A Time-parallel Algorithm for Parabolic Evolution Equations

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We present an original time-parallel algorithm for the solution of the implicit Euler discretization of general parabolic evolution equations with self-adjoint spatial operators. The main features of the proposed algorithm include a strong decoupling between time and space, a detailed convergence theory for time-dependent spatial operators, and a parallel complexity per iteration that depends only logarithmically on the total number of time-steps. Furthermore first numerical experiments will be presented.

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