On solvability by quadratures conditions of boundary value problems for second order hyperbolic systems

Sozontova E.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Sozontova E.A. 2016.In the present work we consider boundary value problems for second order hyperbolic system with higher partial derivatives uxy, vxy and uxx, vyy. The aim of the study is to find sufficient conditions for solvability of the considered problems by quadratures. We proposed a method for finding explicit solutions for the mentioned problems based on factorization of the equations in the original systems. As a result, in terms of the coefficients of these systems, we obtain 14 conditions for solvability by quadratures for each boundary value problem.

Keywords

Boundary value problem, Factorization of equation, Goursat problem, Hyperbolic system, Solvability by quadratures