On immersed techniques for fluid-structure interaction: the Immersed Structural Potential Method

Aurelio Arranz Carreno (Swansea)

Abstract. The practical solution of complex fluid-structure interaction problems requires advanced numerical techniques that can cope with the different physics, scales and large deformations present in the problem. Two main families of methods have been developed over the years, namely boundary fitted and immersed, and in this talk I will present the Immersed Structural Potential Method, a new numerical technique based upon the original Immersed Boundary Method (IBM) that is particularly suited for the case of incompressible solids and fluids, a case that is a main challenge for other techniques. Some enhancements and results will be presented.