On domain decomposition methods and preconditioners for PDE-constrained optimization problems

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Abstract

Large-scale optimization and optimal control problems are of fundamental importance in many application areas. Thus an intense research is boosting the development of efficient solvers and preconditioners for this class of problems. Recently, various preconditioners and parallel in time DDMs, like parareal-type, multiple shooting, and waveform relaxation methods, have been developed to solve PDE-constrained optimization and optimal control problems.
In this minisymposium, recent advances of DDMs for the efficient solution of PDE-constrained optimization and control problems are presented. A particular focus will be put on time and time parallel methods, linear and non-linear preconditioning, and optimized transmission conditions. All these aspects and new research perspectives will be posed and discussed in light of the most recent developments.

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