

Talk announcement

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Dual-Primal Isogeometric Tearing and Interconnecting solvers for multipatch continuous and discontinuous Galerkin IgA equations

In this talk, we construct and investigate fast solvers for large-scale linear systems of algebraic equations arising from isogeometric analysis (IgA) of diffusion problems with heterogeneous diffusion coefficient on multipatch domains. In particular, we investigate the adaption of the Dual-Primal Finite Element Tearing and Interconnecting (FETI-DP) method to IgA, called Dual-Primal Isogeometric Tearing and Interconnecting (IETI-DP) method. We consider the cases where we have matching and non-matching meshes on the interfaces. In the latter case we use a discontinuous Galerkin (dG) method to couple the different patches. This requires a special extension of the IETI-DP method to the dG-IgA formulation. We use ideas from the finite element case in order to formulate the corresponding IETI-DP method, called dG-IETI-DP. We present numerical results for complicated two and three dimensional domains. We observe a quasi-optimal behavior of the condition number κ of the preconditioned system with respect to the mesh-size h and the patch-size H .