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# SENIOR RESEARCHER

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**Position: Senior researcher on development of thermochemical systems for thermal energy storage**

**Offer date: WEB publication**

**Project: CIIAE -Refª IS- TERMOQUÍMICO (ALMACENAMIENTO DE ENERGÍA TÉRMICA)**

**Department: Thermal Energy Storage**

**Estimated starting date: 2023**

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|---|---|------------------------|
| <b>Workplace:</b>                                       | University of Extremadura. Cáceres campus.  |                        |
| <b>Tasks to be developed:</b>                           | <p>Thermochemical energy storage (TCES) are systems based on chemical reactions. The system receives thermal energy during an endothermic chemical reaction and releases it during an exothermic reaction. TCES can compactly store energy for long periods.</p> <p>The selected candidate is expected to perform the following tasks:</p> <ul style="list-style-type: none"> <li>- Design and synthesis of new thermochemical materials optimized for long-term storage of solar or waste heat.</li> <li>- Characterization of thermal, electrical, mechanical, structural and chemical properties of thermochemical materials.</li> <li>- Scale-up of materials for further testing in storage heating/cooling systems.</li> <li>- Study of the macro/micro/nano structure of thermochemical materials and its correlation with the observed properties.</li> <li>- Study of the kinetics of thermochemical energy conversion and materials.</li> <li>- Investigation of the stability and cyclability of thermochemical materials.</li> <li>- Study of the interaction between materials and containers (thermal storage tanks, pipes, ducts, etc.).</li> <li>- Close interdisciplinary collaboration with CIIAE colleagues. As well as collaboration with universities, research institutes and companies at a national and international level.</li> <li>- Support, supervision and tutoring of doctoral/postdoctoral researchers and master's students.</li> <li>- Writing scientific publications and presentation of results at international conferences.</li> <li>- Acquisition of competitive funding, both private and public. Project management and administration</li> </ul> <p>Challenges:</p> <ul style="list-style-type: none"> <li>- To develop new thermochemical materials with the desired thermal and physical properties</li> <li>- To guarantee the cyclical stability of the developed materials</li> </ul> |                        |
| <b>Duration of the contract and salary (per annum):</b> | Fixed-term contract. End: September 2025. Possibility of extension.   | Gross Salary: 45 000 € |
| <b>Academic background required:</b>                    | A PhD in Materials Science, Nuclear Engineering, Chemistry, Chemical engineering, Physics or similar  |                        |
| <b>Other education:</b>                                 | Valuable master's degree in <ul style="list-style-type: none"> <li>- Materials for Energy Storage and Conversion</li> <li>- Chemical engineering</li> <li>- Materials Science</li> <li>- Nanophysics and advanced materials</li> <li>- Physics/Chemistry of interfaces</li> <li>- Inorganic chemistry</li> </ul>  |                        |
| <b>Professional experience:</b>                         | At least 2 years of post-doctoral experience  |                        |

## JOB OFFER

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| <b>Job requirements (have to be fulfilled):</b>  | <b>Specific techniques (analytical, software, calculations, prototyping, etc.)</b>   | <ul style="list-style-type: none"> <li>- Experience in the study of thermochemical storage systems</li> <li>- Experience in characterization techniques: Gas Adsorption, Porosimetry, X-ray Diffraction (XRD), Microscopy (TEM, SEM, AFM, XPS), FTIR, Raman, Differential Scanning Calorimetry (DSC), Thermogravimetric Analysis (TGA), Particle Size Distribution (PSD), etc.</li> </ul>                              |
|  | <b>Participation and/or collaboration in R&amp;D&amp;I/business projects</b>   | Demonstrated experience in participation and/or collaboration in R+D+i projects will be valued   |
|  | <b>Languages</b>   | English. Valuable: Spanish and Portuguese.   |
|  | <b>Cross-cutting competences</b>   | <ul style="list-style-type: none"> <li>- Excellent leadership and communication skills</li> <li>- Ability to supervise and work in a team</li> <li>- Commitment to open science practices, e.g. open access publishing, dissemination activities, development of open educational resources, open source software development</li> <li>- Experience in collaborations inside and outside the own department</li> </ul> |
|  | <b>Willingness to travel and stay abroad</b>   | This position requires occasional participation in events outside of Extremadura   |
|  | <b>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.</b> | Solid track record of publications in scientific journals. The number and relevance of scientific publications / congresses related to the main topic of the position (PCMs, TES) will be valued.  |
| <b>To be evaluated (adds points to the final evaluation)</b>   |  |  |
| <ul style="list-style-type: none"> <li>- Motivation letter: please include a letter describing the skills you consider of value for the position of Senior researcher in thermochemical storage, as well as some general objectives of the research you would like to develop at the CIIAE.</li> <li>- Personal references: please provide two reference letters (from employers and/or professors, together with their contact information, e-mail and telephone number) highlighting the technical and soft skills identified by the reference in the candidate, and that are of relevance for the position.</li> <li>- Research projects: please include a list of the R+D+i projects you have been involved</li> <li>- Experience in writing proposals for competitive calls (even if funding has not been obtained, in this case, please attach the evaluation letter).</li> <li>- Having obtained funding or competitive research contracts, such as FPU, FPI, Torres Quevedo, Juan de la Cierva, Ramón y Cajal, Marie Skłodowska Curie, or equivalent</li> <li>- Having been a principal investigator in R+D+i projects</li> <li>- Demonstrated experience in supervising work teams</li> <li>- Having supervised end-of-degree projects (TFGs), end-of-master projects (TFMs) or PhD thesis</li> <li>- Being the first author or the corresponding author in scientific articles</li> <li>- Having completed specific training courses, relevant to the offered position</li> <li>- Experience with energy storage applications</li> <li>- Experience in scaling from laboratory to prototypes</li> <li>- Experience in modeling/simulations either directly or through collaborations</li> <li>- Experience in industrial collaborations and/or previous experience working in industry.</li> <li>- Patents.</li> <li>- Awards, mentions or other achievements</li> </ul> |  |  |

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Note: To facilitate the evaluation process, it is recommended to include a list or table, itemizing the merits you consider that should be evaluated for each of the requirements (Ex: Requirement: Experience in thermal analysis. Candidate: brief description of experience in thermal analysis reflected in scientific articles, theses, courses, projects, etc.)

**TECHNIQUES: Oral knowledge test YES  NO X**

**LANGUAGE: ORAL YES X NO**

**It will be evaluated during the interview.**

**JOB INTERVIEW: YES X NO**

### Interested candidates

Please send all the documentation required in THE CONDITIONS OF THE CALL and THE JOB OFFER, no later than 15 calendar days from the day after publication on the WEB, indicating: **Ref<sup>a</sup> IS- TERMOQUÍMICO (ALMACENAMIENTO DE ENERGÍA TÉRMICA)** to:

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