

Mesh Adaptivity Using the VMS Error Estimator. Application to the Transport Equation.

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ABSTRACT

Recently, it has been developed an explicit a-posteriori error estimator especially suited for fluid dynamics problems solved with stabilized methods [2, 3]. The technology is based on the theory that inspired stabilized methods, namely, the variational multiscale theory [1]. The salient features of the formulation are that it can be readily implemented in existing codes, it is a very economical procedure and it yields very accurate local error estimates uniformly from the diffusive to the advective regime.

In this work, the variational-multiscale error estimator is used to develop adaptive strategies to solve the advection-diffusion-reaction equation. The performance of various strategies to adapt the mesh will be investigated, with emphasis on flows with boundary and interior layers.

References

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