Numerical simulation of the conservative fractional diffusion equations by HDG method

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In this work, a numerical approximation of the conservative fractional diffusion equations is given by hybridizable discontinuous Galerkin (HDG) method. The HDG methods construct a linear system with only unknown values at the boundary elements unlike many discontinuous Galerkin (DG) methods. Thus, an approximate solution for the problem is obtained by computing these elements. It is a key point to choose a suitable stability parameter to ensure stability and convergence of the system. Some numerical examples are given to test the convergence of the proposed method on the problem under consideration.

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