SUBGRID SCALES, A-POSTERIORI ERROR ESTIMATION AND ADAPTIVITY FOR COMPUTATIONAL MECHANICS

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ABSTRACT

A-posteriori error estimation is a fundamental tool of Computational Mechanics, relevant for the reliability of the solution and the automatization process of the numerical computation. It is related to the modeling of the subgrid (unresolved) scales and finds in adaptivity a way of expression.

Many of the developments and theories for a-posteriori error estimation have been laid out in the context of computational solid mechanics, often with variety of simplifying assumptions. These days there is a growing number of contributions in the field of computational fluid mechanics, with emphasis in convection-dominated and hyperbolic flows. There is also an increasing emphasis on more complex single-physics applications across all disciplines, as well as multi-physics applications.

Therefore, the objectives of this minisymposium are to gather current contributions and techniques of a-posteriori error estimation, subgrid scales modeling and adaptivity for computational fluid dynamics, multi-physics and computational mechanics in general.