

February 20, 2017, 12:00-13:00

Margarida MORAGUES

BCAM - Basque Center for Applied Mathematics

DIRECT FINITE ELEMENT SIMULATION OF TWO-PHASE FLOW FOR MARINE BASED RENEWABLE ENERGY OUR DIRECT FEM

In this working group we introduce a finite element method to solve two-phase turbulent incompressible flow. This method is applied to marine based renewable energy problems. In particular, we focus on floating structures. We solve the variable density incompressible Navier-Stokes equations using a residual based turbulence modelling as well as a separation term to prevent the mixing of the two fluids.

Massimiliano LEONI

BCAM - Basque Center for Applied Mathematics

RECENT RESULTS ON IN OUR DIRECT FEM METHODOLOGY AND FENICS SOFTWARE TARGETING THE INTERACTION OF FLUIDS AND SOLIDS

We present recent results on in our Direct FEM methodology and FEniCS software targeting the interaction of fluids and solids [fluid-structure interaction problems] or fluids and fluids[multi-phase problems].

The typical scenarios we are interested in include cardiac cycles, in the realm of patient-specific clinical diagnosis, and floating wind power turbines, which are employed in the generation of renewable energy.

A part of the contents will be presented at SIAM's Computational Science and Engineering conference in Atlanta, GA, USA, starting on February 27th.