

Space-time discontinuous Galerkin methods for weak solutions of hyperbolic linear symmetric Friedrichs systems

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We study weak solutions and its approximation of hyperbolic linear symmetric Friedrichs systems describing acoustic, elastic, or electro-magnetic waves. Stability and convergence estimates are provided for a discontinuous Galerkin discretization in space and time with respect to a mesh-dependent DG norm, where we also consider the case of piecewise discontinuous weak solutions. A reliable error estimator is constructed, and numerical results demonstrate the efficiency of the approach.

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