

14th International Fatigue Congress (IFC14)

Proposed Session

Title: *Advances in Offshore Renewable Energy Structures*

Session Organizers:

- Dr. Mário Alberto Vieira (WavEC Offshore Renewables, Portugal), mario.vieira@wavec.org
- Prof. Ricardo Pereira (Instituto Superior Técnico, University of Lisbon, Portugal), ricardo.pereira@tecnico.ulisboa.pt
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Abstract

The expansion of offshore renewable energy is pushing the limits of structural engineering in marine environments. This symposium will explore recent advances and research challenges related to the structural performance of floating platforms for offshore renewable applications. The scope will encompass hydrodynamic behavior, structural integrity and mooring performance.

Contributions are invited in the following areas, among others:

- Structural analysis and design of offshore platforms (steel and concrete)
- Fatigue and ultimate limit state assessments under environmental loading
- Hydrodynamic analysis for operational and transport phases
- Mooring systems: configuration, dynamic response, and load estimation
- Structural health monitoring and data-driven methods for lifecycle assessment
- Integration of experimental campaigns and numerical modeling
- Applications of machine learning to condition monitoring and predictive maintenance

The session also welcomes contributions presenting case studies, novel modeling approaches, and interdisciplinary research supporting the safe and cost-effective deployment of offshore renewable systems.