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Keywords: robust a posteriori error estimate; hp-adaptive DG methods; convection-diffusion equations

Review text:

The authors consider a model for convection-diffusion equations in two dimensions. They derived a robust *a posteriori* error estimate for h_p -adaptive DG methods for the problem under consideration. The ratio of the constants in the reliability and efficiency bounds is independent of the Péclet number ε of the equation, and hence the estimate is fully robust. It is applied the estimates as an error indicator in an h_p -adaptive refinement algorithm. Numerical examples show that the indicator is effective in locating and resolving the interior and boundary layers. Once the local mesh size is of the same order as the width of the boundary or interior layer, both the energy error and the error indicator were observed to convergence exponentially.

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