Institut de Recerca en Energia de Catalunya
Catalonia Institute for Energy Research
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**Area:** Energy Efficiency in Systems, Buildings and Communities
**Group:** Thermal Energy and Building Performance
**Head of Group:** Jaume Salom Tormo

**Position:** Recognised Researcher/Engineer – R2 – HVAC Control in Buildings

## Description

The Thermal Energy and Building Performance Group announces a permanent position of Consolidated Recognised Researcher/Engineer (R2.2) in the field of Energy Management of HVAC Systems in Buildings with experience in experimental work. The research will be embedded in the Thermal Energy and Building Performance Group which main research subject is the integrated and systemic approach towards positive energy buildings and communities. The group's vision is to investigate in solutions and strategies that accelerates the reduction of greenhouse gas emissions in the building sector through human-centred design, energy efficiency measures, integration and management of energy systems, particularly distributed renewable sources in the built environment as part of urban communities.

The research group is also managing the **Semi-Virtual Energy Integration Laboratory** (SEILAB) which provides advanced expertise to assess the development and integration of renewable energy solutions and innovative thermal and electrical equipment that are designed to improve energy efficiency in buildings and energy systems. The laboratory is provided with cutting-edge technology comprising systems for energy generation, heat and cool storage and state-of-the-art facilities for testing HVAC equipment and the interaction of energy systems with the grid. The laboratory operation is based on a semi-virtual testing approach, which allows for real equipment to be operated as a function of the behaviour of a dynamic virtual model. The laboratory is pioneer in addressing the smart integration of electrical and thermal components and aims to become a leading experimental facility for improving the development of Net Zero Energy Buildings.

The candidate will be involved in tasks such as energy simulation of buildings and HVAC systems, integration of renewable energies in buildings and/or systems, and experimental work related to HVAC systems in buildings (data analysis, leading and running experimental tests) with the SEILAB team. Integrated in a multi-disciplinary team, the candidate is expected to run and lead research activities as part of international projects or projects with industrial partners. The candidate will be, specially, in charge of working in control and management of HVAC systems in buildings. The candidate has to be used to plan resources and ensure deadlines as well of reporting and communication of technical / research results.

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**Requirements**

We are looking for a methodical and rigorous person with a scientific spirit, excellent team-player and results-oriented candidate with high communication skills.

Essential:

- PhD degree in Energy/Mechanical Engineering, Automatic Control and/or Building Physics Science
- 5 years of experience in experience in building performance, thermal renewable systems and generally speaking energy systems in buildings
- 4 years of experience in laboratory experiments based in the hardware-in-the-loop concept
- Experience and knowledge in computational energy systems simulation tools
- Advanced knowledge in TRNSYS
- Knowledge of building energy modelling at different levels of complexity
- Knowledge in time series data analysis methods and tools
- Knowledge in programming languages: Python, Fortran and/or C++
- Experience in the use of data acquisition systems in experiments and communication protocols with HVAC systems
- Experience in EU and international research projects
- Fluent English on all level. Catalan and/or Spanish are essential

Preferred:

- Experience in transferring research results to industry
- Experience in Model Predictive Controls applied to HVAC systems and calibration of models
- Experience in optimization tools
- Awards due scientific or professional activity
- Scientific publications and Public technical reports
- Experience in monitoring of buildings in the field
- Initiative in Research and Innovation
- Professional associations and accreditations

**Proposed Jury**

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|---|---|---|
| Presidència | Titular | Jaume Salom |
| Vocal 1 | Titular | Núria Garrido |
| Vocal 2 | Titular | Cristina Corchero |

More information about the selection process in:
**CALL AND REGULATORY BASES OF THE SELECTION PROCESS BY COMPETITION FOR THE RECRUITMENT OF LABOR PERSONNEL 2021/ CONVOCATÒRIA I BASES REGULADORES DEL PROCÉS DE SELECCIÓ PER A LA CONTRACTACIÓ DE PERSONAL LABORAL 2021**