Multigrid algorithms for p–version Virtual Element methods

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ABSTRACT

We present a multigrid algorithm for the solution of the linear systems of equations stemming from the numerical approximation of a second-order elliptic problem based on employing the p-version Virtual Element method [2, 3]. The construction of the multilevel method makes use of suitable interspace operators between a sequence of non-nested high-order Virtual Element spaces [1]. The convergence analysis of the resulting algorithm is based on the construction of suitable *auxiliary* local virtual spaces. Numerical experiments are shown which underpin the theoretical predictions; moreover, the proposed multilevel solver is shown to be convergent in practice, even when some of the theoretical assumptions are not fully satisfied.

REFERENCES

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