

Functional-topological methods of analysis and optimum control of nonlinear systems with distributed parameters at phase constraints

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In this project, there will be developed topological methods and methods of nonlinear analysis pointed at the study of problems of control and optimization of objects, which are described with the systems of nonlinear operator, differential operator equations, and also evolutionary inclusions and variation inequalities in functional spaces. For this class of the systems, there is developed the new approach based on the theory of multi-valued solving operators, theory of the multi-valued dynamic systems, and theory of topology degree for the multi-reflections of (S+) class.

It will be used for research of asymptotical behavior of solving of wide circle of nonlinear evolutionary equations, the initial state of which does not determine single valuate their further behavior. In particular, at the research of global attractors of nonlinear equations of hydrodynamic type, equations of chemical kinetics and others like that.