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Author: Adjerid, Slimane; Mechai, Idir

Title: *A posteriori* discontinuous Galerkin error estimation on tetrahedral meshes.

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Review text:

The authors consider scalar first-order hyperbolic problems and its discontinuous finite element method on structured and unstructured tetrahedral meshes. A simple and efficient a posteriori error estimation procedure is presented. A local error analysis to derive a discontinuous Galerkin orthogonality condition for the leading term of the discretization error is provided. In addition, the authors describe an implicit error estimation procedure for the leading term of the discretization error by solving a local problem on each tetrahedron. Numerical computations show that the implicit a posteriori error estimation procedure yields accurate estimates for linear and nonlinear problems with smooth solutions. The performance of the error estimates on problems with discontinuous solutions is also shown.