
Publish Date: March 6th 2023

N. Ref.: 17/2023

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 Pre-consolidated
HVAC Systems and Laboratory experimental techniques

Description

The Thermal Energy and Building Performance Group announces a position of interim **Pre-Consolidated Recognised Researcher/Engineer (R2.1) in the field of HVAC Systems Performance in Buildings with significant experience in experimental work in laboratory environments**, to fill the job for the duration of the selection process for its permanent appointment, in accordance with the regulations of the public sector. 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 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 research activities and projects in the field of integration of HVAC equipment and renewable energies in buildings and/or systems, energy management and Fault-Detection and Diagnosis for HVAC equipment and experimental work related to HVAC systems in buildings (data analysis, leading and running experimental tests). Integrated in a multi-disciplinary team, the candidate is expected to run and increasingly lead research activities as part of international projects or projects with industrial partners. The candidate will be, specially, in charge of managing Labview environment in SEILAB, its adaptation to several experimental works and performing and testing novel control and Fault Detection and Diagnosis (FDD) systems in HVAC, both in the Lab environment and in field tests. The candidate must be used to plan resources and comply with deadlines as well of reporting and communication of technical / research results.

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 research projects 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
- Advanced knowledge in Labview
- Experience in Fault Detection and Diagnosis applied to HVAC systems
- 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 calibration of models
- Advanced knowledge in TRNSYS
- Experience in optimization tools
- Knowledge in time series data analysis methods and tools
- Scientific publications and Public technical reports

We offer

We offer the chance to become part of an exciting and consolidated team, with international recognition, for developing cross-cutting projects in science and technology, oriented towards excellence. We also offer a research environment comprised of highly qualified and motivated professionals. Salaries will be paid in accordance with the IREC's salary policy, depending on the candidate's qualification and professional experience.

Workplace. Tarragona (IREC facilities)

Application

Applicants should send a detailed CV and a letter of motivation to irecjobs@irec.cat.

The application deadline is 24th March

Please indicate **“2023 –Pre-Doc - HVAC Systems and Laboratory”** in the subject