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Energy norm a posteriori error estimation for hp -adaptive discontinuous Galerkin methods for elliptic problems in three dimensions

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MSC Classification: 65N15 65N30 65N35 65N50

Keywords: energy norm; a *posteriori*; hp adaptive discontinuous Galerkin methods; elliptic problems; three dimensions

Review text:

The authors derived an a *posteriori* error estimator for hp adaptive discontinuous Galerkin (DG) methods for elliptic problems on 1-irregularly and isotropically refined, affine hexahedral meshes in three dimensions. The estimator yields upper and lower bounds for the error measured in terms of the natural energy norm. It is applied the estimate as an error indicator for energy norm error estimation in an hp -adaptive refinement algorithm. The numerical tests show that the indicator is efficient in locating and resolving isotropic corner singularities at exponential convergence rates.

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