High order non tensor product spline approximation

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In the last decade there has been a renewed interest in multivariate splines. The tensor-product construction has been extend in different ways [1, 2, 3, 4, 5] that weaken the global-tensor structure while retaining (in most cases) tensor-product basis functions. A priori error bounds for approximation with these spaces can be obtained constructively using local approximation operators or *quasi-interpolants* [6, 7, 8, 9].

Following the same ideas it is possible to estimate the behavior of the approximation error as the degree increases. This is interesting for the development of high order methods for PDEs, in particular for the k-refinement method in IsoGeometric Analysis. Similar questions in the univariate case were analysed in [10, 11].

Joint work with: Tom Lyche.

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