

# Master thesis / Internship in Offshore Technology

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## Title

Modeling of a magnetic-based Mooring Snap loads protection system

**Supervisor:** Prof. to be determined

**Co-supervisor:** Miguel Lopes (WavEC)

**Master program:** To be determined

## Description

Snap loads are one of the major constraints in the design of moorings for Wave Energy Converters. They occur when a mooring line which is designed taut in operational conditions becomes loose, typically due to very large motions. When the mooring line returns to its taut condition, a very large load with a short duration (snap load) occurs at the mooring line causing damage and eventually destruction of the mooring line.

## Objectives

The purpose of this topic is to design a magnetic based snap load protection system for WEC moorings.

The work will be developed through the following steps (typically between 4 and 6):

1. Literature review of WEC moorings, snap load protection systems and electromagnetic field numerical modeling.
2. Obtain the base specifications of the snap load protection system
3. Development of a 3D magnetic field model of the system for component selection and optimization (using a 3D magnetic field modeling software)
4. Design the snap load protection system
5. Report

## Results

Results of the magnetic field modeling and optimization

Suggested design of the system based on the study performed

## Notes

- WavEC *Offshore Renewables* has a prize policy for MSc thesis undertaken at the Centre: 500 € for 10% top marks and 1000 € for 5% top marks.
- Priority is given to students able to dedicated 100% of their time to the thesis.
- Required background: if specific non-obvious requirements are needed.