МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

Центральноукраїнський національний технічний університет

Матеріали

ВСЕУКРАЇНСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ ІНТЕРНЕТ-КОНФЕРЕНЦІЇ АВТОМАТИКА ТА КОМП'ЮТЕРНО-ІНТЕГРОВАНІ ТЕХНОЛОГІЇ У ПРОМИСЛОВОСТІ, ТЕЛЕКОМУНІКАЦІЯХ, ЕНЕРГЕТИЦІ ТА ТРАНСПОРТІ

16-17 листопада Кропивницький - 2017

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Секція **«АВТОМАТИЗАЦІЯ ВИРОБНИЧИХ ПРОЦЕСІВ»**

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AUTOMATIC CONTROL OF LINEAR DYNAMIC DISTRIBUTED SYSTEMS

Tasks of minimax control for automatic systems with lumped parameters are operating under conditions of uncertainty considered. Using the methods of perturbation theory we receive the solution of these problems for systems with distributed parameters with more general functions of value. There is conducted further development of the theory of minimax controlling with regard to systems with distributed parameters described by generalized equations of parabolic type and based on the ideas expressed. Consequently, the purpose of research is a synthesis of minimax boundary distributed and point regulators of the observed variables, determining number and optimal location of point regulators. The work considers the problems of synthesis of optimal control systems that operate in conditions of an uncertain information and are described by generalized equations in partial derivatives of parabolic type. Control has the form of feedback from the observed measurements for the implementation of which it is necessary to solve integral-differential equation of Riccati. Separately built distributed and concentrated limiting regulators and are recursive algorithm for determining the optimal control regarding changes in the number of observations. There is an algorithm designed for determining the required number of point regulators and their optimal location on the border of the field in which the quality criterion does not exceed a specified threshold. 15 The solution of several problems of synthesis of optimal control of distributed systems of parabolic type, which operate under conditions of uncertainty, is proposed. In addition, the solution of the problem of optimal location of the point limiting regulators and determination of their number is given. The work was done and financially supported at the Department of automation and intelligent control systems, computer systems automation faculty of the National University of Food Technologies in. Kiev, Ukraine. 14 – 15pp