



HR EXCELLENCE IN RESEARCH

Research Assistant/Postdoctoral Researcher

Engineering Advanced Materials for Marine Energy and Aquaculture applications

SFI MaREI Centre, School of Engineering & Ryan Institute

Ref. No. NUIG 139-20

Applications are invited from suitably qualified candidates for a full-time fixed term position as a Research Assistant/Postdoctoral Researcher on the project “Engineering Advanced Materials for Marine Energy and Aquaculture applications” within **the Sustainable and Resilient Structures Research Group** (www.nuigalway.ie/structures) in the **SFI MaREI Centre** (www.marei.ie) based in the **School of Engineering** (<http://www.nuigalway.ie/engineering/>) and **Ryan Institute** (<http://www.nuigalway.ie/ryaninstitute/>) at the National University of Ireland, Galway.

This position is funded by the **Marine Institute** (<https://www.marine.ie/>) and is available from September 2020 for a period of one year (subject to extension if additional funding becomes available).

The Project:

The primary objective of this project is to develop engineering solutions to the implementation of novel composite materials (FRP) into marine structures for use in marine renewable energy and aquaculture systems. The use of composite materials in marine applications has normally been reserved for high value pleasure craft using moulded construction. There is an opportunity to adapt the use of Fibre Reinforced Polymer (FRP) prefabricated components into low cost marine structures suitable for mass production. Preliminary studies have shown that there is potential for significant savings in construction costs, as well as ease of construction method. What is required are robust engineering solutions for the jointing and fabrication for the complete structures made from the components which can then be utilised in energetic marine environments.

In this project, the basic structural design for joint configurations will build on preliminary work undertaken by Ocean Energy Ltd in a previous project funded by the U.S. Department of Energy. Using existing expertise, the specific research undertaken will be (i) produce preliminary structural designs for Fibre Reinforced Polymer (FRP) prefabricated components for Ocean Energy Ltd’s wave energy convertor technology (ii) initial joint and adhesive characterisation, (iii) Laboratory testing of the selected joint and adhesive samples. The final technical phase will to produce preliminary structural designs of the validated joints to be incorporated into scaled field deployments – these designs will be evaluated for

manufacturability and an economic assessment of the application of FRP construction for the marine energy sector and the Aquaculture market will be completed.

Job Description:

The successful candidate will work in the Sustainable and Resilient Structures Research Group (www.nuigalway.ie/structures) under the supervision of Dr Jamie Goggins to investigate the use of advanced materials for marine energy and aquaculture applications. There will be a specific focus on determining suitable composite materials for a novel wave energy convertor, which will include design, analysis and laboratory testing. The project is in collaboration with Ocean Energy Ltd, whose current wave energy convertor device is in Hawaii waiting deployment for testing.

Duties:

Research

- Determine suitable composite materials for a novel wave energy convertor, which will include design, analysis and laboratory testing. This will be done under the supervision and direction of your Principal Investigator.
- Liaise with other project partners (e.g. Ocean Energy Ltd, Eirecomposite Teo) to combine multi-physics models with experimental data and atomistic simulations.
- Actively participate as a member of a research team and assist an individual research leader or team to conduct a particular study (or group of studies).
- To provide assistance in conducting research activities, including planning, organising, conducting, and communicating research studies within the overall scope of a research project.
- To coordinate and perform a variety of independent tasks and team activities involved in the collection, analysis, documentation and some interpretation of information/results.
- To present information on research progress and outcomes to others responsible for the research project. The Research Assistant will make use of standard research techniques and methods.
- Conduct literature and database searches and interpret and present the findings of the literature searches as appropriate.
- Assist in analysis and interpretation of results of own research.
- At postdoctoral researcher level, the successful candidate is expected to define research objectives and proposals for own (or joint) research in line with research strategy whilst contributing to the research programme of the Sustainable and Resilient Structures Research group (www.nuigalway.ie) in the MaREI Centre (www.marei.ie) at NUI Galway (www.nuigalway.ie). This will be under general guidance of the Principal Investigator/ Project Leader.

Dissemination

- Write up results from own research activity (e.g. as project report) for review by PI, including preparing technical reports, conclusions and recommendations.
- Contribute to the publication of findings.
- Provide input into the research project's dissemination, in whatever form (report, papers, chapters, book) as directed by the PI/project leader. Authorship should be decided in line with guidelines such as the Vancouver Protocol, or similar authorship guidelines as appropriate.
- Present on research progress and outcomes e.g. to bodies supervising research; steering groups; other team members, as agreed with the PI/project leader.
- Attend and contribute to relevant meetings/conferences.
- Should write at least workshop level papers.
- At postdoctoral level, the successful candidate is expected to lead the writing of at least one international peer review journal publication, as well as contributing to other peer review publications.

Management

- Keep appropriate records as directed and in line with Funder/University policy.
- Manage own personal and research resources (including where required, laboratories, and specialist equipment) appropriately.
- Work under the direction of the Principal Investigator/Project Leader. Plan and manage own day-to-day research activity within this framework & direction.
- Provide guidance as required to any support staff and/or research students assisting with the research project, as agreed with the Principal Investigator/Grant holder.
- To carry out any additional duties as may reasonably be required within the general scope and level of the post.
- At postdoctoral researcher level, the successful candidate is expected to manage own research budget and keep records as directed and in line with Funder/University policy as appropriate.

Support

- Support and, where appropriate, co-supervise the work of undergraduate students e.g. Final Year Project Students.
- Where appropriate provide advice and / or assistance to support staff, research students.
- May participate in limited student contact hours for own development (e.g. May deliver laboratory demonstrations, teaching laboratory test methods and demonstrating of various experiments and equipment used to undergraduates). The extent of this must not adversely impact the primary research role.
- At postdoctoral researcher level, the successful candidate is expected to gain experience in grant writing and participate in internal / external networks for the exchange of information and to form relationships for future research collaboration.

Other

- Continue to update knowledge and develop skills.
- Develop internal and external contacts with researchers in related areas.
- May contribute to work of the College/School/Research Unit through activities such as student Open Days, other promotion activity as appropriate.

Qualifications/Skills required:

The ideal candidate should hold a PhD in Civil Engineering, Mechanical Engineering, Chemical Engineering, Physics, Materials Science or equivalent, have a strong background in composite materials and structures and, to be considered at postdoctoral researchers level, are expected to have performed original scientific research within composite structures. Candidates should have excellent communication and organisational skills; be highly motivated and passionate about renewable energy; and have strong documentation, oral and interpersonal skills. The position requires communication with the different partners of the consortium, thus excellent communication skills are mandatory.

Essential Requirements:

- Honours degree (at least 2.1 or equivalent) in Civil Engineering, Mechanical Engineering, Chemical Engineering, Physics, Materials Science or equivalent
- Evidence of experience in design of fibre reinforced polymer (FRP) composite structures
- Demonstrable experience in both independent and collaborative research
- Excellent verbal and written communication skills (English language)
- Evidence of scientific publication and dissemination of results at conferences (for Postdoctoral researcher level)

Desirable Requirements:

- PhD in Civil Engineering, Mechanical Engineering, Chemical Engineering, Physics, Materials Science or equivalent
- Experience in laboratory testing, especially mechanical and/or structural testing.
- Evidence of innovative thinking, able to work both independently and in cross-disciplinary teams
- Appropriate supervisory or teaching experience may be an advantage

Employment permit restrictions apply for the research assistant category of the post

Salary:

- €22,609 to €35,218 per annum (Research Assistant scale)
- €37,874 to €43,783 per annum (Postdoctoral researcher scale)

Start date: Position is available from September 2020



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Continuing Professional Development/Training:

Researchers at NUI Galway are encouraged to avail of a range of training and development opportunities designed to support their personal career development plans.

Further information on research and working at NUI Galway is available on [Research at NUI Galway](#)

For information on moving to Ireland please see www.euraxess.ie

Further information about the Sustainable and Resilient Structures Research Group at NUI Galway is available at www.nuigalway.ie/structures, the SFI MaREI Centre at www.marei.ie, the School of Engineering at <http://www.nuigalway.ie/engineering/> and the Ryan Institute at <http://www.nuigalway.ie/ryaninstitute/>

Informal enquiries concerning the post may be made to Dr Jamie Goggins (Jamie.goggins@nuigalway.ie)

To Apply:

Applications to include a covering letter, CV, and the contact details of three referees should be sent, via e-mail (in word or PDF only) to Dr Jamie Goggins: Jamie.Goggins@nuigalway.ie Please put reference number **NUIG-139-20** in subject line of e-mail application.

Closing date for receipt of applications is 5.00 pm Sunday, 20th September 2020

Interviews are planned to be held during the week of 28th September 2020, which will be held using MS Teams

We reserve the right to re-advertise or extend the closing date for this post.

National University of Ireland, Galway is an equal opportunities employer.

All positions are recruited in line with Open, Transparent, Merit (OTM) and Competency based recruitment

'NUI Galway provides continuing professional development supports for all researchers seeking to build their own career pathways either within or beyond academia. Researchers are encouraged to engage with our Researcher Development Centre (RDC) upon commencing employment - see www.nuigalway.ie/rdc for further information.'

