

Parallel Splittin Scheme for Quasi-linear Abstract Hyperbolic Equation

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The paper discusses Cauchy problem for an abstract hyperbolic equation with Lipschitz-continuous operator in a Hilbert space. The operator corresponding to elliptic part of the equation represents a finite sum of self-adjoint and positive definite operators. Parallel splitting scheme for an approximate solution of the state problem is constructed. The idea is to parallelly (independently from each other) solve on each local interval semi-discrete implicit difference scheme corresponding to addend operators. It is proved that the weighted mean (namely arithmetic mean) of the obtained solutions is convergent to the exact solution.