas de grafeno para laminados prelacados con elevada resistencia a la corrosión**

Financial Support: SANTANDER COATED SOLUTIONS

Main Researcher: Prof. Inmaculada Ortiz Uribe

Dates: 15/06/2015 – 25/03/2018

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

Financial support: SGS INTERNATIONAL CERTIFICATION SERVICES IBERICA S.A.

Main Researcher: Prof. Ane Urtiaga Mendía

Dates: 24/02/2016 – 15/02/2018

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

Financial Support: Agencia Gallega de Innovación

Main Researcher: Prof. Ane Urtiaga Mendía

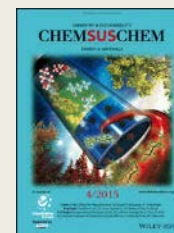
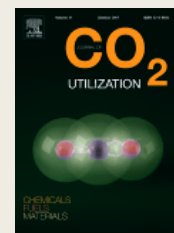
Dates: 03/11/2016 – 02/02/2017

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.



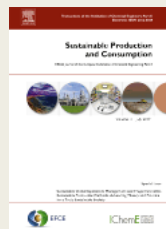
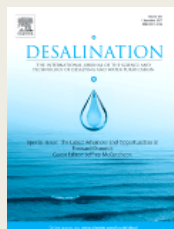
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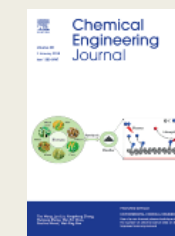
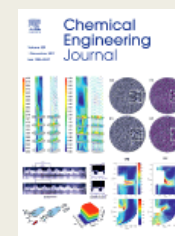
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- I. García-Herrero, J. Laso, M. Margallo, A. Bala, C. Gazulla, P. Fullana-i-Palmer, I. Vázquez-Rowe, A. Irabien, R. Aldaco. Incorporating linear programming and life cycle thinking into environmental sustainability decision-making: a case study on anchovy canning industry. *Clean Technologies and Environmental Policy* 19(7), 1897-1912, 2017.
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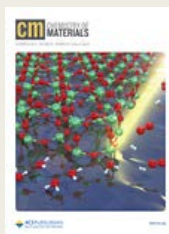
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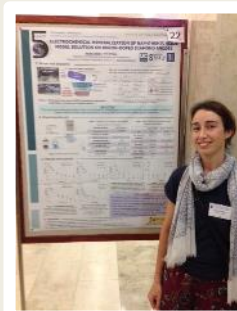
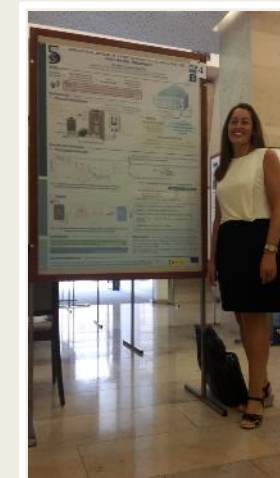
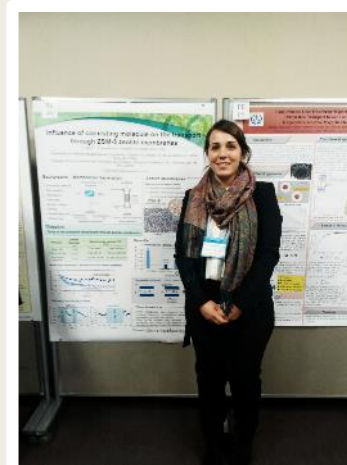
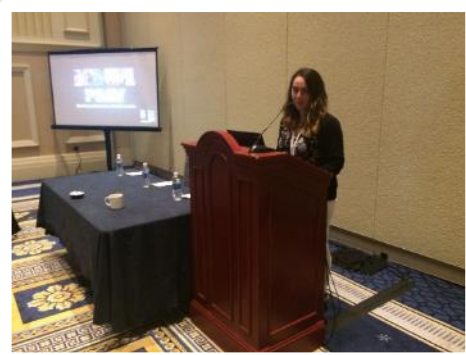
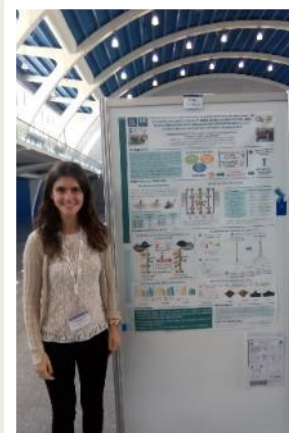
BOOK CHAPTER

A. Soriano, D. Gorri, A. Urriaga. Design of a hybrid nanofiltration/electrooxidation process for the removal of perfluorohexanoic acid (PFHxA). *Computer Aided Process Engineering* 40. 27th European Symposium on Computer Aided Process Engineering, 1129-1134.



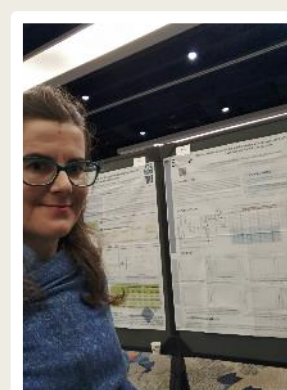
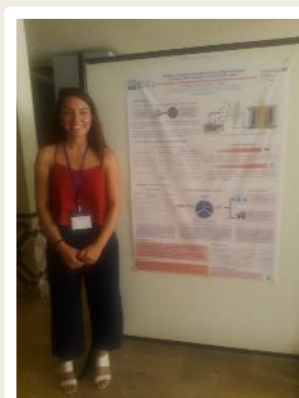
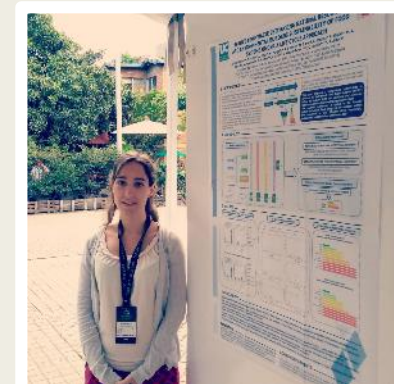
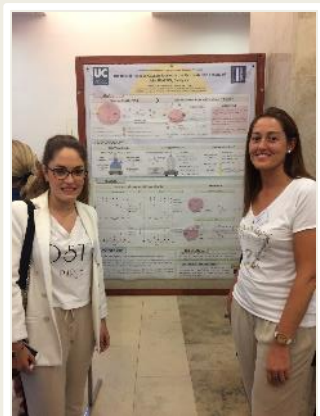
Some pictures during the celebration of congresses and conferences

CONGRESSES AND CONFERENCES



Some pictures during the celebration of congresses and conferences

CONGRESSES AND CONFERENCES



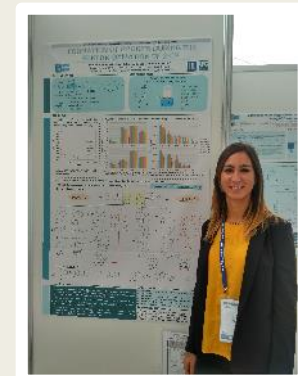
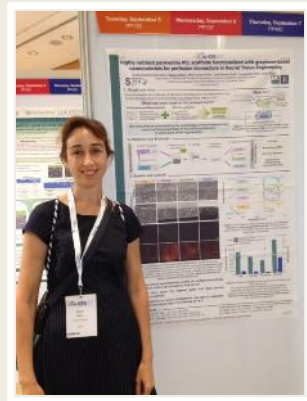
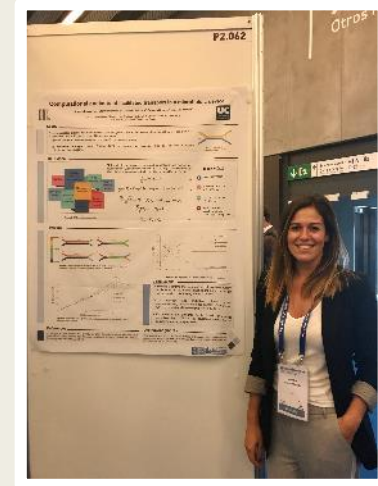
The main progress achieved during our research activity is internationally disseminated through scientific congresses. During 2017 our work has been presented in the following congresses:

- **3rd International Conference on Ionic Liquids in Separation and Purification Technology, ILSEPT2017.** January 8 - 11, 2017. Kuala Lumpur, Malaysia.
- **3rd International Conference on Desalination using Membrane Technology.** April 2-5, 2017. Las Palmas de Gran Canaria, Spain.
- **Iberoamerican Meeting on Ionic Liquids. IMIL 2017.** April 5-7, 2017. Santos, Brazil.
- **SETAC Europe 27th Annual Meeting.** May 7 – 11, 2017. Brussels, Belgium.
- **II Jornadas Aportando Valor al CO₂.** May 9-10, 2017. Tarragona, Spain.
- **XXXVIII Encuentro Nacional de la Academia Mexicana de Investigación y Docencia en Ingeniería Química.** May 9-12, 2017. Ixtapa Zihuatanejo, Mexico.
- **20th Annual Nanotechn 2017 Conference & Expo.** May 14-17, 2017. Washington DC, USA.
- **29th ESAT European Symposium on Applied Thermodynamics.** May 18-21, 2017. Bucarest, Rumania.
- **5th IWA Mexico Young Water Professionals Conference.** May 24-26, 2017. Morelia, Mexico.
- **13th International Conference on Chemical and Process Engineering ICHEAP 13.** May 28-31. Milano, Italy
- **11th European Symposium on Electrochemical Engineering.** June 4-8, Prague. Czech Republic.
- **XXXII Congreso Nacional de la Sociedad Mexicana de Electroquímica. 10th Meeting of the Mexican Section of the Electrochemical Society.** June 5-8, 2017. Guanajuato, Mexico.
- **17th FLOW-3D European Users Conference.** June 6-7, 2017, Barcelona, Spain.
- **VII International Conference on Coupled Problems in Science and Engineering.** June 12-14, 2017. Rhodes Island, Greece.
- **VII Simposio Iberoamericano en Ingeniería de Residuos.** June 12-14, 2017. Santander, Spain.
- **VIII Reunión de la Sociedad Española de Espectrometría de Masas - V Reunión Nacional de Dioxinas, Furanos y compuestos orgánicos persistentes relacionados.** June 12-16, 2017. Barcelona, Spain.

- **VI Symposium on Hydrogen, Fuel Cells and Advanced Batteries. June 19-23, 2017. Porto, Portugal.**
- **5th European Conference on Environmental Applications of Advanced Oxidation Processes.** June 24-29, 2017. Prague, Czech Republic.
- **XXXVI Reunión Bienal de la Real Sociedad Española de Química.** June 25-29, 2017. Sitges, Spain.
- **15th International Conference on Carbon Dioxide Utilization (ICCDU XV).** July 17-24, 2017. Shanghai, China.
- **ANM2017 9th International conference on Advanced Nanomaterials.** July 19-21, 2017. Aveiro, Portugal.
- **11th International Congress on Membrane Processes (ICOM 2017).** July 29 – August 4, 2017. San Francisco, USA.
- **European Aerosol Conference (EAC2017).** August 27th – September 1st, 2017. Zurich, Switzerland.
- **28th Annual Conference of the Society of Biomaterials (ESB).** September 4-8, 2017. Athens, Greece.
- **European Symposium on Computer-Aided Process Engineering. ESCAPE-27.** October 1-5, 2017. Barcelona, Spain.
- **10th World Congress of Chemical Engineering.** October 1-5, 2017. Barcelona, Spain.
- **Ibero-American Congress on Hydrogen and Fuel Cells - IBERCONAPPICE 2017.** October 17-20, 2017. Huesca, Spain.
- **IV Simposio esLCA.** October 27th, 2017. Santander, Spain.
- **21st International Solvent Extraction Conference.** November 5-11, 2017. Miyazaki, Japan.
- **3rd Iberoamerican Conference on Advanced Oxidation Technologies – III CIPOA.** November 14-17, 2017, Guatapé, Colombia.

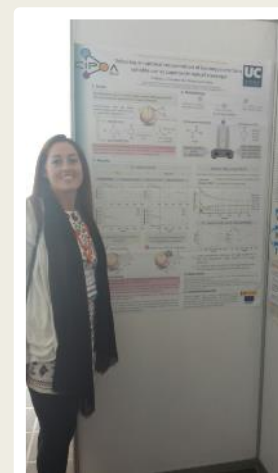
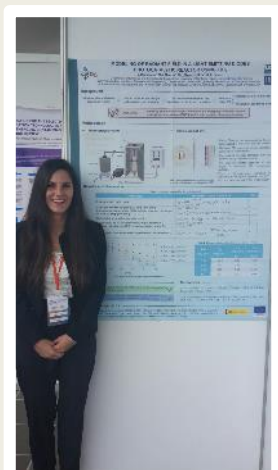
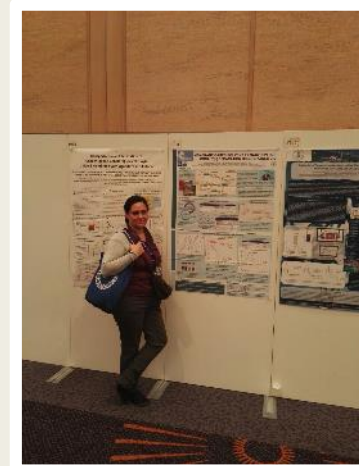
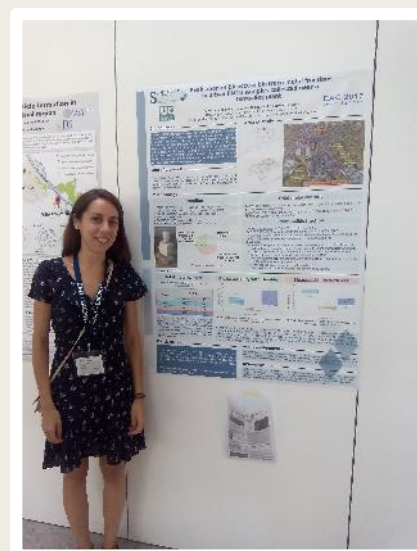
Some pictures during the celebration of the congresses and conferences

CONGRESSES AND CONFERENCES



Some pictures during the celebration of the congresses and conferences

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SOCIAL EVENTS



INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE

FEBRUARY 11th, 2017



CHEMICAL & BIOMOLECULAR ENGINEERING DEPARTMENT
UNIVERSITY OF CANTABRIA



SEPTEMBER 29th, 2017

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November 6-17, 2017

The Chemical and Biomolecular Engineering Department received in their facilities the visit of the Institute Maria Telo and the school Jardín de África during the celebration of the **Science Week**.

Secondary students had the opportunity to become experienced chemical engineers by developing different experiments. They removed copper from contaminated waters, synthesized membranes for medical applications and checked the operation mode of the Chem-e-car, among other topics.



Jardín de África's students



IES María Telo's students

Professors Olga Oliván and Jose Antonio Otero were retired in September 2017.

Their colleagues of the Chemical and Biomolecular Engineering Department wanted to acknowledge them for their dedication during these years and wished them a healthy and successful future!



December 20th, 2017

During the meeting of the Department Council, Prof. Inmaculada Ortiz, head of the Chemical and Biomolecular Engineering Department, summarized the main activities of the department members during 2017. Moreover, Prof. Inmaculada Ortiz and Prof. Ane Urriaga awarded several distinctions to selected members of the Department in recognition of their contribution to the following fields:

- PhD. Students: Carlos Javier Escudero
- Research Support: Sonia Gómez
- Academic Work: Manuel Álvarez and Antonio Domínguez
- Scientific Work: Angel Irabien



December 21st, 2017

Christmas Party of the Chemical & Biomolecular Engineering Department with the assistance of around 90 people that are part of the faculty, research, administration and services staff.

The cocktail took place at the Casino de Santander restaurant, where we had the opportunity to meet our Department's friends.

CHRISTMAS PARTY





Sustainable Engineering, our Common Future
Ingeniería Sostenible, nuestro Futuro Común



Departamento de
Ingenierías
Cuímica y
Biomolecular

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING



Sustainable Production in Cantabria
Department of Chemical and Biomolecular Engineering

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