

FAST FORMATION AND SOLUTION TECHNIQUES

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ABSTRACT

The goal of this MS is to discuss ways to extend the applicability of isogeometric analysis to large scale problems. Main challenges include the higher computational cost of isogeometric methods per degree of freedom, the treatment of complex geometries, the efficient matrix assembly, and linear solving. Among the topics of interest are efficient isogeometric solvers and preconditioning, large-scale parallelization and high-performance computing, specialized quadrature and numerical integration of isogeometric discretizations, low-rank approximation, matrix-free approaches, and other relevant state-of-the-art techniques.