

# JUNIOR RESEARCHER

**Position: Junior researcher on nanofluids for thermal energy storage**  
**Offer date: WEB publication**  
**Project: CIIAE -Refª IJ-NANOFLUIDOS (ALMACENAMIENTO DE ENERGÍA TÉRMICA)**  
**Department: Thermal Energy Storage**  
**Estimated starting date: 2023**

<b>Workplace:</b>	University of Extremadura. Cáceres campus.	
<b>Tasks to be developed:</b>	<p>Nanofluids are solid-liquid composites in which nanoparticles or nanofibers (1-100 nm) are suspended in a liquid. Nanofluids have the potential to improve thermophysical properties in thermal storage systems, such as thermal conductivity, thermal diffusion or heat transfer coefficient, and modify viscosity.</p> <p>The selected candidate is expected to perform the following tasks:</p> <ul style="list-style-type: none"> <li>- Formulation of suspensions, synthesis and characterization of nanostructured materials.</li> <li>- Development of new advanced nanomaterials to increase the efficiency of different thermal energy processes.</li> <li>- Development of highly flexible and efficient heat transfer devices.</li> <li>- Adaptation of nanofluids/Nano-enhanced Phase Change Materials (NePCMs) to specific thermal processes in the industry.</li> <li>- Acquisition of competitive funding, both private and public</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 students and master's students.</li> <li>- Writing scientific publications and presentation of results at international conferences.</li> </ul>	
<b>Duration of the contract and salary (per annum):</b>	Fixed-term contract. End: September 2025. Possibility of extension.	Gross Salary Range: 35 000 € - 38 000 €
<b>Academic background required:</b>	A PhD in Physics, Chemistry, Chemical engineering, Mechanical Engineering or similar	
<b>Other education:</b>	Valuable master's degree in Materials for Energy Storage and Conversion, Nanoscience and Nanotechnology, Complex Materials: Thermal Analysis and Rheology	
<b>Professional experience:</b>	Post-doctoral experience not required	
<b>Job requirements (have to be fulfilled):</b>	<p><b>Specific techniques (analytical, software, calculations, prototyping, etc.)</b></p>	<p>Experience in any of the following areas will be valued:</p> <ul style="list-style-type: none"> <li>- Experience in the investigation of physicochemical properties, including rheological and thermal properties of nanofluids / nano-enhanced phase change materials (NePCMs) /Deep eutectic solvents (DESS).</li> <li>- Experience in nano-dispersions, nanofluids, gels and/or colloids</li> <li>- Experience in thermal conductivity of this kind of materials</li> <li>- Experience in differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA).</li> <li>- Experience in Rheology</li> <li>- Experience in Zeta potential</li> <li>- Experience in optical techniques such as DLS (dynamic light scattering) and electron microscopy.</li> </ul>

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	<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>- Communication skills</li> <li>- Ability work in a team</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>	The number and relevance of scientific publications / congresses related to the main topic of the position 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, 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>- Being the first author or the corresponding author in scientific articles</li> <li>- Having completed specific training courses, relevant to the offered position (i.e. in nanofluids, thermal energy storage, etc)</li> <li>- Having obtained competitive research contracts, such as FPI, FPU, , Marie Skłodowska Curie, or equivalent</li> <li>- Research projects: please include a list of the R+D+i projects you have been involved</li> <li>- Experience in scaling from laboratory to prototypes</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> <p>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 the study of rheological properties in nanofluids. Candidate: brief description of experience in the study of rheological properties in nanofluids reflected in scientific articles, theses, courses, projects, etc.)</p>		
<p><b>TECHNIQUES: Oral knowledge test YES <input type="checkbox"/> NO X</b></p> <p><b>LANGUAGE: ORAL YES X NO <input type="checkbox"/></b> It will be evaluated during the interview.</p> <p><b>JOB INTERVIEW: YES X NO <input type="checkbox"/></b></p>		

### 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> IJ-NANOFUIDOS (ALMACENAMIENTO DE ENERGÍA TÉRMICA)** to:

FUNDECYT-PCTEX (Edificio Parque Científico Tecnológico), Avda. de la Investigación, s/n – Edificio PCTEX, Campus de la Universidad de Extremadura - 06006 Badajoz (Spain)

Email: [ciae.personal@fundecyt-pctex.es](mailto:ciae.personal@fundecyt-pctex.es) Phone number: +34 924 014 594



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