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Parallelization in time for optimal control and inverse problems

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Algorithms for the numerical solution of optimization problems with time-dependent PDEs are computationally extremely demanding, as they require multiple PDE solves during the iterative optimization process. With today's modern computers, the time-to-solution can be decreased through massive parallelization, which is traditionally done in the spatial dimensions, but more recently also in the time domain. In this talk, we discuss approaches to use parallel-in-time methods for the solution of PDE-constrained optimization problems, and present numerical examples.

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