

Solving coupled Burgers equations by a stable hybridized discontinuous Galerkin method

Nabi Chegini

This talk is devoted to propose a hybridized discontinuous Galerkin (HDG) method for solving coupled Burgers equations. Based on HDG method for spatial variable and also time lagging and Newton-Raphson methods for time variable, a numerical scheme has been designed. Under some conditions on the stabilization parameters, it is shown that the method is stable.

To demonstrate validation and applicability of the proposed method, numerical experiences have been reported. The best possible rate of convergence is achieved for the uniform mesh with approximate solutions. It has been shown numerically that the corresponding conservation laws are satisfied for the approximate solutions of coupled Burgers equations.