
Publish Date:

Ref.: 2026/09

Area Advanced Materials for Energy

Area leader: J.R.Morante

Group: Nanoionics and Fuel Cells

Head of Group: Albert Tarancón

Position: Recognized Researcher (R2) in Acceleration of Materials Innovation through High-Throughput Experimentation

Description of the job position

The Nanoionics and Fuel Cell Group invites applications for a Recognized Researcher (R2) position in the field of advanced materials for energy technologies. The successful candidate will lead research focused on accelerating materials discovery through the integration of high-throughput experimental workflows and machine learning predictive models. Our vision is to establish a fully automated pipeline that combines rapid synthesis of materials libraries, high-throughput characterization of structural and functional properties (including non-destructive optical techniques and operando measurements), and data-driven modeling to optimize performance and uncover new material families.

The position will involve the design and implementation of high-throughput synthesis strategies for diverse material libraries, the development of automated screening platforms for electrochemical and physical properties and the application of machine learning and predictive algorithms to experimental and theoretical datasets for guiding synthesis and accelerating optimization.

Target applications include solid oxide cells, solid-state batteries, and switchable electrochemical devices, among others. This role offers an opportunity to work at the intersection of materials science, data science, and energy technology innovation, contributing to next-generation solutions for sustainable energy.

The candidate will be involved in tasks such as managing related projects, supervising master and PhD students and leading projects as well as performing laboratory research. The aim of the group is to cover different levels of TRL, covering from the innovation in materials to the prototyping of disruptive solutions based on outputs from predictive modelling. In this regard, the candidate will integrate and characterize electrochemical devices based on novel materials.

Integrated in a multi-disciplinary team, it is also expected a candidate able to lead research activities as part of international projects (especially regarding National and EU programmes on “Excellence”). The candidate should be used to plan resources and ensure deadlines as well of reporting and communication of research results.

Requirements

We are looking for a methodical, excellent team player and results-oriented candidate with high communication skills suitable to become a future leader in the field of accelerated materials discovery.

The candidate has to fulfill all the requirements of R2 pre-consolidated researchers' level of the internal IREC evaluation including the following ones:

Essential:

- Master in Energy Technologies or similar.
- PhD degree in Chemistry/ Physics/Engineering with special focus on energy materials.
- Publications in Q1 indexed scientific journals and/or books indexed with ISBN.
- Scientific publications as first/corresponding author in papers published in journals of the materials (for energy) field.
- More than 5 years of hands-on experience on fabrication/characterization/predictive modelling of materials for energy applications.
- Participation in international research projects.
- Relevant contributions to international conferences on the field of materials for energy.
- Fluent English.

Preferred:

- Master students' supervision.
- Proven management of projects.
- International stage on a different country of the one where the PhD was hold.
- Experience and knowledge in operando characterization.
- Proven experience in big data and predictive modelling (applied to materials for energy).
- Proven experience in funding search (at the individual level)
- Clear view in "Research and innovation funding attraction" (regional, national and international levels)
- Proven experience and motivation for outreach and dissemination activities.
- Fluent Catalan and Spanish

Topics included in the exam:

The exam will cover the following topics related to high throughput experimentation for energy materials discovery and optimization:

- Solid State Physics: ionic conduction in oxides.
- Advanced Materials for Energy: oxides for application in solid oxide cells, solid state batteries and iontronics devices.
- Energy devices: principles and characterization of solid oxide cells and solid state batteries.
- Big Data and Machine Learning algorithms: data treatment, feature extraction and predictive models.
- Advanced structural, compositional and morphological characterization methods applied to materials for energy (including surfaces and interfaces).
- Electrochemical characterization methods applied to materials for energy and energy devices (including operando characterization techniques).

- Funding sources at regional, national and international levels

Scoring Criteria for the Competitive Phase (maximum 40 points):

The evaluation will be carried out according to the criteria established below:

- 1. Education (up to a maximum of 12.5 points):**
 - a) Academic degrees related to the position announced: 7,5 points.
 - b) Continuing and/or complementary training related to the subject or field of the position announced and duly justified: 2,5 points.
 - c) Languages: 2,5 points.
- 2. Career and Professional Experience (up to a maximum of 20 points):**
 - a. **Participation in projects:** 5 points
 - b. **Project generation capacity** for categories from R2 onwards: 1 points
 - c. **Scientific publications:** 7,5 points
 - d. **Patents:** 2,5 points
 - e. **Participation in specialized events** (conferences, seminars, congresses, teaching courses, etc.): 4 points
- 3. Professional Experience Public Sector (up to a maximum of 7.5 points):**
 - a) Services rendered in the same or similar professional category as the position announced at IREC: 0.1388 points per full month, up to a maximum of 5 points.
 - b) Services rendered in other public sector entities or research centers or universities, in a professional category equal or similar to that of the position announced: 0.0416 points per full month, up to a maximum of 2.5 points.

Proposed Jury:

Presidency	Titular	Albert Tarancón
Vocal 1	Titular	Jordi Jacas
Vocal 2	Titular	Mónica Burriel

More information about the selection process in:

CALL AND REGULATORY BASES OF THE SELECTION PROCESS BY COMPETITION FOR THE RECRUITMENT OF LABOR PERSONNEL 2024/ CONVOCATÒRIA I BASES REGULADORES DEL PROCÉS DE SELECCIÓ PER A LA CONTRACTACIÓ DE PERSONAL LABORAL 2024