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Author: Ms. Hayeon Kim

Moscow Aviation Institute (National Research Institute, MAI), Russian Federation, khy05095@gmail.com

Dr. Ilya Nikolichev

Moscow Aviation Institute (National Research Institute, MAI), Russian Federation,
ianikolichev@gmail.comAPPLICATION OF DYNAMIC PROGRAMMING FOR LOW-THRUST STATION-KEEPING
OPTIMIZATION ON GEOSTATIONARY ORBIT.**Abstract**

This paper presents an optimization approach to stabilize the trajectory of spacecraft in the vicinity of a fixed position on the Geostationary orbit. The dynamic programming approach based on the Bellman's principle of optimality have been considered to optimize maneuvers of spacecraft for station-keeping. We assume to use this method in a discrete form, recurrently restoring the criterion function. An approach to solve the interpolation problem using a Peano-Hilbert curve is presented. Thus, it is possible to reduce the considered problem of optimal control to a one-dimensional problem, which leads to a much simpler computational procedure to restore the criterion function using a relatively simple interpolant and the problem of specifying an efficient interpolation grid is automatically removed. As a numerical example, the solution of fuel minimization problem for station-keeping on Geostationary orbit is given.