



Código Proyecto: MCIU-O25/P19

Title: Neuronal Hyperactivity and Maladaptive Myelination in Early Alzheimer's Disease Circuit Dysfunction (HyperMyel-AD)

Main subject area: Biomedicine

Sub-subject area: Nervous System Disease

Principal investigators: Elena Alberdi Alfonso and M^a Victoria Sánchez Gómez

PhD programme in which the thesis will be undertaken: Neuroscience

Thesis supervisor: Elena Alberdi Alfonso and Adhara Gaminde Blasco

Brief description of the thesis-project:

Neuronal hyperactivity, myelin defects and impaired oligodendrocyte maturation occur early in Alzheimer's disease. In the healthy brain, neuronal activity regulates myelination, and microglia help control both neuronal excitability and myelin maintenance. How these processes interact in early AD is still unknown. We hypothesize that early neuronal hyperactivity in AD, through microglia, drives aberrant myelination that contributes to network instability and cognitive decline. To test this, we will use 3xTg-AD mice to study whether hyperexcitability in hippocampal CA1 alters microglia, oligodendrogenesis and myelin, and whether these changes drive early anxiety- and fear-related behaviors through hippocampal-prefrontal-amygdala circuits. Finally, we will test whether targeting hyperactivity-dependent myelination can prevent these alterations, as a potential therapeutic strategy. This project will clarify how early circuit dysfunction leads to white matter damage and may identify new therapeutic targets for the earliest stages of AD.

Requirements for candidates: Master's degree in Biology, Biochemistry, Biomedicine or related fields,

Other merits to be taken into account:

- Fluent spoken and written English.
- Previous experience in neuroscience-related techniques.
- Strong academic record.

Members of the assesment panel:

Members

President: Elena Alberdi Alfonso

Secretary: M^a Victoria Sánchez Gómez

Vocal: José Luis Zugaza Gurruchaga

Reserve

President: Maria Domercq García

Secretary: Nagore Puente Bustinza

Vocal: Fernando García Moreno



Código Proyecto: MCIU-025/P21

Title: Syngas production by joint valorization of plastic waste and CO₂

Main subject area: Energy and Transport

Sub-subject area: Energy

Principal investigator: Maider Amutio Izagirre and Maite Artetxe Uria

PhD programme in which the thesis will be undertaken: Chemical Engineering

Thesis supervisor: Maider Amutio Izagirre and Maite Artetxe Uria

Brief description of the thesis-project:

The aim of the proposal is to obtain synthesis gas by recovering waste plastics and CO₂, two environmental problems that require immediate attention. Specifically, the pyrolysis of plastics and the in-line dry-steam reforming of the volatiles formed is proposed. The CPWV research group, in which the applicants are included, has previously developed this two-stage system for the pyrolysis and steam reforming process, consisting of: i) a conical spouted bed reactor for the pyrolysis stage; ii) a fluidized bed reactor for the reforming stage. Although this previous strategy has demonstrated the effectiveness of the two-stage system, it is important to note that high hydrogen production in the steam reforming process is associated with high CO₂ emissions. Consequently, this new proposal suggests the alternative of directing the process towards obtaining synthesis gas, not only minimizing carbon dioxide emissions, but also converting the process into a possible new route for CO₂ recovery.

The innovative nature of the proposal, which comprises a continuous process for the joint recovery of plastics and CO₂, aimed at obtaining a commercially viable synthesis gas (H₂/CO ratio between 1 and 2), poses major challenges in terms of knowledge before a possible final scaling-up of the process. Firstly, it is essential to optimize the operating conditions, using simulation techniques and extensive experimental study, in order to establish the optimum conditions for obtaining a suitable synthesis gas and maximum CO₂ conversion. Secondly, the effect of the steam/CO₂ ratio of the reforming agent on the kinetics of steam and dry reforming reactions will be studied. In this regard, the development of a kinetic model that defines the overall reforming process is proposed. Thirdly, the design of the reforming catalyst will be addressed, evaluating both its initial activity and the deactivation and regeneration processes. These aspects are fundamental to ensuring the optimal efficiency of the catalyst. Once the catalyst design (metal, support and promoter) has been optimized, the effect of operating conditions

on catalyst deactivation will be studied. To this end, a comprehensive characterization of the deactivated catalysts will be carried out, with the aim of advancing knowledge of the deactivation mechanism. Finally, the potential of the process for the recovery of different plastics and real plastic waste, such as marine plastic waste, will be explored in depth.

Requirements for candidates:

Bachelor's degree in Chemical Engineering or a related subject.

Master's degree in Chemical Engineering or a related subject (to be completed by 31 March 2027).

Other merits to be taken into account:

Research experience in waste recovery, pyrolysis, reforming and/or catalytic processes.

Knowledge of English.

Members of the assesment panel:

Members	Reserve
President: Maider Amutio Izagirre	President: Ana Gayubo Cazorla
Secretary: Maite Artetxe Uria	Secretary: Gartzzen Lopez Zabalbeitia
Vocal: Aitor Arregi Joaristi	Vocal: Aingeru Remiro Eguskiza



Código Proyecto: MCIU-O25/P22

Title: Advanced Topology Optimization for Additive Manufacturing with Continuous Fiber (AVANTOP)

Main subject area: Industrial production, civil engineering and engineering for society

Sub-subject area: Mechanical, naval and aeronautical engineering

Principal investigator: Rubén Ansola Loyola

PhD programme in which the thesis will be undertaken: Mechanical Engineering

Thesis supervisor: Rubén Ansola Loyola

Brief description of the thesis-project: The research project proposed here aims to develop a topology optimization procedure for its application to the optimal design of continuous fiber-reinforced composites manufactured via 3D printing. This approach incorporates non-conventional orientations while accounting for the anisotropic nature of the material and the specific constraints of the manufacturing process within the problem formulation. The resolution of the topology optimization problem will initially be tackled using classical algorithms, but its implementation through quantum algorithms will also be analyzed, alongside the viability and potential advantages of their application, leveraging recent advances in this technology and the opportunities offered by the emerging Basque quantum ecosystem. The PhD candidate will have access to the necessary infrastructure to complete their doctoral thesis, as well as direct access to multiple quantum computing platforms and the possibility of executing the developed programs on real hardware, such as the IBM Quantum System Two in San Sebastián. The Mechanical Analysis and Design Group at EHU has a consolidated track record in this field, with ongoing national and international projects and an extensive scientific output published in prestigious journals.

Requirements for candidates:

Must hold one of the following master's degrees:

- Master's Degree in Industrial Engineering
- Master's Degree in Mechanical Engineering
- Master's Degree in Aerospace Engineering

Other merits to be taken into account:

- Academic Record
- Programming skills (C, Python, etc.)

- Experience using MATLAB
- Knowledge of Finite Element Analysis (FEA / FEM)
- Knowledge of composite materials and additive manufacturing
- Language proficiency (English, French)
- Professional experience in engineering-related tasks
- Knowledge of quantum computing
- Ability to work independently and as part of a collaborative research team

Members of the assesment panel:

Titulares	Suplentes
Presidente: Rubén Ansola Loyola	Presidente: Javier Canales Abaitua
Secretario: Alain Garaigordóbil Jiménez	Secretaria: Estrella Veguería López
Vocal: Asun Cantera Silanes	Vocal: José Luis Alcaraz Tafalla



Código Proyecto: MCIU-NO25/P13

Title: STAPLES From bread to porridge: development of cereal- based cooking practices during the Pre-Pottery Neolithic in the Levant (Proyecto de Generación de Conocimiento, PID2025-171629NB-I00).

Main subject area: Prehistory

Sub-subject area: Archaeobotany, Archaeology

Principal investigator: Amaia Arranz Otaegui

PhD programme in which the thesis will be undertaken: Doctoral Programme in Environmental Change and Human Impact in the Quaternary Period

Thesis supervisor: Amaia Arranz Otaegui

Brief description of the thesis-project: STAPLES From bread to porridge: development of cereal- based cooking practices during the Pre-Pottery Neolithic in the Levant (Proyecto de Generación de Conocimiento, PID2025-171629NB-I00), develops and applies innovative interdisciplinary methodologies to investigate the origins of plant-based food traditions of early farming communities in the Levant (11,600-9,500 cal BP). By integrating archaeobotanical, microstructural, biomolecular and experimental approaches, the project reconstructs ancient cooking activities and food products from archaeological food remains, for studying the emergence of staple foods such as bread, porridge and other cereal-based preparations at the dawn of agriculture.

Requirements for candidates: Master's degree in History, Archaeology, Anthropology or a related field.

Other merits to be taken into account:

- Work experience
- Participation in research projects
- Contributions to scientific publications and/or conferences
- Field and laboratory work
- Training courses and further academic qualifications (Bachelor's, Master's)
- Stays abroad
- Languages
- Scholarships and grants
- Driving licence.

Members of the assesment panel:

Members	Reserve
President: AMAIA ARRANZ OTAEGUI	President: ANDONI TARRIÑO VINAGRE
Secretary: JOSU ARANBARRI ERKIAGA	Secretary: NAROA GARCÍA IBAIBARRAIGA
Vocal: ALVARO ARRIZABALAGA VALBUENA	Vocal: MARIA JOSÉ IRIARTE CHIAPUSSO



Código Proyecto: MCIU-NO25/P14

Title: Communities in Crisis. Social and Cultural Inequalities and Resistances in the Spanish Basque Country (1640-1840) (PID2025-171451NB-I00)

Main subject area: Studies of the Past: History and Archeology

Sub-subject area: History

Principal investigator: Andoni Artola Renedo

PhD programme in which the thesis will be undertaken: Europe and the Atlantic World. Power, Culture and Society

Thesis supervisor: Andoni Artola Renedo

Brief description of the thesis-project:

Thesis Title: *Rural Credit, Debt and Inequality in the Basque Country (1700–1808)*

The aim of this contract is to write a thesis on the concentration of wealth and the increase of inequality in the Basque Country from 1700 to 1808, based on sources from the Provincial Archive of Bizkaia (Bilbao) and the General Archive of Gipuzkoa (Tolosa)

The candidate must provide a detailed state of the art on inequality in Europe during Early Modern times, conduct an exhaustive analysis of archival sources, reconstruct the credit networks in the Basque Country during the 18th century, assess the loss of property in rural Basque areas during that same period, and identify the conflicts associated with rising inequality toward the end of the Ancien Régime.

Requirements for candidates:

Bachelor's degree in History; master's degree or other degree that grants admission to a doctoral program.

Other merits to be taken into account:

Criterion 1: The candidate's academic and/or scientific track record (up to 50 points):

1.a) Scientific and technical contributions (45 points)

*Academic record: 25 points.

*Scholarships, research contracts, participation in projects: 10 points.

*Publications/conference presentations: 10 points.

*Language proficiency: 5 points.

1.b) Mobility and internationalization (5 points)

Criterion 2: Suitability of the candidate for the research activities to be carried out (up to 50 points):

*Experience in archival research with modern-era documentation: 10 points.

- *Basic knowledge of current historiography in the Hispanic context: 10 points.
- *Ability to work in a team, demonstrated through participation in collaborative research: 10 points
- *Potential for internationalization and integration into international networks: 10 points.
- *Ability to produce high-quality, impactful publications: 10 points.

Members of the assesment panel:

Members	Reserve
President: Andoni Artola Renedo	President: José Ramón Díaz de Durana
Secretary: Fernando R. Bartolomé	Secretary: Iñaki Bazán
Vocal: Virginia López de Maturana	Vocal: Aintzane Erkizia Martikorena



Código Proyecto: MCIU-025/ P16

Title: Education Agency for Resilient Territory Handling (EARTH)

Main subject area: Education Sciences

Sub-subject area: Education Sciences

Principal investigator: Oihana Barrutia Sarasua, José Ramón Díez López

PhD programme in which the thesis will be undertaken: Doctoral Programme in Science Education / Doctorado en Investigación e Innovación en la Enseñanza y Aprendizaje de las Ciencias (DIDACIENCIAS)

Thesis supervisor: Oihana Barrutia Sarasua, José Ramón Díez López

Brief description of the thesis-project: The doctoral thesis will be conducted in the field of Science Education, within the framework of the EARTH project. Its overall aim will be to investigate how teaching socio-ecological issues related to territorial resilience, particularly flood risk and urban heat islands, can foster the development of scientific models, resilience-oriented competences, and forms of socio-ecological agency among secondary school students.

The research will primarily adopt a Design-Based Research (DBR) approach and will include the construction and validation of reference models, the analysis of students' conceptions and reasoning, the design, implementation, and evaluation of teaching-learning sequences, and the qualitative and quantitative analysis of learning processes.

Requirements for candidates:

- University degree in Biology, Environmental Sciences, Geology, or a related field in the Experimental Sciences.
- Master's Degree in Secondary Education Teacher Training (to be completed by 31 March 2027), specializing in Biology and Geology, Natural Sciences, Experimental Sciences, or equivalent training providing access to the doctoral programme.
- B2 level of English, certified in accordance with the certification systems recognized by the UPV/EHU.

Other merits to be taken into account:

- Certified proficiency in Basque, relevant to the design and administration of research instruments and teaching-learning sequences, interaction with the educational community, and the analysis of students' work in schools in the Basque Autonomous Community.
- Certified additional training in Science Education, Environmental Education, Education for Sustainability, and/or related fields relevant to the project.
- Teaching or research experience with secondary school students.
- Experience in educational research, particularly in the design, implementation, and evaluation of teaching-learning sequences.

- Training or experience in qualitative and quantitative research methods.
- Knowledge and experience in the use of statistical and/or qualitative data analysis software (R, SPSS, NVivo, ATLAS.ti, or equivalent).
- Training or knowledge related to socio-ecological systems, climate change, natural hazards, territorial resilience, or sustainability.
- Previous research experience in the field of Science Education, including participation in research projects, research-oriented Bachelor's or Master's theses, conference presentations, publications, or other scientific and technical activities.

Members of the assesment panel:

Members	Reserve
President: José Ramón Díez López	President: Aritz Ruiz González
Secretary: Oihana Barrutia Sarasua	Secretary: Daniel Zuazagoitia Rey-Baltar
Vocal: Unai Ortega Lasuen	Vocal: Arantza Rico Martínez



Project Code: MCIU-025/P28

Title: Perovskite-based and Zeolite-type Catalysts for Electrochemical CO₂ Reduction (eCO₂R) to Methanol and C₂₊ HydroCarbons (PEZELCO₂-MHC)

Main subject area: Chemical Science and Technology

Sub-subject area: Chemical Engineering

Principal investigator: Unai de la Torre Larrañaga

PhD programme in which the thesis will be undertaken: Chemical Engineering

Thesis supervisor: Unai de la Torre Larrañaga / M. Pilar González Marcos

Brief description of the thesis-project:

PEZELCO₂-MHC project aims to develop next-generation catalysts for electrochemical CO₂ reduction (eCO₂R) to methanol and C₂₊ hydrocarbons. It leverages perovskite oxides and zeolite-type materials, integrating electronic tunability, defect engineering, and microporous confinement to enhance activity, selectivity, and durability under industrially relevant flow-cell conditions.

Electrified, low-temperature CO₂ conversion can valorize CO₂ into fuels and chemicals using renewable electricity, but challenges remain: high overpotentials, competing hydrogen evolution, low C₂₊ selectivity, and catalyst instability. Perovskites (ABO₃, A₂BO₄) allow compositional flexibility and oxygen-vacancy engineering, facilitating CO₂ adsorption and intermediate stabilization, while zeolites provide microporous confinement to direct selectivity toward methanol, ethylene, and ethanol. Hybrid perovskite–zeolite architectures combine these features, offering bifunctional interfaces that enhance catalytic performance in GDE flow cells. The general objective is to design efficient, selective, and durable catalysts for industrially relevant eCO₂R.

Requirements for candidates:

Bachelor's degree in Chemical Engineering, Chemistry or a related field. Master's degree in Chemical Engineering, Chemistry, Electrochemistry or a related field, completed by 31/03/2027.

Other merits to be taken into account:

Knowledge of spectroscopic techniques, DFT (Density Functional Theory), and electrochemistry, as well as English language proficiency (minimum B2 level), will be taken into consideration.

Members of the assessment panel:

Members	Reserve
President: María Pilar González Marcos	President: José Antonio González Marcos
Secretary: Unai de la Torre Larrañaga	Secretary: Beñat Pereda Ayo
Panel member: Asier Aranzabal Maiztegi	Panel member : Zouhair Boukha



Código Proyecto: MCIU-025/P31

Title: Sustainable 3D-Printable Non-Isocyanate Polyurethane Composite Adhesives with Dynamic Covalent Bonds (Dy-NIPU-3D)

Main subject area: Materials Science and Technologies

Sub-subject area: Structural Materials

Principal investigator: M^a Aranzazu Eceiza Mendiguren and Nagore Gabilondo López

PhD programme in which the thesis will be undertaken: Renewable Materials

Engineering

Thesis supervisor: M^a Aranzazu Eceiza Mendiguren and Nagore Gabilondo López

Brief description of the thesis-project: To develop novel bio-based, 3D-printable, multi-stimuli-responsive non-isocyanate polyurethane (NIPU) adhesives that integrate complementary reversible chemistries with photothermally active nanoparticles. The research will elucidate how network architecture, hydrogen-bond density, chain mobility, and nanoparticle-induced local heating govern adhesion, failure, and controlled debonding. Establishing these structure–rheology–performance relationships will provide fundamental insights into reversible NIPU networks and enable next-generation circular adhesive technologies that combine robust bonding during service with localized, on-demand debonding.

Requirements for candidates: Bachelor's Degree in Chemistry, Chemical Engineering, Polymer Engineering, or Environmental Science and Technology.

Other merits to be taken into account:

Master's degree in a related field.

Working Knowledge of English (spoken, written, reading)

Knowledge of Spanish.

Members of the assesment panel:

Members	Reserve
President: Nagore Gabilondo	President: Aitor Arbelaiz
Secretary: M ^a Aranzazu Eceiza	Secretary: Cristina PEña
Vocal: Ainara Saralegi	Vocal: Aloña Retegui



Código Proyecto: MCIU-NO25/P28

Title: Culture of Violence, Conflict, and Social Change in Late Medieval Castile (13th–15th Centuries)

Main subject area: Studies of the Past: History and Archeology

Sub-subject area: History

Principal investigator: Jon Andoni Fernández de Larrea Rojas

PhD programme in which the thesis will be undertaken: Europe and the Atlantic World. Power, Culture and Society

Thesis supervisor: Jon Andoni Fernández de Larrea Rojas and Ekaitz Etxeberria Gallastegi

Brief description of the thesis-project:

Thesis Title: "Lucha de Bandos" and Private Warfare in Northwestern Navarre and the Continental Basque Territories (14th–15th Centuries)

The objective of this research is to conduct a systematic analysis of factional conflicts and private warfare taking place in northwestern Navarre, Labourd, Basse Navarre, and Soule.

The candidate must provide a detailed state-of-the-art review regarding both factional conflict in the Basque region and private warfare in Western Europe, while analyzing narrative sources as well as private and unpublished documentary sources. They will compile a database to link events and participating families, establish a chronology, and discern the ties that either united or pitted these families against one another. The study will also incorporate the relationships between the key figures and both the peasantry and urban areas.

Requirements for candidates: Bachelor's degree in History; master's degree or other degree that grants admission to a doctoral program (concluded by 31/03/2027).

Other merits to be taken into account:

Criterion 1: The candidate's academic and/or scientific track record (up to 50 points):

1.a) Scientific and technical contributions (45 points)

*Academic record: 25 points.

*Scholarships, research contracts, participation in projects: 10 points.

*Publications/conference presentations: 10 points.

*Language proficiency: 5 points.

1.b) Mobility and internationalization (5 points)

Criterion 2: Suitability of the candidate for the research activities to be carried out (up to 50 points):

*Experience in archival research with modern-era documentation: 10 points.

*Basic knowledge of current historiography in the Hispanic context: 10 points.

*Ability to work in a team, demonstrated through participation in collaborative research: 10 points

*Potential for internationalization and integration into international networks: 10 points.

*Ability to produce high-quality, impactful publications: 10 points.

Members of the assesment panel:

Members	Reserve
President: Jon Andoni Fernández de Larrea	President: Iñaki Bazán Díaz
Secretary: José Ramón Díaz de Durana Ortiz	Secretary: Francisco Javier Goicolea Julián
Vocal: María Consuelo Villacorta	Vocal: Emiliana Ramos Remedios



Código Proyecto: MCIU-NO25/P31

Title: Controlled Carbonate formation in Cement (C^3)

Main subject area: Materials Science and Technology

Sub-subject area: Structural materials

Principal investigator: Juan José Gaitero Redondo and Hegoi Manzano Moro

PhD programme in which the thesis will be undertaken: Physics

Thesis supervisor: Hegoi Manzano Moro and Juan José Gaitero Redondo

Brief description of the thesis-project: Project C^3 (Controlled Formation of Carbonates in Cement) tackles the decarbonization of cement, which accounts for $\sim 8\%$ of global CO_2 emissions. Since a large share of these emissions is intrinsic to the clinkerization process, capturing and utilizing CO_2 through carbonation curing emerges as a key route toward net-zero. In these carbonated cements, CO_2 reacts at early stages with clinker phases and hydroxides, forming $CaCO_3$ (calcite, vaterite, or aragonite) and aluminosilicate gels; the polymorphism, size, and morphology of the carbonate determine the microstructure, mechanical strength, and the amount of CO_2 sequestered. However, under the complex alkaline and multi-ionic conditions of cement pores, the nucleation mechanisms and the influence of foreign ions (Mg, Fe, Al, Si species, etc.) are not well understood, and current thermodynamic databases do not include non-classical species such as prenucleation clusters (PNCs), amorphous calcium carbonates (ACCs), or non-stoichiometric ones.

The central hypothesis of C^3 is that, if one can understand and manipulate at the atomic scale how minor ions affect the kinetics and polymorphism of $CaCO_3$ formation, it will be possible to simultaneously optimize CO_2 uptake and the mechanical performance of these calcium-carbonate cements (CCCs). Therefore, the overall objective is to generate fundamental knowledge on carbonate formation in CCCs (temperature, pH, and impurities) through atomistic simulation techniques.

Requirements for candidates:

- Degree in Physics, Chemistry, Materials' Science/Engineering and related disciplines.
- Applicants holding a bachelor's degree comprising fewer than 300 ECTS credits will also be required to hold a master's degree in Materials Science or a related discipline. Applications will be accepted from students who expect to complete their master's degree by 31 March 2027.

Other merits to be taken into account:

- Demonstrable research experience, evidenced by scientific publications, participation in conferences, letters of recommendation, etc.
- Programming experience, preferably in Python.
- Experience in atomistic simulation of materials.
- Knowledge of at least one of the official languages of the Basque Autonomous Community and English.

Members of the assessment panel:

Members	Reserve
President: Hegoi Manzano Moro	President: Ibón Alonso Villanueva
Secretary: Juan José Gaitero Redondo	Secretary: Jesús Martínez Perdiguero
Vocal: Irene Urcelay Olabarria	Vocal: María Isabel Ruiz Larrea



Código Proyecto: MCIU-NO25/P33

Title: TOX-INN. Things We Do to Inhabit (DE)Composed Natures. A Multisited Research

Main subject area: Social Sciences

Sub-subject area: Sociology and social anthropology

Principal investigator: Gabriel Gatti / María Martínez (UNED)

PhD programme in which the thesis will be undertaken: Models and Areas of Research in the Social Sciences

Thesis supervisor: Gabriel Gatti and/or a member of the research team or the project team

Brief description of the thesis-project:

TOX-INN explores the habitability of the toxic. Building on three previous projects from the AEI's Knowledge Generation Program—which led to the formulation of the hypothesis of “social disappearance” and “social dis-” —a persistent and structural mechanism for expelling forms of existence beyond the thinkable, the sayable, the sensible, and the narrable—the project conceives of the toxic as the intersection between discounted life and decomposed nature. It investigates the actions taken, at various scales, to make these situations livable: what arts of living unfold within decomposed nature? To this end, it develops a multi-sited field strategy in Europe and Latin America.

Requirements for candidates:

- Bachelor's degree in Social Sciences, preferably in Sociology or Anthropology.
- Have completed, or be scheduled to complete no later than March 2027, a master's degree in one of those disciplines.
- Not hold a doctoral degree from any Spanish or foreign university, and meet the requirements of Article 21(a) of Law 14/2011, dated June 1, at the time the contract is formalized.

Other merits to be taken into account:

- Scientific and technical contributions, with particular emphasis on those directly related to the project's objectives: publications, organization of academic activities, and presentations at academic conferences and seminars.
- Knowledge of the research areas in which the project is planned to take place: Uruguay, Mexico, and Spain.

- Research networks that have supported or continue to support the candidate's work, and the candidate's ability to mobilize them.
- Initiatives that the candidate can demonstrate having developed in the past and that the research team considers that add value to the academic and human development of the research project.

Members of the assesment panel:

Members	Reserve
President: Gabriel Gatti	President: Amaia Alvare Uria
Secretary: Saioa del Olmo	Secretary: Jesús Casquete
Vocal: Elixabete Imaz	Vocal: Idoia Marcellán



Código Proyecto: MCIU-O25/P58

Title: Next-Generation Cell-Free MSC Therapy for IBD: Modular Secretomes, Dual-Axis Targeting and Multi-Route Delivery (DualSec-IBD)

Main subject area: Biomedicine

Sub-subject area: Diagnostic, prognostic and therapeutic tools

Principal investigator: Rosa María Hernández Martín and Edorta Santos Vizcaíno

PhD programme in which the thesis will be undertaken: Doctoral Programme in Research and Evaluation of Drugs. Application of Pharmaceutical Technologies to the Development of Advanced Therapies

Thesis supervisor: Rosa María Hernández Martín and Edorta Santos Vizcaíno

Brief description of the thesis-project:

Inflammatory bowel disease (IBD) remains a major unmet medical need, as current treatments primarily focus on controlling inflammation but have limited capacity to promote effective intestinal mucosal repair. The secretome of mesenchymal stromal cells (MSCs) represents a promising cell-free therapeutic alternative with both immunomodulatory and regenerative properties.

This project aims to develop a new generation of MSC secretome-based therapies capable of simultaneously targeting immune dysregulation and epithelial damage. To achieve this, immunomodulatory and regenerative secretomes with optimized biological profiles will be generated and characterized, while their modular combination will also be explored to enhance therapeutic activity.

In parallel, different formulation and delivery strategies will be developed, including oral colon-targeted delivery systems and parenteral formulations, whose efficacy will be evaluated in experimental models of IBD. Overall, the project seeks to advance reproducible and versatile cell-free therapies capable of jointly addressing inflammation and intestinal mucosal regeneration.

Requirements for candidates:

- Bachelor's Degree in Pharmacy (300 ECTS credits, MECES Level 3 or equivalent).
- Certification for Functions B and C in animal experimentation.

Other merits to be taken into account:

- Training in Good Laboratory Practice (GLP), with particular consideration given to training of 50 hours or more.
- Demonstrated training and/or experience in the isolation, processing, and characterization of secretomes and extracellular vesicles.
- Demonstrated training and/or experience in advanced therapies, including specialized courses, participation in research projects, conference contributions, and scientific publications.
- Previous experience through internships, research placements, or collaboration with companies, research centres, or research groups.
- Participation in scientific outreach and science communication activities.

All merits claimed must be duly supported by the corresponding documentary evidence.

Members of the assesment panel:

Members	Reserve
President: Rosa María Hernández Martín	President: María Ángeles Solinis
Secretary: Edorta Santos Vizcaíno	Secretary: Laura Sáenz del Burgo
Vocal: José Luis Pedraz Muñoz	Vocal: Gustavo Puras Ochoa



Código Proyecto: MCIU-025/P42

Title: Online pornography consumption among adolescents and young people, online sexual victimization and cyber dating violence. Progress towards prevention (CYBERPORVIOL)

Main subject area: Social sciences

Sub-subject area: Feminist, women's and gender studies

Principal investigator: Joana Jaureguizar and María Dosil

PhD programme in which the thesis will be undertaken: Psychodidactics: Educational Psychology and Subject-Specific Teaching Methods

Thesis supervisor: Joana Jaureguizar and María Dosil

Brief description of the thesis-project:

Nowadays, the widespread use of social media and the internet has significantly transformed the dynamics of social interactions, particularly amongst teenagers. However, this widespread use of the internet and social media has not been accompanied by educational initiatives enabling younger people to make appropriate use of the tools now available to them; as a result, they have been unable to recognise the risks involved, let alone learn how to deal with them properly. This project addresses three forms of violence linked to the digital environment amongst adolescents and young people: cyberviolence in intimate relationships, online sexual violence and the consumption of online pornography. Its aim is to gain a better understanding of these phenomena, to identify how they vary according to gender, age and sociocultural context, and to analyse which psychological, socio-emotional and gender-related factors may help to prevent and reduce them. To this end, it combines a correlational study—which describes and relates these variables—with an applied study, which tests the explanatory models obtained. To this end, the 'CDASTOP3.0' prevention programme will be implemented in schools with adolescent pupils, and its effectiveness will be assessed. The mixed-methods design of the study will enable both quantitative and qualitative data to be collected. The project aims to contribute to the analysis of new social realities and changes in communication, social relationships and behaviour associated with digitalisation amongst adolescents, with the ultimate aim of providing insights for socio-educational intervention from a gender perspective.

Requirements for candidates:

Master’s degree in the field of education or psychology

Other merits to be taken into account:

B2 English, B2 Basque

Members of the assesment panel:

Members	Reserve
President: JOANA JAUREGUIZAR	President: JOANA MIGUELENA
Secretary: ION YARRITU	Secretary: IGONE AROSTEGUI
Vocal: MARÍA DOSIL	Vocal: NAIARA OZAMIZ



Código Proyecto: MCIU-025/P47

Title: Groups, Topology and Applications

Main subject area: Mathematics

Sub-subject area: Mathematics

Principal investigator: Ilya Kazachkov

PhD programme in which the thesis will be undertaken: Mathematics

Thesis supervisor: Ilya Kazachkov, Montserrat Casals-Ruiz

Brief description of the thesis-project: Geometric group is the study of groups via their intrinsic geometry. The techniques and results are closely related to the topology of groups; they often find profound applications to algebraic and low-dimensional topology as well as to model theory. The project will focus on studying structural properties of topologically relevant groups via geometric, cohomological, and profinite methods.

Requirements for candidates: Master's degree, BSc or MSc in Mathematics

Other merits to be taken into account:

Members of the assessment panel:

Members

Reserve

President: Ilya Kazachkov

President: Jon Gonzalez Sanchez

Secretary: Montserrat Casals Ruiz

Secretary: Leire Legarreta Solaguren

Vocal: Gustavo Fernandez Alcober

Vocal: Oihana Garayalde Ocaña



Project Code: MCIU-025/P80

Title: Continuous and Intensified Hydrodeoxygenation of Lignin-Derived Phenolics to Aromatics and Cycloalkanes for Sustainable Aviation Fuels Using Nickel-Based Foam Catalysts (NiF4SAF)

Main subject area: Chemical Sciences and Technologies

Sub-subject area: Chemical Engineering

Principal investigator: Rubén López Fonseca / Jose Luis Ayastuy Arizti

PhD programme in which the thesis will be undertaken: Chemical Engineering

Thesis supervisor: Rubén López Fonseca / Jose Luis Ayastuy Arizti

Brief description of the thesis-project:

The NiF4SAF project aims to develop new catalytic technologies for the conversion of lignin-derived compounds, one of the main renewable sources of aromatic carbon, into hydrocarbons of interest for the production of sustainable aviation fuels (SAF). The research will focus on the selective hydrodeoxygenation of phenolic compounds to obtain controlled mixtures of aromatics and cycloalkanes, seeking more sustainable alternatives to fossil-based aviation fuels. The PhD thesis will combine the design and preparation of advanced nickel-based catalysts, their characterization using different physicochemical techniques, and their evaluation in catalytic reactors. One of the main innovations will be the development of structured catalysts supported on open-cell ceramic foams and their application in continuous and intensified processes, studying how catalyst composition, foam structure, and operating conditions determine the activity, selectivity, and stability of the process.

The predoctoral researcher will receive multidisciplinary training in heterogeneous catalysis, materials science, advanced characterization techniques, product analysis, reactor engineering, and process intensification. They will work with both batch reactors and continuous-flow systems and will progressively participate in the analysis and interpretation of results, preparation of scientific publications, and attendance at international conferences. The training will be complemented by a research stay of at least three months at an international partner

institution, with opportunities for interaction with European research groups and industrial stakeholders in the field of sustainable fuels.

Overall, the thesis offers the opportunity to work on a project at the intersection of catalysis, biomass valorisation, sustainable energy, and aviation decarbonisation, while acquiring skills applicable to both academic research and industrial R&D.

Requirements for candidates: Master's degree in Chemical Engineering or related fields, (completed by 31/03/2027)

Other merits to be taken into account: B1 level of English, Research experience

Members of the assesment panel:

Members	Reserve
President: Rubén López Fonseca	President: María Pilar González Marcos
Secretary: Beatriz de Rivas Martín	Secretary: Asier Aranzabal Maiztegi
Vocal: Jose Luis Ayastuy Arizti	Vocal: Unai Iriarte Velasco

+



Código Proyecto: MCIU-NO25/P54

Title: Foundations for an Atlas of Medieval Basque: Lemmatisation of Onomastics and Lexicological Analysis (FAMBOLEX)

Main subject area: Culture: philology, literature and art

Sub-subject area: Literature, philology, ancient languages and cultures, and cultural studies

Principal investigator: Julen Manterola Agirre (PI1), Joseba Andoni Lakarra Andrinua (PI2)

PhD programme in which the thesis will be undertaken: Basque Linguistics and Philology (EHU) / Euskal Hizkuntzalaritza eta Filologia (EHU)

Thesis supervisor: Julen Manterola Agirre

Brief description of the thesis-project:

The thesis-project will focus on compiling a comprehensive catalogue of documentary sources relating to the Continental Basque Country (i.e. the French Basque Country). The catalogue, together with the data generated through the project's database, will provide the basis for a doctoral dissertation that will analyse these materials from both linguistic and historical perspectives.

Requirements for candidates:

- Master's degree in History, Basque Studies, Philology, or Linguistics.
- Proficiency in Basque: C1 level.
- French and Spanish: B2 level, C1 preferred.
-

Other merits to be taken into account:

- Bachelor's degree in History or Basque Studies, or completed coursework toward a Bachelor's degree in either field.
- Familiarity with medieval documentary traditions.

Members of the assesment panel:

Members

President: Julen Manterola Agirre

Secretary: Oroitz Jauregi Nazabal

Vocal: Joseba Lakarra Andrinua

Reserve

President: Iñigo Ruiz Arzalluz

Secretary: David Lindemann

Vocal: Jose Miguel Martínez Areta



Código Proyecto: MCIU-NO25/P57

Title: Amines C-N Bond Activation via Addition to C(sp)-Type Acceptors: Deaminative Elaboration of Tertiary Amines and Beyond

Main subject area: Ciencias y tecnologías químicas

Sub-subject area: Química

Principal investigator: Mikel Oiarbide Garmendia (IP-1), Aitor Landa Alvarez (IP-2)

PhD programme in which the thesis will be undertaken: Doctoral Programme in Synthetic and Industrial Chemistry

Thesis supervisor: Aitor Landa Alvarez, Mikel Oiarbide Garmendia

Brief description of the thesis-project:

Amines constitute one of the largest classes of organic compounds and display enormous structural diversity, which is apparent in many natural products, drugs, and bioactive substances. Over the past few decades, tremendous efforts have been devoted to developing synthetic methods for forging new C–N bonds to access amines and related nitrogen-containing compounds from feedstock materials. In contrast, the reverse process—namely, C–N bond cleavage—has long been considered an important yet synthetically challenging transformation. The robustness of the C–N bond (i.e., the low nucleofugality of the anionic or radical R_2N group) has contributed to this situation. In living organisms, however, deaminative transformations involving enzyme-mediated C–N single bond cleavage are key to important metabolic routes. Inspired by Nature, deaminative transformations have gained renewed interest over the last few years, ultimately offering nonconventional disconnections in organic synthesis. Nevertheless, the majority of such deamination protocols involve primary and secondary amines. In contrast, the use of tertiary amines as sacrificial substrates in deamination processes remains less explored, with only a few methods reported so far, which are limited to a narrow scope of chemical transformations and coupling reagents.

To address this gap, this project aims to fully investigate the C–N bond weakening phenomenon that occurs upon treating tertiary amines with C(sp)-type acceptor reagents, followed by the subsequent interception of carbenium intermediates with nucleophilic reagents. By gaining fundamental knowledge of this emerging activation mechanism and its limitations, the ultimate goal is to develop new synthetic technologies capable of converting simple amine substrates into more elaborate compounds through diverse reaction pathways, thus establishing new paradigms in the deaminative and non-deaminative diversification of amines. Furthermore, the extension of this C–N bond activation tactic to related C–X organic moieties —particularly thiols and sulfides ($X = S$)— will be investigated to uncover new desulfenylative transformations.

Requirements for candidates:

BSc degree in Chemistry.

Completed (or close to complete)^(*) MSc degree in the field of Organic Synthetic Chemistry.

Good command of spoken and written English (B2 level credential or equivalent).

Other merits to be taken into account:

Hands-on experience in organic synthesis, homogeneous catalysis, asymmetric catalysis and/or biomedical chemistry.

A minimum average grade of 7 out of 10 from Bachelor-level studies.

Managing of separation/purification/identification laboratory techniques (NMR, HPLC, ...).

Any early contribution to scientific publication (articles, congresses,...)

Courses on topics directly or indirectly related to the thesis research areas
Basque language proficiency

(*) To be completed by March 31, 2027

Members of the assessment panel:

Members	Reserve
President: Mikel Oiarbide Garmendia	President: Enrique Gómez Bengoa
Secretary: Yurre Olaizola Álvarez	Secretary: Abel de Cózar Ruano
Vocal: Aitor Landa Álvarez	Vocal: Rosa López Álvarez



Código Proyecto: MCIU-025/P55

Title: Challenges of energy markets: energy transition, regulation and society (RETTERS)

Main subject area: Economics

Sub-subject area: Economics, Methods and Applications

Principal investigator: Cristina Pizarro and Maria Paz Espinosa

PhD programme in which the thesis will be undertaken: Doctoral Programme in Quantitative Finance and Economics

Thesis supervisor: Susan Orbe and Aitor Ciarreta

Brief description of the thesis-project:

Chapter	Energy-sector adaptation	Main research question
1. Spatial competition	Build a network-weighted concentration and integration measure. Weight neighboring zones by usable interconnection capacity, congestion, and transmission-related sensitivity, then compare it with a measure based only on zone boundaries.	How to adapt traditional competition measures to geospatial characteristics
2. Cost-aware competition	Extend the measure with a second block for cross-zonal trading frictions : persistent price spreads, congestion costs, losses, and limits on available transmission capacity. Compare the predictive value of boundary, network, and network-plus-friction measures.	When does a physical connection provide little effective competitive pressure?
3. Theory and counterfactuals	Model firms and flexible demand competing across a constrained transmission network . Simulate an interconnector expansion, a transmission outage, or an alternative bidding-zone configuration.	How do grid constraints change prices, congestion rents, and the gains from market integration?

Common empirical backbone. Use EPEX SPOT day-ahead prices and traded volumes for the zones and dates it covers; supplement them with ENTSO-E data on generation, load, cross-border capacity, scheduled exchanges, and physical flows. Scheduled exchanges and physical flows should remain distinct variables: network flows need not follow a single commercial border transaction. Capacity also needs careful treatment in

flow-based regions, where feasible exchanges depend on constraints across the wider network. EPEX's market-results pages state that commercial use of its data requires explicit approval, so data rights and historical access should be settled before fixing the sample. [EPEX SPOT](#)

NARDL with uncertainty would be the shared empirical thread, with a different outcome in each chapter. For zone i , decompose changes in an explanatory variable—such as neighboring prices or available import capacity—into cumulative positive and negative changes, (x^{+}_{it}) and (x^{-}_{it}) . Estimate their short-run effects and long-run relationships separately. This tests, for example, whether **lost import capacity raises prices more rapidly than restored capacity lowers them**. NARDL's positive/negative partial-sum construction and dynamic multipliers provide the basis for that comparison. [York Research Database](#)

We would make uncertainty explicit in three ways: include forecast errors for wind, solar, and load as market-uncertainty measures; report confidence bands for asymmetric dynamic multipliers; and carry uncertainty in capacity and network weights through sensitivity analyses. Estimate the core NARDL at an aggregation and sample length suitable for its long-run interpretation, while using higher-frequency observations for congestion and outage event studies. This also avoids interpreting every short-lived hourly price spike as a lasting equilibrium shift.

The three chapters would then progress from **measuring effective spatial competition**, to **testing why connections fail to transmit competition**, to **valuing changes to the network and bidding-zone design**. I would retain the banking notes' progression of index, validation, and structural counterfactual, while replacing branch locations and switching costs with the physical and commercial constraints that actually govern electricity trade.

Requirements for candidates:

- **Master in Economics: Empirical Applications and Policies (University of the Basque Country) finished by 31/03/2027.**

Other merits to be taken into account:

- Knowledge on Spatial Econometrics.
- Experience on analysis of competition.
- Skills in the use of EPEX dataset App.
- Experience with data from European wholesale electricity markets (EPEX SPOT, OMIE, ENTSO-E)
- Experience with time-series models for electricity prices (ARDL/ARX)
- Courses in Energy Markets.
- Advance level of programming in R and/or Python.
- Advanced English.

Members of the assessment panel:

Members

President: Cristina Pizarro Irizar

Secretary: Aitor Ciarreta Antuñano

Vocal: Maria Paz Espinosa

Reserve

President: Eva Ferreira

Secretary: Arantza Ugidos

Vocal: Susan Orbe



Código Proyecto: MCIU-NO25/P06

Title:

Organic Radicals Via Single Electron Transfer In Lewis Pairs: New Frontiers In Reactivity

Main subject area:

Chemistry

Sub-subject area:

Computational Chemistry

Principal investigator:

Daniel Reta

PhD programme in which the thesis will be undertaken:

Theoretical Chemistry and Computational Modelling (TCMM)

Thesis supervisor:

Daniel Reta

Brief description of the thesis-project:

Organic radicals –metal-free molecules with unpaired electrons– offer unique magnetic and reactivity properties, allowing access to, for instance, novel qubit implementations and valuable chemical transformations. However, due to the reactive nature of radicals and the non-trivial chemistry required for their preparation, strict structural and electronic limitations are imposed on the available systems, limiting their potential applications.

In our group, we approach this problem from a multidisciplinary perspective that integrates computational modelling, advanced spectroscopic techniques and organic chemistry. The overall aim of our research is to develop mechanisms that enable facile radical formation in simple reaction conditions, employing available and inexpensive reactants, and applicable to a broad range of molecules, to fully harness the extraordinary properties of organic radicals. To that end, we focus on **Lewis pairs**, *i.e.*, a pair of molecules where one unit wants to give away its electrons whereas the other one wants to take them, as a platform to implement **Single Electron Transfer (SET)** processes that lead to radical formation. This opens an immense range of opportunities, as one is left with two distinct radicals that can engage in multiple reactivity pathways – we aim at understanding how such pathways can be selectively controlled to access specific chemical transformations.

Building on ongoing studies at the group, you will contribute to our goal using a range of **computational chemistry methods**. In particular, you will be involved in the following tasks:

- Study the SET process in structurally diverse Lewis pairs.
- Describe the electronic structure of the resulting radicals. For this you will employ density functional theory and multireference-based methods.
- Characterise reaction profiles to gain mechanistic insights into the radicals' reactivity, both in standard organic chemistry settings as well as in protein environments.

- Data processing, following internal procedures to comply with FAIR practises, and report writing.
- Participate in group meetings and present periodically your research progress.
- Attend conferences and congresses to present the results obtained.

You will be joining a young, highly motivated, and dynamic group, where you will work in close contact with group members specialising in the synthesis and characterisation of the molecules under study. As a result, you will be in an environment that will allow you to validate your work, engage in a continuous and constructive exchange of ideas with your experimental colleagues, and maximise the impact of your research. Overall, you will be contributing towards advancing a highly ambitious and multidisciplinary project, with the potential to reveal new, radical-based reaction mechanisms and establish fundamentally novel design strategies in the field of organic magnetism.

Alongside computational work, you will be trained in critical data analysis, experimental design, and interpretation of mechanistic results, developing strong problem-solving and reasoning skills. You will also receive guidance in scientific writing, oral communication, and presentation skills, as well as project management, time management, and research planning. Opportunities for networking and interdisciplinary collaboration will further enhance career readiness. This integrated approach ensures that you will graduate with a broad skill set encompassing computational, analytical, mechanistic, and professional competencies, preparing you for diverse careers in academia, industry, or sustainable chemistry leadership.

More information can be found in the group's [website](#).

Requirements for candidates: We seek a highly motivated candidate with the following qualifications:

- MSc in Chemistry, Physics, or a closely related field. Applicants finishing their MSc before March 31st 2027 will also be considered.
- Good oral and written communication skills in English.

Other merits to be taken into account:

- Experience with wavefunction-based methods.
- Experience modelling open-shell systems.
- Experience with molecular dynamics calculations.

Members of the assesment panel:

Members	Reserve
President: Daniel Reta	President: Jose Mercero
Secretary: Elixabete Rezabal	Secretary: Jon Matxain
Vocal: Xabier Lopez Pestaña	Vocal: David de Sancho



Código Proyecto: MCIU-025/P54

Title: Process Optimization and Mirroring for Metal DED in Space Engineering (PROMISE)

Main subject area: Industrial production, civil engineering and engineering services for society

Sub-subject area: Mechanical, naval and aeronautical engineering

Principal investigator: Eneko Ukar / Jon Iñaki Arrizubieta

PhD programme in which the thesis will be undertaken: Mechanical Engineering, Project Engineering, Engineering of Materials and Sustainable Processes

Thesis supervisor: Eneko Ukar

Brief description of the thesis-project:

The PROMISE project aims to advance the application of Laser-Based Directed Energy Deposition (DED-LB/w) for the manufacturing and repair of high-performance metallic components used in space propulsion systems. The project will develop and optimize additive manufacturing processes for thermally resistant and refractory alloys, integrating experimental characterization, numerical simulation, digital twins, and real-time process monitoring. Particular emphasis will be placed on process traceability and digital certification through the acquisition and analysis of large volumes of manufacturing data. The research will address key challenges related to material-process interaction, component design, surface performance, and quality assurance, culminating in the fabrication and validation of a full-scale thrust nozzle demonstrator. PROMISE is expected to generate new scientific knowledge in advanced manufacturing technologies while contributing to the digitalization, sustainability, and competitiveness of the European aerospace sector.

Requirements for candidates:

A degree in Industrial Technology Engineering or Mechanical Engineering

Other merits to be taken into account:

Experience in laser processes

Master's degree in Mechanical Engineering, to be completed by 31 March 2027

Master's degree in Industrial Engineering, to be completed by 31 March 2027

Master's degree in Advanced Materials Engineering, to be completed by 31 March 2027

Members of the assesment panel:

Members	Reserve
President: Eneko Ukar	President: Luis Norberto López de Lacalle
Secretary: Jon Iñaki Arrizubieta	Secretary: Naiara Ortega
Vocal: Aitzol Lamikiz	Vocal: Soraya Plaza



Código Proyecto: MCIU-NO25/P35

Title: WORDS IN OUR THOUGHTS

Main subject area: MIND, LANGUAGE AND THOUGHT (MLP)

Sub-subject area: PHILOSOPHY

Principal investigator: AGUSTIN VICENTE & JOHN COLLINS

PhD programme in which the thesis will be undertaken: THEORETICAL AND EXPERIMENTAL LINGUISTICS or PHILOSOPHY, SCIENCE AND VALUES

Thesis supervisor: AGUSTIN VICENTE & JOHN COLLINS

Brief description of the thesis-project: *Words in Our Thoughts* (WIOT) investigates the relationship between language and thought, advancing the central hypothesis that words and concepts are not separate entities but are, in fact, the same thing. Rather than viewing concepts as pre-linguistic mental representations to which words are subsequently attached, WIOT argues that language is constitutive of distinctively human thought: concepts take form through the words of spoken or signed languages.

The project combines this theoretical proposal with two main areas of empirical research. First, it examines polysemy in typical language development, asking how children's acquisition of words with multiple meanings contributes to the development and expansion of their conceptual repertoire. Second, it studies language and concepts in atypical development, particularly autism, investigating whether differences in autistic individuals' use of words correspond to differences in conceptual organization.

By integrating philosophy, linguistics, developmental psychology, and cognitive neuroscience, WIOT aims both to provide a new account of the role of language in human cognition and to shed light on how linguistic and conceptual abilities develop across typical and atypical populations.

Requirements for candidates: MASTER'S DEGREE IN LINGUISTICS OR IN PHILOSOPHY (IN THE PHIL LANGUAGE OR PSYCHOLOGY AREAS) (31/03/2027).

Other merits to be taken into account: CV, DEMONSTRABLE KNOWLEDGE OF COGNITIVE SCIENCE OR EXPERIMENTAL METHODS, KNOWLEDGE OF SPANISH.

Members of the assessment panel:

Members

President: AGUSTIN VICENTE

Secretary: ARANTZAZU ELORDIETA

Vocal: JOHN COLLINS

Reserve

President: MARIA JOSE EZEIZABARRENA

Secretary: GORKA ELORDIETA

Vocal: MYRIAM URIBE-ETXEBARRIA



Código Proyecto: MCIU-NO25/P09

Title: Boron-Based Photocatalysts for Efficient Light-Induced Polymer Processes

Main subject area: Chemistry

Sub-subject area: Chemistry

Principal investigator: Fernando Vidal Peña

PhD programme in which the thesis will be undertaken: Doctoral Programme in Applied Chemistry and Polymeric Materials

Thesis supervisor: Fernando Vidal Peña

Brief description of the thesis-project: The PhD project explores a new approach to photocatalysis based on boron compounds whose properties can be controlled by light. The project aims to develop molecular systems in which electronic state and reactivity can be modulated through photochemical stimuli, enabling selective access to distinct modes of catalytic reactivity. The research combines molecular design and synthesis, structural and photophysical characterization, mechanistic studies, and photocatalysis. The PhD research will contribute to developing and understanding these new systems and demonstrating their potential in selective chemical transformations, including in polymerization and chemical recycling processes.

Requirements for candidates: Bachelors Degree in Chemistry, Chemical Engineering, Polymer Science, or similar. Masters Degree in Chemistry, Chemical Engineering, Polymer Science, or similar, finished by 31/03/2027.

Other merits to be taken into account: Experience in organic synthesis, use and characterization of photocatalysts, and photochemistry in homogeneous media.

Members of the assesment panel:

Members

President: Fernando Vidal Peña

Secretary: Nora Aramburu Ocariz

Vocal: Haritz Sardon Muguruza

Reserve

President: Daniel Reta Mañeru

Secretary: Irune Villaluenga Arranz

Vocal: Agustín Etxeberria Lizarraga