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joint work with

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BEST ERROR LOCALIZATION WITH PIECEWISE POLYONOMIALS IN A SOBOLEV HILBERT TRIPLE

Consider the problem of approximating some function from a Sobolev space by continuous functions that are piecewise polynomial with fixed total degree. Best error localization means that the best error over the whole domain is equivalent to a l_2-norm of best errors over small subdomains, which ideally are mesh elements. The equivalence may depend on the shape regularity of the underlying mesh, but is independent of the regularity of the involved target function. Such a basic approximation result is an attractive departure point for error bounds as well as useful in the context of adaptivity.

In this talk we shall present best error localizations in H_0^1, L_2 and H^{-1}. We will compare them, outline differences, and discuss also simultaneuous best error localization in this Hilbert triple.