Unconditionally Stable Finite Element Scheme for Fluid-Structure Interaction Problems

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Abstract

In this talk I will present a model for the numerical approximation of fluid-structure interaction problems based on a fictitious domain approach and on the use of a Lagrange multiplier. I will follow the formulation of [1] which is a follow up of a method of the family of Immersed Boundary schemes such as [2, 3].

One of the main features of our approach is the unconditional stability in time also when a semi-explicit time marching scheme is used [4]. As opposed to other unfitted approach, the presence of small cut cells doesn't affect the stability and the conditioning of the numerical scheme [5].

References

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