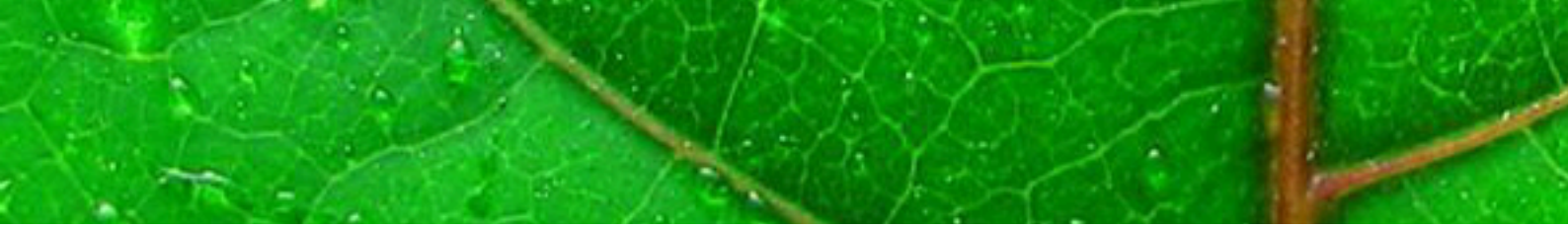

Martin Parisot

Du 24 mai 2023 au 24 mai 2023

Inria Cardamom, Bordeaux Sud-Ouest

Page web : https://team.inria.fr/cardamom/martin-parisot/

Title : Numerical approximation of congested flows: application to renewable marine energy

Abstract : We are interested in the modeling and numerical resolution of fluid/structure interaction, particularly for applications in marine renewable energy.

Due to the large time and space scales, vertically integrated models are required and the modeling of objects at the surface requires a maximum constraint on the water height called congestion constraint.This type of constraint appears for many other types of flows such as saturation in a porous medium, crowd movements or tumor growth.Taking into account this constraint requires the development of a particular scheme.We will then see how the coupling with the dynamics of the floating objects can be realized to preserve good physical properties.Finally, we will see how to take into account air pockets trapped between the water and the structure.