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Code:
Project: Plural
Area: Energy Efficiency in Systems, Buildings and Communities Area
Area leader:
Group: Thermal Energy and Building Performance Group
Group leader: Dr.Jaume Salom Tormo

R2 - Recognised / Postdoc Researcher on HVAC Control - PLURAL project

We are interested in a Postdoc Engineer / Researcher with experience in HVAC systems and in energy simulation models in the framework of EU H2020 PLURAL project. His/Her role in the project will consist on the development and characterization of HVAC grey models and MPC developments, and cooperation with the management of the project results reporting. He/she will work in a multidisciplinary team and will internally report to the IREC project Main Researcher.

The Research Group

The research will be embedded in the Thermal Energy and Building Performance Group which main research subject is the Integrated and Systemic approach for Zero Energy Communities, Buildings and Industries. The group's special focus is on the Mediterranean and other warm weather regions. The vision is to build an applied research group that contributes to accelerate the reduction of greenhouse gas emissions (GHG) through energy efficiency measures, production of clean energy, and integration of distributed renewable energy sources (RES).

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.

PLURAL is a H2020 EU funded project that stands for "Plug-and-use renovation with adaptable lightweight systems". PLURAL aims to design validate and demonstrate a palette of versatile, adaptable, scalable, off-site prefabricated plug and play facades accounting for

user needs (“Plugand-Use” kits). Three different core systems are assessed, coupling heating cooling, ventilation, heat harvesting systems with smart windows, 3D printing, low carbon footprint and nano-enabled coating materials to reduce the building total primary energy consumption. The project has a total budget of 9.7M€ and will run for 4 years. It enrols a total of 18 European partners, including IREC, ITeC, or Agència de l‘habitatge de Catalunya, and is led by the National Technical University of Athens. IREC have a significant role in most of the planned activities, including the leadership of WP3, regarding the demand response and building flexibility analysis and ready to be used models, including both thermal and electrical.

Description

He /she 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, white/grey/black building modelling, MPC definition and implementation, etc.). Integrated in a multi-disciplinary team, the candidate is expected to coordinate and run research activities as part of the referred international project. He / she 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. The candidate will closely coordinate with the IREC project Main Researcher.

Requirements

We are looking for excellent and highly motivated candidates with a PhD degree in Mechanical Engineering, Automatic Control and/or Building Physics Science, with experience in HVAC, thermal renewable systems and generally speaking energy systems in buildings and/or cities. Specifically;

- Degree in physics, engineering or equivalent and Master degree in Engineering or equivalent.
- More than 2 years of experience in HVAC simulation and modelling through white and/or grey approaches.
- Knowledge and experience on white modelling tools (TRNSYS or equivalent), Python and/or C++.
- Fluent English is mandatory and Spanish basic knowledge could be positively evaluated
- Skills in cooperation in research projects.
- Experience in teams’ coordination will be positively evaluated
- Experience in writing scientific reports and peer reviewed papers.
- We look for people with capacity to work in a team, high flexibility and initiative and ability to innovate

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. Barcelona (IREC facilities).

Application

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

The application deadline is 20th February 2021

Please indicate "**2021 –R2 Plural project**" in the subject