

A Fully Discrete Weak Galerkin Mixed Approximation for Parabolic Interface Problems on Polygonal Meshes

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Abstract

The main aim of this talk is to present a priori error analysis for the fully discrete Crank-Nicolson weak Galerkin (WG) mixed approximation for parabolic interface problems on polygonal meshes. The central idea of the WG method is to approximate the underlying differential operator, precisely the divergence operator in the weak sense. Using appropriate mixed elliptic projection operators and approximation properties of the L^2 -projection operator, we obtain optimal-order a priori error bounds for both the solution and the flux in the $L^\infty(L^2)$ -norm. A series of numerical results are presented to support the theoretical conclusions.