

Talk announcement

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Efficient computation of a spline basis for adaptive multipatch discretizations

In this talk, we propose a new approach for adaptive discretizations in Isogeometric Analysis. In order to avoid the non local refinement of tensor product discretizations in 2D or higher dimensions, we decompose the computational domain into multiple geometrically conforming patches. On each of these patches, we set up individual tensor product discretizations. Since we use different grid sizes on each patch we usually have non conforming but nested discretizations on the interfaces. The nesting property allows the coupling of local basis functions in a H^1 conforming way across interfaces. This also applies to T-junctions emerging from the local refinements.

We further give some insight on the computation and formation of a spline basis using a classical and a more algebraic approach and the problems that come with each of these approaches. Finally, we show some results by employing this method to a simple adaptive test problem, utilizing patchwise refinement and a residual a posteriori error estimator.