

## Two-Stage Approach for Solving the Multi-Objective Optimization Problem on Combinatorial Configurations

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**Abstract :** The statement of the multi-objective optimization problem on combinatorial configurations is formulated, and the approach to its solution is proposed. The problem is of interest as a combinatorial optimization one with many criteria, which is a model of many applied tasks. The approach to solving the multi-objective optimization problem on combinatorial configurations consists of two stages; the first is the reduction of the multi-objective problem to the single criterion based on existing multi-objective optimization methods, the second stage solves the directly replaced single criterion combinatorial optimization problem by the horizontal combinatorial method. This approach provides the optimal solution to the multi-objective optimization problem on combinatorial configurations, taking into account additional restrictions for a finite number of steps.

**Keywords :** discrete set, linear combinatorial optimization, multi-objective optimization, Pareto solutions, partial permutation set, structural graph

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