Multiwavelet-based Grid Adaption
with Discontinuous Galerkin Schemes

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Abstract: We present an adaptive strategy for solving conservation laws by discontinuous Galerkin methods. The underlying idea of our adaptive strategy is to perform a multiresolution analysis using multiwavelets on a hierarchy of nested grids. This provides information on the difference between successive refinement levels that may become negligibly small in regions where the solution is locally smooth. Applying thresholding, the data is compressed thereby triggering local grid adaptation [1, 2, 3, 4]. Furthermore, this information is used as an additional indicator for limiting. In this talk, we present the concepts and show results for shallow water equations.

References

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