

ABSTRACT

Thesis: 111 p., 4 fig., 6 tab., 2 appendixes, 37 sources.

CONFLICT-CONTROLLED PROCESSES, DYNAMIC GAME, SET-VALUED MAP, COMPACT SET, GROUP PURSUIT, PONTRYAGIN'S CONDITION, GUARANTEED TIME.

Object of the research is a differential game with a pure delay.

The purpose of the work is investigating existing methods of solving differential-difference equations with a delay and their application to solving problems of differential games with a delay.

Subject of research: mathematical models of differential games, method of resolving functions, Pontryagin's condition, method of steps.

The thesis is devoted to the analysis of existing methods of solving problems of linear convergence of trajectories of a conflict-controlled process with a cylindrical terminal set in the presence of a constant delay. The method of resolving functions is used to find sufficient conditions for the process parameters for bringing the trajectory to the terminal set for some guaranteed time. The use of delayed exponentials for the solution of delayed-type differential equations is demonstrated in the work. The problem of group pursuit is considered and sufficient conditions of rapprochement are obtained which allow guaranteeing the capture of the evader by the group of pursuers.