Large time-step and coarse-mesh strategies suitable for problems with moving boundaries and interfaces

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ABSTRACT

The aim of this presentation is to show that in many problems in which there are moving internal interfaces, one order of magnitude larger time-step can be used with an appropriate strategy[1,2]. Furthermore, finite element meshes much coarser than those used currently, may be acceptable with the same accuracy[1] .

The use of large time steps together with coarse meshes solves the same problem with the same accuracy by several orders of magnitude faster[1,2,3] .

Some pathological examples of moving multi-fluids with internal interfaces, solved with fixed meshes are presented to demonstrate this assertion.

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