

JOB OFFER

POSTDOCTORAL RESEARCHER

Position: Postdoctoral researcher in photocatalysis
Offer date: Web publication
Project: CIAE - Ref^a IJ-FOTOCALASISIS (HIDRÓGENO Y POWER-TO-X)
Department: Hydrogen and Power-to-X
Estimated starting date: 1st Quarter 2024

Workplace:	University of Extremadura. Cáceres campus	
Tasks to be developed:	<p>The photochemical and photoelectrochemical conversion of CO₂ and/or water into fuels and chemicals with solar light is an attractive and sustainable alternative to the mass utilization of fossil resources.</p> <p>The selected candidate is expected to perform the following tasks:</p> <ul style="list-style-type: none"> – Developing an attractive research agenda in the field of photochemistry, such as CO₂ conversion and water splitting. – Successful Collaboration with universities, research institutes, and companies at national and international levels. – Successful guidance of master and predoctoral students. – Actively participate in the writing of original scientific articles and/or review articles/protocols or methods (e.g., 1 paper per year) for publication in high impact journals. – Participate in the project's development within the research group. – Participate in group meetings and write research progress reports. <p>Challenges: Increasing the efficiency, reducing the cost, improving the lifetime, and reducing the environmental impacts of green and synthetic fuels through photochemical and photoelectrochemical conversion.</p>	
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:	PhD. in materials science, electrochemistry, chemistry, chemical engineering or similar.	
Other education:	<p>Those candidates who are finishing their doctorate with an agreed thesis defence date may also be eligible. In this case, a soft copy of the thesis document must be included in the application</p> <p>NOTE: at the time of the formalization of the contract, a document stating the successful thesis defence will be required.</p>	
Professional experience:	<ul style="list-style-type: none"> – At least 2 years of post-doctoral experience. – Proven experience in acquiring and/or writing competitive project proposals, for example, project or career funding. – Proven experience in supervising predoctoral and/or master students (for example, as daily supervisor). 	
Job requirements (have to be fulfilled):	Specific techniques (analytical, software, calculations, prototyping, etc.)	<ul style="list-style-type: none"> – Excellent analytical and laboratory work skills. – Excellent knowledge of the synthesis of photocatalysts and photoelectrocatalysts (solid phase).

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		<ul style="list-style-type: none"> – Demonstrated experience with fabrication and testing of photoelectrochemical cells (PEC) for CO₂ conversion, and water splitting, among others. – Demonstrated experience in photoelectrochemical techniques, such as photocurrent and photovoltage measurements, transient absorption spectroscopy, and impedance spectroscopy, among others. – Experience with diffraction, microscopic, and spectroscopic techniques for structural and microstructural characterization such as X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), atomic force microscopy (AFM), energy-dispersive analysis (EDS), X-Ray photoelectron spectrometry (XPS), among others. – Knowledge of energy technologies, including renewables, storage, hydrogen and conversion of energy into fuels.
	Participation and/or collaboration in R&D&I/business projects	Proven participation in at least 1 R&D project.
	Languages	Excellent oral and written skills in English.
	Cross-cutting competences	<ul style="list-style-type: none"> – Commitment to open science in terms of research methods, data, and publications. – Proven experience with industrial collaborations and/or previous experience working on industry. – Pre and/or postdoctoral stays in prestigious institutions in Spain or abroad.
	Willingness to travel and stay abroad	The candidate is expected to travel, both nationally and internationally, in the context of projects and conferences.
	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.	Strong track record of academic 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 monographic thesis may also be considered, as well as conference publications.

To be evaluated (adds points to the final evaluation):

- Demonstrated experience with *operando* and *in-situ* spectroscopic techniques to study photo(electro)catalytic reactions, e.g., XAS, XRD, near ambient-pressure XPS, Raman, FT-IR, etc.
- Experience in the analysis and quantification of gases and liquids outputs for photo(electro)catalytic reactions, e.g., GC, LC, mass spectrometry, NMR, etc.
- Experience in materials and reactions related to electrocatalysis and/or thermal catalysis.
- Experience with techniques related to electrocatalysis, such as rotating disk electrode (RDE) measurements, potentiostatic/galvanostatic polarization methods, electrochemical impedance spectroscopy (EIS), among others.
- Ability to test new electrocatalysts in cell configurations to calculate performance, degradation, mass transport and electrical resistance.
- Experience in collaborative experimental work and simulations, for instance, atomistic and CFD simulations to characterize, design and optimize photoelectrocatalytic materials and systems.
- Experience in membrane processing.
- Experience in scaling up from lab to prototypes.
- More than 2 years of postdoctoral experience.
- Knowledge of Spanish and or Portuguese.

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- 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:

Send all the necessary documentation included in THE RULES OF THE CALL and THE JOB OFFER, as well as THE APPLICATION FOR ADMISSION. Deadline 15 calendar days from the day after the publication on the WEB, indicating **Refª IJ-FOTOCATALISIS (HIDRÓGENO Y POWER-TO-X)**

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