

On Numerical Solutions of Telegraph Equations with the Dirichlet Boundary Condition

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Abstract: In this study, the Cauchy problem for telegraph equations in a Hilbert space is considered. Stability estimates for the solution of this problem are presented. The third order of accuracy difference scheme is constructed for approximate solutions of the problem. Stability estimates for the solution of this difference scheme are established. As a test problem to support theoretical results, one-dimensional telegraph equation with the Dirichlet boundary condition is considered. Numerical solutions of this equation are obtained by first, second and third order of accuracy difference schemes..

Keywords: telegraph equations, numerical solutions, error analysis

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