

JOB OFFER

JUNIOR RESEARCHER

Position: Junior researcher in thermal CO₂ reduction
Offer date: CIIAE web
Project: CIIAE – REF. IJ-REDUCCIÓN TÉRMICA CO₂ (HIDRÓGENO y POWER-TO-X)
Department: Hydrogen and Power-to-X
Estimated starting date: 2023

Workplace:	University of Extremadura. Cáceres campus	
Tasks to be developed:	<p>Synthetic fuels are produced from hydrogen and captured CO₂ utilising renewable/sustainable energy as the principal energy source. This technology will play a major role on decarbonising sectors such as the aviation, where there could be limited alternatives to current fossil-derived kerosene, at least in the short/medium term. The Junior Researcher will focus on the development of novel catalytic systems for the single-step hydrogenation of CO₂ into sustainable aviation fuel.</p> <p>The selected candidate is expected to perform the following tasks:</p> <ul style="list-style-type: none"> - To review the state-of-the-art on this area and to provide insights for the development of novel catalytic formulations, aiming to improve the catalytic performance of reported systems, <i>e.g.</i> improve the CO₂ conversion and/or selectivity to target product or utilising milder reaction conditions (<i>e.g.</i> decreasing the temperature or pressure). - Synthesis/preparation, characterisation and catalytic activity tests of catalysts. - To establish structure-activity relationships to understand key physicochemical properties influencing the catalytic performance. - Design and build up of catalytic rigs. - Dissemination of results by means of publishing scientific publication in high impact factor journals and attending to national and international conferences. - Collaborations with experimental and theoretical researchers from CIIAE and beyond. - Successful collaboration with universities, research institutes and companies at national and international level. - Writing publications as first author and co-author (<i>e.g.</i>, 1.5 paper p.a. in high-ranked journals). - Writing research proposals and contributing towards acquisition of competitive funding, both private and/or public. - Project management and project administration (internal and external), also towards the department and CIIAE . - Becoming gradually more independent, in order to conduct, manage and lead an independent project . 	
Duration of the contract and salary:	Temporary Contract Initial duration: September 2025, with the possibility of extension	Gross Salary + S.S. Fees Gross Salary Range: 35 000 € - 38 000 €
Academic background required:	A doctoral degree in chemical engineering, industrial engineering, energy engineering or similar.	

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Other education:	
Professional experience:	
Job requirements (have to be fulfilled):	<p>Specific techniques (analytical, software, calculations, prototyping, etc.)</p> <ul style="list-style-type: none"> – Excellent lab and analytical skills including synthesis, characterisation and testing of heterogeneous catalysts. – The candidate is expected to have experience in the use of characterisation methods (e.g. temperature programmed methods, physisorption, chemisorption, spectroscopy and X-ray diffraction) and reaction gas analysis methods (e.g. mass spectrometry, chromatography, FTIR). – Demonstrated experience with operando and in-situ spectroscopic techniques (e.g. XAS, XRD, Infra-red). – Experience in materials and reactions related to thermal CO₂ hydrogenation, photochemistry or electrochemistry. – Knowledge of energy technologies including renewables, storage, hydrogen and power-to-X.
	<p>Participation and/or collaboration in R&D&I/business projects</p>
	<p>Languages</p> <p>Excellent oral and written skills in English</p>
	<p>Cross-cutting competences</p> <ul style="list-style-type: none"> – Ability to collaborate with research partners (academic and industrial) – Ability to work in a diverse and flexible academic environment in a team-oriented, but independent way – Commitment to open science in terms of research methods, data and publications
	<p>Willingness to travel and stay abroad</p> <p>The candidate is expected to travel, both nationally and internationally, in the context of projects and conferences</p>
	<p>Publications: scientific articles (in journals indexed in Web of Science and/or Scopus), theses (PhD and/or Master's), presentations at conferences, reports, technical reports, technical guides, etc.</p> <p>Strong track-record of publications as first author and co-author as the candidate is expected to publish in top journals in the field. At least 3 publications in Scopus indexed journals. Alternatively, a monograph thesis may also be considered, as well as conference publications.</p>
To be evaluated (adds points to the final evaluation):	
<ul style="list-style-type: none"> – Proven experience in supervising PhD and/or master students (daily supervisor). 	

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- Experience in writing and acquiring competitive project proposals, both project and career funding.
- Knowledge of modelling and simulation directly or by collaborations.
- Experience is scaling up from lab to prototypes.
- Knowledge of Spanish and or Portuguese.
- Experience with industrial collaborations and/or previous experience working on industry.
- Knowledge of or collaboration with modelling and simulation, e.g., atomistic simulations and/or CFD.
- Grades in Master's degree (to be include in the application).
- Motivation letter (maximum 2 pages) included in the application.
- Evaluation provided by 2 references via telephone conversation. The contact details of the references (e-mail and telephone) are provided by the candidates in their application.

Selection process details:

Technical test: NO

Language (English): yes (will be evaluated during the interview)

Job interview: yes

Interested candidates:

Please, send all the documents requested by the terms and conditions of the call for the proposal, with the deadline being 15 calendar days from the day following the publication in the CIIAE web indicating the following reference: **REF. IJ-REDUCCIÓN TÉRMICA CO₂ (HIDRÓGENO y POWER-TO-X)**

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