ABSTRACT

The thesis is presented in 53 pages. It contains 2 appendixes and bibliography of 7 references. 7 figures and 1 table are given in the thesis.

The goal of the thesis is to develop mathematical and software tools for solving optimization problems of linear programming in particular problems of lange dimensionality.

In the thesis, existing solutions are analyzed, such as methods of successive improvement of the plan, methods of the internal point, methods of the external point, combinatorial methods. They are compared in terms of the running-time complexity of the algorithm through the choice of the method for solving problems of large dimension. the method of Karmarkar's internal point was chosen as the basis for its further modification. The modification of the method of the internal point was performed and its utility and utility was proved on the example of problems of large dimension.

Keywords: linear programming problem, polynomial algorithm, interior point method, Karmarkar's method, hyperplane, optimal resolution.