

NEAR-BEST HP-ADAPTIVE APPROXIMATION

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The hp-adaptive numerical methods for PDEs combine the domain decomposition with assignment of degrees of freedom at each element of a particular refinement. The main objective of this talk is to introduce a framework that streamlines the process of making adaptive decisions.

We consider domain partitioning based on a fixed binary refinement scheme and a coarse-to-fine routine for making adaptive decisions about the elements to be split and the polynomial orders to be assigned.

The problem of finding near-optimal results is managed by using greedy algorithms on binary trees and a modification of the local errors that take into account the local complexity of the adaptive approximation.

We prove that the algorithm provides near-best approximation to any given function.