APPROXIMATION OF THE SET OF TRAJECTORIES OF CONTROL SYSTEM DESCRIBED BY AN AFFINE VOLTERRA TYPE INTEGRAL EQUATION

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Abstract

The control system described by an affine Volterra type integral equation is considered. It is assumed that the system is nonlinear with respect to the phase vector and is affine with respect to the control vector. Admissible control functions are chosen from the closed ball of the space L_p, $p > 1$, with radius μ and centered at the origin. Approximation of the set of trajectories of the system generated by all admissible control functions is studied. The set of admissible control functions is replaced by the set which consists of a finite number of control functions and generates a finite number of trajectories. An evaluation of the Hausdorff distance between the set of trajectories of the system and the set consisting a finite number of trajectories is given. This paper extends the results obtained in [1] and [2].

Keywords: Integral equation, control system, approximation

References

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