MULTICRITERIA BOUNDARY VALUE PROBLEM IN DYNAMICS

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We consider a mathematical model that contains two basic components: a controlled dynamics and a boundary value problem in the form of a finite-dimensional multicriteria equilibrium model. The finite-dimensional problem describes some controlled object, which is in equilibrium (in a steady state). Under the influence of external disturbances the object loses its stability and takes an arbitrary position. It is required to return the object to equilibrium by controlling the dynamics. We propose and study a mathematical model of this situation and a method for its solution. The proposed model belongs to the class of stabilization problems. A real-world prototype of this problem can be easily found in every sphere of human activity: from technologies to politics.

Keywords: terminal control, boundary value problem, equilibrium model, linear dynamics, Pareto optimality, Nash equilibrium, saddle-point approach, convergence.

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