

# **Numerical validations of scaled DTU 10MW TLP floating wind turbine with experimental data**

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## **Abstract**

The experimental testing of a Tension Leg Platform (TLP) floating wind turbine substructure at 1:60 scale in wind and waves with a pitch-regulated DTU 10MW wind turbine was performed and presented. The numerical investigations have been performed and compared with the measured data. In this study, HAWC2 and FAST are used to implement the 10MW TLP wind turbine system. Moreover three different control configurations are implemented: two closed-loop controllers and one open-loop controller. In this presentation the experimental setup and program is briefly described and system identification and the responses of the floater to hydrodynamic loading are for the different control strategies analysed and compared. Generally, The numerical models considered in this study (HAWC2 and FAST) are able to capture the same tendencies as the experiments. However the considered TLP concept introduced significant non-linear behaviour in surge response which is not captured by the two numerical models well. In this presentation more detailed numerical comparisons with the measurement data will be presented.

**Keywords:** *Floating wind turbine, Experimental data, Numerical data*

## **Biography**

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