

Talk announcement (ZOOM)

Rainer Schneckenleitner
(Institute of Computational Mathematics)

Tuesday, June 23, 2020

13:45, via ZOOM

(Meeting-ID: 946 5610 9757, Password: 230596)

Convergence theory for IETI-DP solvers for discontinuous Galerkin Isogeometric Analysis that is explicit in h and p

We develop a convergence theory for Dual-Primal Isogeometric Tearing and Interconnecting (IETI-DP) solvers for isogeometric multi-patch discretizations of the Poisson problem, where the patches are coupled using discontinuous Galerkin. The presented theory provides condition number bounds that are explicit in the grid sizes h and in the spline degrees p . We give an analysis that holds for various choices for the primal degrees of freedom: vertex values, edge averages, and a combination of both. If only the vertex values or both vertex values and edge averages are taken as primal degrees of freedom, the condition number bound is the same as for the conforming case. If only the edge averages are taken, both the convergence theory and the experiments show that the condition number of the preconditioned system grows with the ratio of the grid sizes on neighboring patches.