Three Dimensional Numerical Simulations with VEM

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ABSTRACT

The Virtual Element Method (VEM) is sharing a good degree of success in the recent years. Numerical tests show the robustness and the flexibility of such method in two dimensions. However, even if the construction and theory behind the three dimensional case is already developed in the literature (see for instance [1, 2]), the existing codes and numerical results in 3D are currently restricted to the lowest order only.

This talk represents a first step towards the development of C++ VEM codes in three dimensions and arbitrary order of accuracy [3]. After a brief review of the scheme, we provide a series of numerical results for various VEM approximation degrees with generic polyhedral meshes. Although we focus mainly on the reaction-diffusion problem, if time allows also more complex equations will be investigated.

REFERENCES

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