

A VARIANT OF THE SUCCESSIVE CONCESSIONS METHOD AND ITS IMPLEMENTATION BASED ON CUTTING PROCEDURES

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We propose a variant of the successive concessions method for solving a multi-objective optimization problem. The proposed variant differs from the well-known method by the general way of specifying concessions. In the proposed variant, the concessions are defined in such a way that the solutions of the particular problems of two adjacent stages can differ from each other both in the optimal value of the objective functions and in the distance by values not exceeding specified ones. We propose the implementation of the method for the case where all particular problems are convex programming problems. The implementation is based on the developed algorithm of conditional minimization of non-differentiable functions. This algorithm belongs to the class of cutting methods and is characterized by the fact that it uses approximation by polyhedral sets of both the constraint region and the epigraph of the objective function of the problem, and iteration points are constructed as belonging to the feasible set.

Keywords: multi-objective optimization, non-differentiable optimization, cutting-plane methods, approximations sequence, convergence, approximating set, cutting plane.

MSC: 90C29, 90-08, 90C30

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