

EQUATIONS AND THEIR POSSIBLE APPLICATIONS IN EMERGENCY SITUATIONS

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In this work, for a 4D equation with nonsmooth coefficients, a four-dimensional combined boundary value problem is considered - a 4D combined boundary value problem 2D in the geometric mid-1D in the mid-1D multipoint type with non-classical boundary conditions that do not require matching conditions.

The equivalence of these conditions to the four-dimensional boundary condition is substantiated classically if a solution to the problem in S. L. Sobolev's isotropic space is found. The equation under consideration, in the form of a hyperbolic equation, generalizes not only the classical equations of mathematical physics (the Laplace equation, the telegraph equation, the string vibration equation), but also many models of differential equations (the three-dimensional and four-dimensional telegraph equation, the three-dimensional equation, three-dimensional and four-dimensional wave equations, etc.). It is substantiated that 2D in the geometric mean - 1D in the midpoint - 1D multipoint combined boundary conditions in the classical and non-classical interpretations are equivalent to each other. Thus, in this article, a non-classical problem with a 4D combined boundary value problem of 2D in the geometric mean - 1D in the midpoint - 1D multipoint conditions is substantiated for a fourth-order hyperbolic equation. For simplicity, this was demonstrated for one model case in one of S.L. Sobolev's isotropic spaces. Let's consider a 4D equation

$$(V_{1,1,1,1}u)(x, y, z, t) \equiv \sum_{i=0}^1 \sum_{j=0}^1 \sum_{m=0}^1 \sum_{n=0}^1 A_{i,j,m,n}(x, y, z, t) D_x^i D_y^j D_z^m D_t^n u(x, y, z, t) = f_{1,1,1,1}(x, y, z, t), \quad (1)$$

$u(x, y, z, t)$ is the desired function defined on G . Are the given measurable function $A_{i,j,m,n}(x, y, z, t)$ where, is a given measurable function of $G = G_1 \times G_2 \times G_3 \times G_4$, where $G_2 = (y_0, h_2)$, $G_3 = (z_0, h_3)$, $z_0 \geq 0$, $G_4 = (t_0, T)$; $f_{1,1,1,1}(x, y, z, t)$. Are the given measurable function G . Equation (1) is a four-dimensional $x = const$, $y = const$, $z = const$, $t = const$. Therefore, in a sense, we can consider equation (1) as a hyperbolic equation. Equations of the form (1) are used in modeling vibration processes [4]. In this paper, four-dimensional equation (1) is considered in the general case where the $1 \leq p \leq \infty$ $D_\xi^i = \partial^i / \partial \xi^i$ coefficients are nonsmooth functions satisfying only the following conditions:

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POLICY-ORIENTED TECHNOLOGY SELECTION FOR ENVIRONMENTAL SECURITY ASSURANCE

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This article systematically assesses the burden that contemporary technological progress places on environmental security and proposes balancing governance