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**EVOLUTIONARY ALGORITHMS FOR FINDING APPROXIMATE SOLUTIONS  
TO OPTIMAL CONTROL PROBLEMS****E. V. Antipina, S. A. Mustafina, A. F. Antipin**

Optimal control problems with terminal constraints and with a free right end of the trajectory are considered. Each of the problems is approximated by a finite-dimensional problem. The control is subject to a constraint and is defined in the class of piecewise constant functions. Numerical algorithms are formulated to find approximate solutions to the problems. The iterative algorithms are based on the differential evolution method. A feature of the proposed approach is that the solution found is independent of the choice of the initial approximation. The results of numerical experiments on solving optimal control problems are presented. For each problem, a suboptimal control and the corresponding trajectory of the process are calculated. The results obtained are compared with solutions found by gradient methods. The comparison proves the effectiveness of using the developed evolutionary algorithms for solving optimal control problems.

Keywords: optimal control problem, differential evolution, terminal constraints, evolutionary calculations.

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