

JOB DESCRIPTION

Vacancy Ref: A3581

<p>Job Title: Research Associate in Wave Energy Converter Optimisation and Control. (For the research project: “Novel High Performance Wave Energy Converters with advanced control, reliability and survivability systems through machine-learning forecasting (NHP-WEC)”)</p>	<p>Present Grade: 6</p>
<p>Department: Engineering</p>	
<p>Directly responsible to: Dr Xiandong Ma and Professor C. James Taylor</p>	
<p>Supervisory responsibility for: support in supervision of PhD and final year UG/PG students</p>	
<p>Other contacts Professor George A. Aggidis Internal: Lancaster academic and professional staff External: Industry and university collaborators including the University of Hull and the wider scientific community</p>	
<p>This is a 16 months appointment for advanced research in the field of Wave Energy Converter Development and, more specifically, with the Concept Optimisation. Our aim is to advance WEC technology by developing essential device control and monitoring systems that are integrated with high fidelity sea state forecasting. To bring focus, research into novel algorithms and methods will be orientated around two case study challenges, namely the TALOS concept device and the SmartWave toolset. Our ambition is to bridge the gap between small-scale modelling and the higher TRL now required in order to evidence costs and demonstrate commercialisation potential. The work will be performed in close collaboration with the team at Lancaster and their University of Hull partners. Your role will concern with the Survivability, Reliability and Optimised Control of Devices in the Marine Environment, including the Smart Sensor and Data Acquisition Framework, Intelligent Condition Monitoring, Predictive Maintenance and Optimised Control Strategy. This research will deliver the new intelligent condition monitoring, predictive maintenance and multi-axis control strategies, required for the later validation and cost calculations related to WECs like TALOS. A scale model of the TALOS WEC will be tested using the state-of-the-art facilities at Lancaster University Engineering Department and in collaboration with our University of Hull partners. It is highly desirable that you have experience and knowledge in Wave Energy Converter technology. We will offer specific training and support in any area that is required.</p>	
<p>The main activities are:</p> <ul style="list-style-type: none"> - Optimised Control Strategy of TALOS WEC - Survivability and Reliability Strategies - Smart Sensor and Data Acquisition - Intelligent Condition Monitoring - Predictive Maintenance of multi-axis TALOS WEC - Experimental Modelling, Wave Tank Testing - Validation and cost calculations related to WECs like TALOS. 	
<p>Other important activities are:</p> <ul style="list-style-type: none"> - To take responsibility of the tasks and reporting of the project - To participate to the project meetings organised by the consortium; preparation of the report for the status of the project to be presented to seminars; preparation and presentation of talks, posters and reports to disseminate the results of the project. - To present papers to relevant international and national conferences and workshops and contribute to journal papers. - To contribute to the organisation of conferences, workshops and meetings. - To assist PhD students and final year project students in the team in the development of different aspects of the research. 	

- To support the dissemination and exploitation of the results of the research.