PhD Scholarship in Engineering

Fully Funded PhD Scholarship in the topic of ‘The impact of climate change on the design and operation of Irish dwellings’.

College of Science and Engineering, School of Engineering

Applications are invited from suitably qualified candidates for full-time funded PhD scholarship starting in October 2023 affiliated to the School of Engineering (Mechanical Engineering) and Construct Innovate at University of Galway.

University of Galway

University of Galway is located in the heart of the vibrant and cultural city of Galway on the west coast of Ireland. With over 19,000 students and 2,600 staff, University of Galway has distinguished reputation for teaching and research excellence. University of Galway is in the top 2% of universities globally (258th place in the latest QS World University Rankings), and in the top 50 universities in the world for sustainability (number 1 university in Ireland for sustainable development).

The School of Engineering at University of Galway has experienced significant growth in recent years, in both student population and research activity. As one of the premier engineering schools in Ireland, it has a long tradition of excellence dating back to 1849. Construct Innovate, Ireland’s National Research Centre for Construction Technology and Innovation, is the first technology centre hosted at University of Galway. The Centre aims to accelerate innovation in construction and the built environment by bringing together the whole value chain of academic researchers, industry partners, policy makers, standardization authorities and government bodies. This proposed PhD project is aligned with the Quality & Safety Pillar in Construct Innovate, which is led by Dr Hajdukiewicz.

Detailed Project Description

The Housing for All plan for Ireland outlines the need for 330,000 new homes constructed by 2030, while the National Retrofit Plan set a target of 500,000 home energy upgrades by 2030. All those buildings will be built to higher energy performance standards, including well-insulated and air-tight building envelopes, to retain heat inside the building. However, with the impact of climate change and potentially hotter summers and milder winters, there is a risk of overheating and inadequate ventilation in Irish dwellings. Thus, the design and operation of buildings need to be adapted to ensure occupants health, comfort and wellbeing.

This project will utilise measured data from the Irish dwellings (including thermal comfort and air quality parameters) to evaluate their performance in terms of health, comfort and wellbeing of the occupants. Furthermore, building energy models will be developed to investigate different designs and operation strategies for Irish dwellings under the changing climatic conditions. The building energy models will be initially validated with the measured
data from real buildings. Next, the Met Éireann’s long-term temperature projections\(^1\) will be used to investigate how extremes of climate will impact the performance of buildings.

The successful candidate will join a research group that is advancing scientific knowledge in the area of energy efficient buildings and sustainable built environment. They will utilise engineering tools such as building energy simulation, physical measurements of indoor environmental quality and statistical methods for data analysis to evaluate and optimise the design and operation of Irish dwellings in changing climate. This will lead to the development of new design guidelines and standards that ensure healthy, safe and comfortable indoor environments in energy efficient dwellings.

In addition to joining a dynamic and growing interdisciplinary research group, students will be encouraged to avail of the extensive opportunities for professional development within the University of Galway, including those offered by the Researcher Development Centre, Construct Innovate, Ryan Institute and MaREI.

The successful PhD student will be fully trained in all technical elements of the project. They will be supported and mentored by the supervisors, with additional support from the wider research group, including experienced postdoctoral researchers.

**Living allowance (Stipend):** €19,000 per annum, tax-exempt scholarship award (College of Science and Engineering Postgraduate Research Scholarship Scheme)

**University fees:** Four years EU fees are funded. A student levy applies (currently €140 per annum). In addition to fees and stipend, the student will receive a laptop and specific research related travel costs.

**Start date:** 1\(^{st}\) October 2023

**Academic Entry Requirements:** A 1\(^{st}\) class honours degree, or a Masters degree, in Civil/Mechanical Engineering or a relevant area (such as, but not limited to, architecture, building physics).

Applicants must meet the following essential criteria:

- Highly self-motivated, enthusiastic, and scientifically curious.
- Demonstrate critical thinking, problem solving and troubleshooting skills.
- Have an interest in engineering, building physics and climate change mitigation.
- Ability to work independently and as part of a team.
- Excellent spoken and written communication skills.
- Non-native English speakers must satisfy the University of Galway English Language Entry Requirements available [here](https://www.met.ie/climate/climate-change).

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\(^1\) [https://www.met.ie/climate/climate-change](https://www.met.ie/climate/climate-change)
To Apply for the Scholarship: Please send your application, including a cover letter, CV and the contact details of two references (in Word or PDF format), to Dr Magdalena Hajdukiewicz by email: magdalena.hajdukiewicz@universityofgalway.ie.

Additional information:

- Prior publications from the research group are available [here](#).
- Enquiries regarding this position are encouraged and should be made via email to Dr Hajdukiewicz ([magdalena.hajdukiewicz@universityofgalway.ie](mailto:magdalena.hajdukiewicz@universityofgalway.ie)).
- For information on moving to Ireland, please see [https://www.euraxess.ie/](https://www.euraxess.ie/).

Contact Name: Dr Magdalena Hajdukiewicz

Contact Email: magdalena.hajdukiewicz@universityofgalway.ie

Application Deadline: 31/08/2023 and time 17:00 (Irish time 24hr format)