Join the Energy Transition Institute dedicated to research and innovation in offshore wind energy.

Postdoctoral Research Position - Understanding the Ageing Mechanisms of Polyamide 6 Ropes in Marine Environment (M/F/X)

Want to join a human-scale organisation with a dynamic, committed and caring team focused on innovation for the energy transition? France Energies Marines offers you the opportunity of a high-level scientific career in which you will be recognised by your peers in your field of expertise. You'll be able to carry out applied research for a booming industry. So, let's create tomorrow's world together!

France Energies Marines Institute

France Energies Marines is an offshore wind energy research and innovation centre with a recognised industrial, economic and societal impact in France and internationally.

Its mission is to remove the obstacles facing the offshore wind energy sector. Backed by the French government and supported by a multidisciplinary team of more than 90 staff, a network of international experts and unique infrastructures, the Institute conducts multi-partner research projects guided by excellence.

The results are transferred to the industry through research and expert services, operating licenses, know-how transfer, as well as participation in expert committees and professional networks.

These activities are structured around four complementary departments: Wind and Ocean Dynamics, Systems and Performance, Wildlife and Interactions, and Ecosystems and Society. Cross-functional support services contribute to and support these activities.

Context

Synthetic polyamide 6 (nylon) fibre ropes are promising solutions for the mooring lines of future floating offshore wind turbines in moderate water depths. However, the fatigue performance of stranded polyamide 6 fibre mooring lines over the entire lifetime of an offshore wind farm, as well as their ageing behaviour in the marine environment, remain major research challenges. This postdoctoral research position will contribute to the GLAMOOR research project, building on the work carried out through the BAMOS, MONAMOOR and POLYAMOOR projects. The research will be conducted in partnership with Ifremer.

Ifremer is a French public research institute dedicated to research and innovation in marine science and technology. Within the Institute, the SMASH Laboratory (Structures, Advanced Materials and Hyperbaric Loading) specialized in the study of polymer material ageing in marine environments (ropes, elastomers and composites), the development of dedicated testing facilities, and the physicochemical and mechanical characterization of polymers.

Job description

The postdoctoral researcher will contribute to understanding the ageing mechanisms of synthetic cables and polyamide 6 (PA6) fibre ropes exposed to the marine environment. The objective will be to identify the physicochemical and mechanical changes occurring in the material during accelerated ageing and to establish parametric relationships between chemical degradation, microstructural changes and the evolution of mechanical properties. Ultimately, this work will improve the representation of PA6 mooring line behaviour in engineering models.

The research will be based on an experimental approach combining ageing tests, physicochemical characterisation and mechanical testing, in collaboration with the teams at France Energies Marines, ENSTA and Ifremer.

Experimental work

- Conduct and monitor ageing tests on polyamide 6 fibres in a marine environment
- Characterise the mechanical properties of materials before and after ageing, particularly through tensile testing and Dynamic Mechanical Analysis (DMA)
- Carry out physicochemical and thermal characterisation (FTIR, DSC, TGA)
- Analyse and interpret experimental results
- Investigate the relationships between physicochemical changes and mechanical properties in order to identify degradation mechanisms

Model work

- Analyse ageing kinetics and the relationships between physicochemical changes and mechanical properties
- Contribute to the development of approaches to improve the understanding and description of changes in material properties during ageing
- Disseminate research findings through technical reports, scientific publications and presentations at conferences and project meetings

Profile and skills

Education

PhD in Materials Science, Polymer Science, Polymer Physical Chemistry or a related field

Professional experience

Extensive hands-on experience in the characterisation of polymer materials

Specific knowledge

- Strong knowledge of polymer science, particularly structure–property relationships, mechanical behaviour and ageing mechanisms
- Good knowledge of physicochemical characterisation techniques for polymers
- Ability to analyse and interpret experimental results by correlating observed changes of physico chemical properties to mechanical performances

Professional qualities

- Scientific curiosity, creativity and a strong interest in research activities
- Scientific rigour and critical thinking
- Ability to work independently and strong organisational skills
- Ability to work as part of a team in both academic and industrial environments
- Strong summarising and writing skills, with good spoken English communication skills
- Ability to read and write technical reports and scientific papers in English

The +:

- Experience in the mechanical and physicochemical characterisation of polymer fibres and/or synthetic ropes
- Knowledge of polymer ageing mechanisms in marine environments, particularly water sorption and hydrolysis phenomena
- Knowledge of the fatigue behaviour of polymer materials
- Skills in experimental data processing and programming (e.g. Python)
- Knowledge of offshore renewable energy

Practical information

Type of contract	Fixed-term contract (CDD)
Contract duration	18 months
Status	Executive
Working places	Plouzané (29), France Energies Marines and Ifremer headquarters
Expected start date	1st February 2027
Application deadline	30th November 2026

In accordance with applicable regulations, where candidates have equal qualifications, preference will be given to applicants with disabilities.

How to apply

- Applications must consist of a **CV** and a **cover letter.**
- In the case of a secondment of the candidate by a member of France Energies Marines, the application must mention the agreement of the current employer.
- To apply, go to the France Energies Marines website in the **Join us section**.

O/Ref : FEM-SAS-2026-322 *Date: 06/11/2026*