Name of the project, IRN	**AP14971198** Generalized solution of the boundary value problem of the hyperbolic type of the fourth-order partial derivative
Terms of implementation	01.09.2022-31.12.2024
Project manager	Tokmurzin Zhanibek Syrlybayevich, Ph.D., Senior lecturer of the Department of Mathematics
Goal	In the XXI century, when the pace of development of science and technology has increased, the problems of mathematical physics are widely used in solving many technical problems as mathematical models. The initial boundary value problem for partial derivatives of fourth-order differential equations with two variables can be called as developing model problems of mathematical physics. The algorithm for finding a unique solution and solving boundary value problems for partial derivatives of fourth-order differential equations is considered in the dissertation work of PhD Tokmurzin Zh. S. Now, in order to further expand the boundary value problems for partial derivatives of fourth-order differential equations, the ways of finding a generalized solution are being studied and an algorithm for finding a generalized solution is being developed. This project considers a method for finding a generalized solution to boundary value problems of the hyperbolic type of partial derivatives of the fourth order. The solved problems are the study of the existence and uniqueness of the solution, as well as the construction of a numerical-analytical solution by parametrization of boundary value problems of hyperbolic equations.
Expected results	development of constructive methods for the generalized solution of the boundary value problem for partial derivatives of differential equations of the fourth order with two variables and the establishment of conditions for its solvability.
Research Group	The main result of the study corresponds to the purpose and objectives of the project - new generalized solutions of initial boundary value problems for fourth-order hyperbolic equations with two variables are obtained; - for equations of hyperbolic type of the fourth order, a constructive method of generalized solutions of boundary value problems is compiled. Depending on the requirements of the tender documentation, the forms of implementation of the project result may be: 1) The results obtained meet the requirements of the project due to grant funding, it is planned to publish articles in domestic and foreign peer-reviewed scientific journals "Boundary value problems", "Mathematics". ICIAM 2023 the 10th International Congress on Industrial and Applied Mathematics, Tokyo, Japan, 20 – 25 August, 2023 and 9ECM 2024 the 9th European Congress of Mathematics, Sevilla, Spain, 15 – 19 July, 2024 it is planned to participate in scientific conferences.
Publications in scientific publications	*Head:* Tokmurzin Zhanibek Syrlybayevich, Ph.D., H-index –1, Scopus Author ID 57218369903, ORCID 0000-0002-9298-3272 *Scientific consultant:* Assanova A. T., d.ph.-m.s., Professor, H-index – 11, Scopus Author ID 57201858608, ORCID 0000-0001-8697-8920