

CFD analysis of the XSeaO₂ Carbon Dioxide Extractor Module

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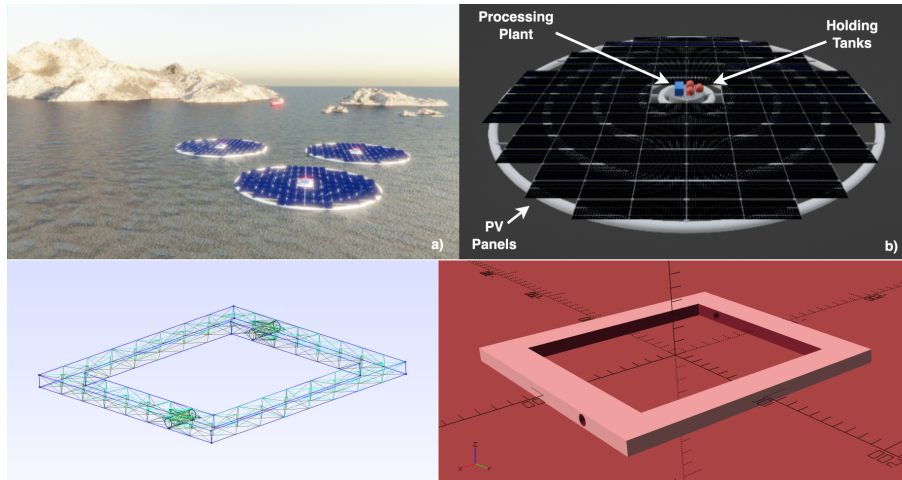


Figure 1: Rendering of the potential demonstrator and a section of the carbon dioxide extraction module.

Carbon capture technology will be key to mitigate the effects of climate change in the near and distant future. As such, the XSeaO₂ project aims to design and manufacture a demonstrator that can extract carbon dioxide from water and convert it into synthetic fuel, all the while being powered by solar energy. This demonstrator will be deployed on the lake of École Polytechnique, with the goal of powering a combustion engine with the produced fuel.

The Call

The XSeaO₂ project, located on the campus of École Polytechnique in Palaiseau, France, is looking for a motivated Bachelor or Master student to employ computational fluid dynamics to analyze the carbon dioxide extraction module of the aforementioned demonstrator. The results of the internship will be incorporated into future designs of the module.

The intern will use a multitude of open source software to model the device and perform numerical experiments. This software includes tools such as Gmsh and FEniCSx, as well as the python programming language (other languages may be used as well).

Desired Profile

Candidates for this internship should have a strong background in engineering and numerical analysis, with experience in fluid mechanics, numerical methods, and programming.

The internship will be held at École Polytechnique in France. To apply, please email Doug KELLER at douglas.keller@lmd.ipsl.fr with your CV/résumé.