

Adaptive schemes in isogeometric analysis with hierarchical spline structures

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ABSTRACT

The development of adaptive strategies based on extension of tensor-product splines is one of the crucial aspects to design efficient isogeometric methods. In this context, hierarchical splines provide a powerful tool for local refinement, and for this reason their use in isogeometric analysis has covered an always increasing number of applications over the last years. The theoretical foundations of these methods instead were established more recently when their properties were first analyzed in mathematical terms.

The talk will illustrate recent results on the design and analysis of adaptive isogeometric methods with hierarchical spline models, together with a selection of numerical examples. Possible extensions of standard hierarchical spline methods in different directions will all also be discussed.