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A two-grid method for finite volume element approximations of second-order nonlinear hyperbolic equations
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Keywords: Two grid method; second order non linear hyperbolic equation; finite volume element method; error estimates

Review text:

The authors consider a second order non linear hyperbolic equation. A semi discrete finite volume element method, based on the two-grid method, is suggested and analyzed. The idea of the two grid method is to reduce the non linear and non symmetric problem on a fine grid into a linear and symmetric problem on a coarse grid. The basic mechanisms are two quasi uniform triangulation of Ω , T_H and T_h , with two different sizes H and h ($H > h$), and the corresponding finite element spaces V_H and V_h which satisfy $V_H \subset V_h$. An H^1 error estimate of order $h + H^3 \log |H|$ is proved. A Numerical test is presented to justify the efficiency of the method.

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