

Convergence of p -multigrid algorithms for HHO methods

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We present recent theoretical results on p -multigrid for Hybrid High-Order (HHO) methods, targeting the Poisson problem. Specifically, we have studied two algorithms consisting of a non-inherited W -cycle, and an inherited V -cycle. The results state that the rate of convergence is independent of the mesh size, and deteriorates with the polynomial degree only by a small polynomial dependency. These are the first theoretical results on p -multigrid for hybrid methods. We also present some numerical results in relation with the theory. Finally, we sketch the proofs of the convergence results for the two algorithms.