

Finite Elements for Convection Dominated Problems — An Implementation in Julia

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Abstract

We will give an overview of our Julia FEM package for solving the compressible Euler equation with low order finite elements. A main part of the presentation is devoted to the discretization of the nonlinear convection term. We introduce a recovery technique to lift up the advected quantity to a higher order DG-ansatz space, which is borrowed from the finite volume discretization techniques.