

PhD Fellowship**Job Posted: ASAP****Closing Date for Applications: July 31st 2020****Research Centre: MaREI (SFI Research Centre for Energy, Climate and Marine)****School: School of Engineering****College: College of Science, Engineering and Food Science, UCC****Contract Type: PhD****Job Type: Research****Salary: €3270 per month, plus mobility allowance and family allowance for eligible candidates, subject to taxation and country specific adjustments. Full details of allowance can be found [here](#).****Duration: 36 month contract****Doctor of Philosophy (PhD) – Advanced Physical Modelling Methods for Floating Wind Turbines****Position Summary**

This PhD Fellowship is part of the FLOating Wind Energy netwoRk (FLOWER) project (<https://www.flower-h2020.eu/>) which is funded under the prestigious Marie Skłodowska-Curie H2020 ITN Research Program. In total FLOWER will provide 13 Early Stage Researchers (ESRs) with interdisciplinary training with the aim of designing higher performance, economically viable floating windfarms. FLOWER also brings together outstanding academics and floating wind industrial leaders, covering the entire offshore wind industry value chain (i.e. farm developers, offshore subsystem suppliers -turbine, floater, mooring- and wind resource specialists). FLOWER's multidisciplinary approach will provide the ESRs with scientific, technical, and soft skills to train the new generation of high-profile scientists and engineers, give them with enhanced career perspectives and address offshore wind energy industry needs

The work of this PhD Candidate is focused specifically on improving the state of the art related to physical model testing of floating wind turbines and provide open source datasets that can be used for the validation of numerical models.

MaREI Centre Background:

This PhD Candidate will be based in the MaREI Centre, Ringaskiddy, Cork, Ireland but the Fellowship will involve three month secondments in both Centrale Nantes and Aerodyn.

MaREI (<https://www.marei.ie/>) is a key research centre within UCC's Environmental Research Institute (ERI), which is an internationally recognised Institute for environmental research dedicated to the understanding and protection of our natural environment and to developing innovative technologies, tools and services to facilitate a transformation to a zero carbon and resource efficient society. The MaREI Centre is an SFI funded research centre headquartered in the ERI in UCC. The MaREI Centre includes twelve other Universities and Third Level Institutes, has 50 industrial partners and has research funding of approximately €55m. It combines the expertise of a wide range of research groups and industry partners, with the shared mission of solving the main scientific, technical and socio-economic challenges across the marine and renewable energy spaces. MaREI is also funded by SEAI,

EI, EPA, ERDF, EU, HEA, Marine Institute, DCCAE and IRCSET IRC, as well as through contributions from our industry partners. Researchers in the MaREI Centre have over 30 years of experience in conducting fundamental and applied research supported by competitively won national and international funding, and commercial contracts with government agencies and industry. MaREI's strengths lie in the multi-disciplinary nature of its research teams and its links with the School of Engineering in UCC, allowing it to combine insights across areas such as MRE Technologies, Materials & Structures, Mechanical and Electrical Engineering, Observations & Operations, Coastal & Marine Systems, Bioenergy, Energy Policy & Modelling, and Renewable Energy Management.

Description of Research topic:

Physical testing of floating wind energy platforms is an integral part of the commercialisation process for floating wind energy platforms allowing technologies to progress to TRL4 in an environment where both cost and risk are limited. However, there is a lack of high quality open source validation data available from physical test campaigns of floating wind energy platforms which can be used by numerical modellers to validate their codes and gain confidence in the validity of physical testing. The key objective of the work of this ESR is to generate such open source validation data and to work closely with the numerical modellers and platforms designers in order to establish the skills and methodologies to enable a multidisciplinary design approach. A stepped process will be used whereby the complexity of the physical testing, and thus the complexity of the multidisciplinary design challenge and numerical validation task, will gradually increase from an elemental floating body, hydrodynamic loading on a floating wind platform, aero-hydro loading, addition of heave plates and finally consideration of survival waves and their associated slamming forces. In addition, this ESR will work and further validate the LCoE models developed in UCC during the FP7 LEANWIND project to provide a broader understanding of the challenges facing the floating wind energy industry. Specifically, the ESR will use the UCC LCoE models to assess the impact of the innovations produced in the FLOWER project across the lifecycle of the wind farm.

The objectives can be summarised as follows:

- To advance the state of the art of physical testing of floating wind energy platforms.
- To produce high quality validation datasets for the numerical modellers.
- Hands on experience of LCoE modelling

The PhD candidate will conduct a specified programme of research aligned with the work of the FLOWER project and the expertise of supervisors in MaREI.

Criteria

- Minimum 2H1 (second class honours, grade 1) honours degree (or equivalent) in a related scientific or engineering discipline.
- An MSc. (or equivalent qualification) in related engineering or scientific discipline.
- Be in the first four years (full-time equivalent) of his/her research career, starting at the date of obtaining masters degree
- Candidate did not reside or have carried out his/her main activity (such as work or study) for more than 12 months within the last 3 years in Ireland. This excludes short stays such as holidays.
- Candidates must not have previously been awarded a doctoral degree.
- Experience at physical model testing or in the offshore wind sector in general would be desirable
- Programming/coding skills would be beneficial.

- Demonstrable capability of working within a project team and ability to innovate.
- Good communication, organisation and interpersonal skills.
- Excellent academic English writing skills

To Apply:

Please send

1. Cover letter describing your motivation for applying for the position and how your experience and expertise match the research topic.
2. CV

To Ms Grainne Lynch (grainne.lynch@ucc.ie).

For informal enquiries on the post candidates should contact:

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