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THE ALGEBRAIC CONDITIONS OF UNIQUE SOLVABILITY OF ONE-DIMENSIONAL MIXED PROBLEMS FOR THE EQUATION OF THE THIRD ORDER

Abstract

The algebraic conditions of unique solvability of mixed problems for the equations of the form

$$\frac{\partial^m u}{\partial t^m} = P\left(x, \frac{\partial}{\partial x}\right) Q\left(t, \frac{\partial}{\partial t}\right) u, \ (t,x) \in \Pi = \{(t,x) : t > 0,\ 0 < x < 1\},$$

are considered, where

$$P\left(x, \frac{\partial}{\partial x}\right) = \sum_{j=0}^{p} a_j(x) \frac{\partial^j}{\partial x^j}, \quad Q\left(\frac{\partial}{\partial t}\right) = \sum_{k=0}^{q} b_k \frac{\partial^k}{\partial t^k},$$

$1 \le m \le 3,\ p + q = 3, q < m$ *at general regular by J.Birkhoff boundary conditions.*