OFICINA DE PROYECTOS EUROPEOS
SECTI

MSCA Postdoctoral Fellowships 2026

EXPRESSION OF INTEREST - SUPERVISOR

Supervisor Profile:

Name and Surname: Almudena González González
Position: Senior researcher
Department/Unit/Centre: Electrical Energy Storage Department. Iberian Centre for Research in Energy Storage (CIIAE). FUNDECYT-PCTEX.

a) Describe your qualifications and experience. Provide information regarding your level of experience on the research topic proposed and your track record of work (e.g., papers, projects, main international collaborations, patent etc.), highlighting which scientific, technical and soft skills you will transfer to the candidate during the implementation of the research project.

I have extensive experience in the optimisation of biotechnological processes and their application to the treatment of by-products and the removal of organic pollutants.
I have been working on the production of biogas from agro-food by-products through biomethanisation for more than 15 years and have been involved in 6 regional and national research projects. The results obtained have been published in 16 articles in Q1 indexed journals and 18 book chapters.
I have been a researcher in Biohydrometallurgy in the Electrical Energy Storage Department at the Iberian Centre of Research in Energy Storage (CIIAE) since 2023. The projects I am involved in aim to develop biological treatment processes, such as bioleaching, bioprecipitation and bioelectrochemistry, to recover critical metals from end-of-life batteries. This generates new raw materials that can be reintroduced into the market. I participated in the BATERURGIA project, and the results obtained were published in 4 oral communications presented at international congresses and in a review paper in a Q1 indexed, open access journal.

The most relevant publications are listed below:
- C. Sánchez-Sánchez; A. González-González; F. Cuadros-Salcedo; F. Cuadros. 2020. Two-phase olive mill waste: A circular economy solution to an imminent problem in Southern Europe. Journal of Cleaner Production. 274, pp.1-10.

- A. González-González; P. Guerrero. 2021. New food strategies to generate sustainable beef. Valorization of agri-food wastes and by-products. Recent trends, innovations and sustainability challenges. Elsevier. pp.443-455.

- A. González-González; F. Cuadros; F. Cuadros-Salcedo. 2017. Analysing the environmental, energy and economic feasibility of biomethanation of agrifood waste: A case of study from Spain. Sustainability challenges in the agrofood sector. Wiley & Sons Ltd. pp.532-550.

- A. González-González; Juan M. Pérez. 2025. Bioleaching and bioelectrochemistry, eco-efficient technologies for the recycling of electric vehicle lithium-ion batteries. A review. Journal of Power Sources Advances. 36, 100192.

- A. González-González; Juan M. Pérez. Bioleaching of spent NMC lithium-ion batteries using adapted pure cultures of acidophilic bacteria. Batteries Event. 2025. France. Participatory – oral communication.

- A. González-González; Juan M. Pérez. Biohydrometallurgical recycling of lithium-ion batteries. 2nd International Conference on Advanced Materials & Energy Storage. Universidad Carlos III. 2025. Spain. Participatory - invited/keynote talk. Conference.

- Juan M. Pérez; A. González-González. Recovery of critical metals from Lithium-ion batteries through Biohydrometallurgy. First experimental results. Batteries Event. 2024. France. Participatory - oral communication.

- A. González-González; Juan M. Pérez. Biohydrometallurgy, an eco-efficient alternative for LIB recycling. Batteries Event. 2023. France. Participatory – oral communication.

b) Show your level of experience in supervising/training students and researchers, especially at advanced levels (i.e., PhD and postdoctoral researchers).

I also have experience in supervising master's theses. In 2019 and 2021, I supervised two research projects focused on the energy recovery of by products from slaughterhouse and juice production through biomethanisation. These projects resulted in the award of a Master's degree in Environmental Technology from the International University of Andalusia. In 2025, I supervised a research project analysing the recovery of vanadium for use in manufacturing redox flow batteries. This project resulted in the award of the Master´s degree in Renewable Energy, Management and Energy Efficiency from the University of Extremadura.

What we offer (Research support):

Research facilities:

The Iberian Energy Storage Research Centre (CIIAE), currently dependant on the legal entity of FUNDECYT-PCTEX, is a pioneering infrastructure to make renewable energies a real alternative to fossil fuels.

Created in November 2022, the CIIAE aims to be a global reference research centre for the entire energy storage cycle, from the physical chemistry of materials to their scaling and application, combining basic research supported by the Public Sector, technological development driven by public-private collaboration and business innovation.

The research will encompass laboratory and modelling work at various scales and Technology Readiness Levels (TRL), which will be supported by cross-cutting lines such as LCA, regulation and techno-economic analysis, modelling analysis, as well as including innovative pilot plants. The CIIAE offers a stimulating research environment to work on some of today's most pressing energy, environmental and societal challenges.

CIIAE is currently executing 10 collaborative European Projects, 1 ERC-STG, 3 MSCA-PF and 7 MSCA-Cofund Programme Talent4Iberia.

The centre is equipped with cutting-edge facilities, encompassing laboratory spaces, a comprehensive suite of equipment (including TGA, DSC, DLS, XRD, TEM, and test prototypes), and innovative pilot plants, which allow the achievement of hight TRLs in research.

It is important to note that CIIAE can make use of the project management services of FUNDECYT-PCTEX. It is also supported by its management team.

Networking possibilities & external relations:

CIIAE has 21 PhD students and 56 early-career and stablished researchers who works in build a centre that not only offers excellence in research but also knowledge transfer with their training programmes. CIIAE also addresses high levels of transfer of knowledge towards the productive sector and entrepreneurship, as well as dissemination of science and innovation to the society, producing a high socio-economic impact.

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Project idea/position (scientific requirements, topic, discipline):

Biotechnological recovery of critical metals from industrial and battery waste streams through integrated biohydrometallurgical processes.

The proposed project aims to develop an innovative, sustainable biotechnological process for recovering critical metals (such as Ni, Co, Li and Mn) from end-of-life batteries and industrial waste streams, using integrated biohydrometallurgical approaches. The project will combine bioleaching, biosorption and/or bioprecipitation to create circular recovery routes with a low environmental impact, producing secondary raw materials that can be reintroduced into the battery value chain. The project will also investigate the integration of agro-industrial by-products as carbon sources for microbial activity, creating synergies between waste valorisation and critical raw material recovery.

To ensure the success of the proposal and demonstrate complementary skill sets, given the supervisor's experience in bioleaching and waste management, the candidate must have experience in the following areas:

- Bioprocess engineering.
- Electrochemistry or bioelectrochemistry.
- Biosorption technologies.