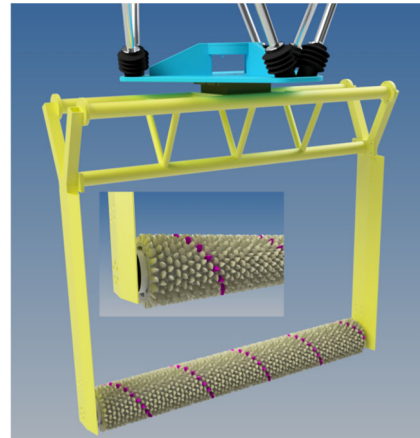
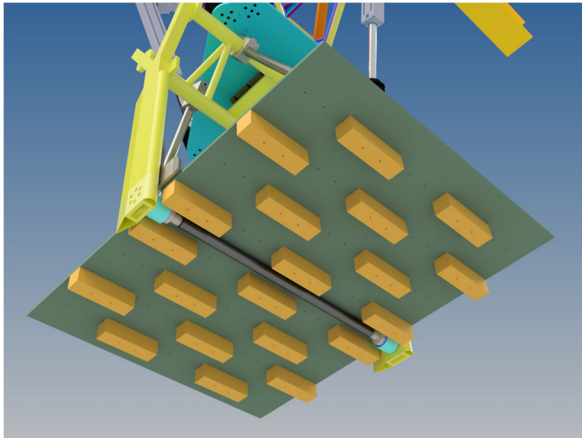


## **Caractérisation expérimentale du comportement d'hydrolienne dans des conditions d'essais réalistes**

This work is part of the France Energies Marines projects: STYF & OMDYN 2 (in partnership with industrial partners, see <https://www.france-energies-marines.org/>). Under these projects, numerical models are developed in order to study submarine cable behaviour under wave and current solicitations. This kind of model needs to be validated by a comparison of the hydrodynamic loads measured during basin tests.

Two cases will be considered:

- a cylinder closely fixed to a horizontal plate with representative seabed roughness and submitted to current and horizontal oscillations, in order to understand the stability of submarine cables when submitted to turbulent flow,
- a cylinder colonized by mussels submitted to current and horizontal oscillations, in order to characterize the hydrodynamical impact of biofouling on subsea components.



Experimental tests will be carried out in the wave and current flume tank of Ifremer, under a specified set of load cases (forced oscillations, current). These trials serve to assess the hydrodynamic loads acting on the cylinder.

The two models mainly include a rigid cylinder connected to multi-components gauges in order to measure the hydrodynamic forces on the cylinder. The frame on which the instrumented cylinder is fixed is connected to a Hexapode in order to impose forced motion to the system in order to take into account wave effects. A 2D PIV system will be used to characterize the flow in vertical planes around the cylinder.

Validated test data (essentially drag and lift forces and PIV measurements) will be processed and analysed.

### **- Profil de candidature souhaitée :**

Le candidat devra disposer d'une formation en mécanique des fluides avec si possible une spécialisation en hydrodynamique expérimentale et traitement de données et idéalement suivre un Master orienté recherche.

**- Gratification :** ~560 €/mois    **- Durée du stage :** 4-6 mois

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