**JOB OFFER**

# Junior Researcher

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| **Position:** | Junior Researcher Contract associated with the HORIZON-CL4-2024-TWIN-TRANSITION-01 Project – 101177996 ALCHEMHY ( Alchemhy Project EU ) | | |
| **Project:** | CIIAE - Refª IJ-ALCHEMHY Project (HYDROGEN AND POWER-TO-X ) | | |
| **Professional category:** | Junior Researcher | **Contribution group:** | |
| **Work Center:** | University of Extremadura. Caceres Campus | | |
| **Number of places:** | **2** | **Reserve percentage, if applicable:** | |
| **Department:** | **Hydrogen and Power-to-X** | | |
| **Offer date:** | DOE Publication | **Deadline for submitting bids:** | **15 calendar days** , counting from the day after publication in the DOE (Official Journal of Extremadura) |
| **Application for participation:** | **Annex I of the call for proposals.** | **Form of presentation of the application for participation by applicants :** | APPLICANTS MUST SEND ALL DOCUMENTATION FROM POINT 5 OF THE RULES, along with any additional documents to be considered<br><br>The following reference must be included in both the participation request and the email subject line: **Ref. IJ-ALCHEMHY Project (HYDROGEN AND POWER-TO-X)** |
| **Documents to be submitted with the application:** | The documents listed in **point 5 of the Call for Proposals**<br><br>As part of the application process, in addition to the mandatory documentation, the submission of the following documents will be considered an asset:<br><br>-A motivation letter (maximum 1 page)<br><br>-Scientific publications<br><br>-MSc and PhD thesis documents<br><br>-A letter explaining how you meet the position's requirements and how your skills can contribute to the project's expected tasks | | |
| **Contact information for sending requests** | FUNDECYT-PCTEX (Science and Technology Park Building), Avda. de la Investigación, s/n, PCTEX Building, Campus of the University of Extremadura – 06006 Badajoz (Spain)<br><br>Email: ciiae.personal@fundecyt-pctex.es Phone: +34 927 690 042 Ext. 107<br><br>www.fundecyt-pctex.es<br><br>www.ciiae.org | | |
| **Estimated start date:** | **April 2025** | **Probation:** | **2 MONTHS** |

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| **Waiting list** | Yes, according to the regulations of points 9 and 10 of the Call Bases. |
| **Conditions and requirements for applicants:** | Those established in point 4 of the Call Bases |
| **Members of the selection body:** | **President:** José Luis Canito Lobo |
| | **Secretary and member:** Lucia Cordon Masero |
| | **Member: David Parra Mendoza** |
| | **Member: Blanca I. Arias Serrano** |
| | **Member: Juan Maria Gonzalez Carballo** |
| **Tasks to be developed:** | The chemical industry is a major energy consumer (10% of global energy) and greenhouse gas emitter (7% of emissions), mainly due to the use of fossil feedstocks. To achieve net-zero emissions targets by 2050, CO2 emissions must be reduced by 18% by 2030. Platform chemicals, vital for secondary and finished products such as ammonia and methanol, are highly dependent on hydrogen, which is currently mainly obtained using fossil feedstocks. Ammonia production using the Bosch Haber process emits 1.8% of global emissions due to the 95% hydrogen coming from carbon-based feedstocks obtained through energy-intensive steam methane reforming (SMR). Methanol, mainly produced from natural gas or coal gasification, is also largely based on fossil fuels and is used in various chemical processes, contributing to emissions. The integration of green hydrogen is therefore crucial to enable the decarbonisation of these processes as set out in the Processes4Planet strategic research and innovation agenda.<br><br>**ALCHEMHY** project aims to support the decarbonisation of the chemical industry by demonstrating four sustainable and cost-effective pathways to produce ammonia and methanol using hydrogen as feedstock.<br><br>The successful candidate is expected to perform the **following tasks:**<br><br>- **Research activities** related to at least one of the following CIIAE activities in the ALCHEMHY project:<br>  - Activity I (work packages 2 and 5) - review of the state of the art, synthesis and characterization of materials and cells for the **electrochemical production of ammonia in solid oxide cells;**<br>  - Activity II (work package 3) - review of the state of the art, synthesis and characterization of catalysts for **plasma-assisted methanol production**;<br>  - Activity III (work packages 2 and 5) - **testing and demonstration at laboratory scale and/or pilot scale** of electrochemical and/or thermocatalytic production technologies for ammonia production.<br>- **Collaboration internal and external**, both with other CIIAE teams and with the rest of the project partners.<br>- **Participation in meetings internal and external** consortium meetings, both virtually and in person.<br>- **Communication and dissemination of results** in internal and external consortium meetings, in specialized journals, and at national and international conferences.<br>- **Preparation and publication of scientific publications and scientific and technical reports** of the project. |

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<tr><td></td><td colspan="3">- <u>Technical and economic management and administration</u> of the project.<br>- <u>Others</u>: identification of new opportunities; writing research proposals; contributing to obtaining competitive funding, both at regional/national and international level.</td></tr>
<tr><td>Academic background:</td><td colspan="3">PhD in Chemistry, Chemical Engineering, Industrial Engineering or similar.</td></tr>
<tr><td>Other training:</td><td colspan="3">n/a</td></tr>
<tr><td>Contract duration:</td><td colspan="3">3 years</td></tr>
<tr><td>Remuneration:</td><td>Salary Gross Annual:<br>SB: €36,959.30</td><td>Financing:</td><td>European Health and Digital Executive Agency (HADEA)</td></tr>
<tr><td>Assessment:<br><br>evaluable criteria and subcriteria</td><td colspan="3"><u>MERIT AND CURRICULAR EVALUATION PHASE (COMPETITION).</u><br><br>• <u>Techniques (analytical, software, calculations, prototyping, etc.)</u><br><br>- Knowledge of the fundamentals and applications of at least one of the following scientific fields:<br>  - High temperature electrochemical materials and devices based on solid oxides;<br>  - Synthesis of methanol, ammonia or other products of interest within the Power - to - X context.<br>- Excellent laboratory skills, including the synthesis and characterization of new or improved materials with unique electrical, and/or catalytic and/or electrocatalytic properties.<br>- Knowledge of several microstructural characterization techniques (e.g. XRD, SEM/EDS, TEM); thermal (e.g. TGA, DSC, dilatometry); electrical (e.g. EIS, 4-prove, IV curves); others (e.g. temperature-programmed methods, physisorption, chemisorption, mass spectrometry, chromatography, FTIR).<br>- Knowledge of energy technologies including renewables, storage, hydrogen and energy conversion.<br><br>• <u>Participation and/or collaboration in at least 1 R+D+I project</u><br><br>• <u>Transversal skills</u><br><br>- Commitment to open science in terms of research methods, data and publications.<br>- Ability to work in a diverse and flexible academic environment as a team, but also independently.<br><br>• <u>Languages</u><br><br>- Excellent oral and written skills in English<br><br>• <u>Publications:</u> scientific articles (in journals indexed in Web of Science) Science and/or Scopus), thesis (PhD and/or Master's), conference presentations, reports, technical reports, technical guides, etc.<br><br>- At least 2 publications in journals indexed by Scopus (publication of monographs will also be considered)</td></tr>
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| | - At least participation in 2 national or international conferences.<br><br>• **<u>To be valued</u>**<br><br>- Demonstrated experience in supervising PhD and/or Master's students (daily supervisor).<br>- Experience in drafting and acquiring competitive project proposals, both in the areas of project finance and professional finance.<br>- Experience in pilot plant level research, including protocol planning, trial execution, data collection, and technology validation to industry standards.<br>- Experience in the development of experimental facilities for the measurement of catalytic and/or electrical and/or electrochemical properties.<br>- Experience with industrial collaborations and/or previous experience working in industry.<br>- Willingness to travel and stay abroad, both nationally and internationally, in the context of project meetings and/or conferences.<br>- Knowledge of Spanish and/or Portuguese.<br>- Motivation letter (maximum 1 page) included in the application. |
| | **INTERVIEW PHASE (OPPOSITION).** |
| | - Evaluation provided by 2 references in a 10-15 minutes telephone conversation. Contact details for references are provided by candidates in their application.<br>- Interest of the candidate to integrate into the organization and in the performance of the position offered.<br>- Adequacy of knowledge, experience and other requirements to the candidate's profile.<br>- Competencies, aptitudes, skills and abilities: managerial, organizational, analytical, team management, communication.<br>- Communication skills in English and/or Spanish and/or Portuguese. |
| **Selection process details:** n/a.<br>**Job interview:** YES<br>**Technical test:** NO (technical skills will be assessed during the interview)<br>**Language test:** NO (English skills will be assessed during the interview, and the interview may be conducted in English or in whole) | |

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