EXTRAGRADIENT METHOD FOR FINDING A SADDLE POINT IN A MULTICRITERIA PROBLEM WITH DYNAMICS

F. P. Vasil'ev, A. S. Antipin, L. A. Artem'eva

We consider an optimal control problem for a linear system of ordinary differential equations with an implicitly given boundary condition connected with a multicriteria problem. Such problems arise, for example, in the study of controlled objects that lose their stability under the influence of external perturbations, where it is required to return the object to stability by means of an appropriate choice of the control. We describe a possible mathematical model of this kind, propose an extragradient method for recovering the stability, and investigate its convergence.

Keywords: optimal control problem, Cauchy problem, multicriteria problem, saddle point, convergence.

F.P. Vasil'ev, Dr. Phys.-Math. Sci., Prof., Lomonosov Moscow State University, Moscow, 119992 Russia, e-mail: vasiliev.fp@gmail.com .

A.S. Antipin, Dr. Phys.-Math. Sci., Prof., Dorodnicyn Computing Centre of Russian Academy of Sciences, Moscow, 119333 Russia, e-mail: asantip@yandex.ru .

L.A. Artem'eva, Cand. Sci. (Phys.-Math.), Lomonosov Moscow State University, Moscow, 119992 Russia, e-mail: artemieva.luda@gmail.com .