

Source identification problem for an elliptic-hyperbolic equation

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Abstract: In the present paper, the boundary value problem

$$(1) \quad \begin{cases} -\frac{d^2u(t)}{dt^2} + Au(t) = tp + f(t), & (-1 \leq t \leq 0), \\ \frac{d^2u(t)}{dt^2} + Au(t) = tp + g(t), & (0 \leq t \leq 1), \\ u(0) = \varphi, u(-1) = \psi, u(1) = \xi, \end{cases}$$

for the differential equation with parameter p in a Hilbert space H with self adjoint definite operator A is investigated. The well-posedness of this problem is established. The stability inequalities for the solution of source identification problem for elliptic-hyperbolic equations are obtained.

Keywords: elliptic equation, hyperbolic equation, boundary value problems, stability

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