Parallel Block-Preconditioners for Fluid-Structure-Interaction Problems

(Poster)

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The efficient solution of nonlinear monolithic fluid-structure interaction problems is still a challenging problem. In this work, we present a preconditioner based on an approximate block LU-factorization for the solution of the arising linear systems. As shown in our previous work, this preconditioner shows robust behavior with respect to the mesh- and timestep-size and various material parameters. Additionally, we investigate the parallel performance of our solver and observe similar scalability results as [P. Crosetto, S. Deparis, G. Fourestey, A. Quarteroni. Parallel Algorithms for Fluid-Structure Interaction Problems in Haemodynamics, SIAM], being the only reference of monolithic scalability tests to our knowledge.

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