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ROBUST CONTROL OF LINEAR OBJECT

Tsykunov A.M.

The problem of construction of robust tracking system for linear object is investigated. Various immeasurable perturbation actions operate on input and output of the object. Control parameters are not measurable. The algorithm of control providing realization of objective conditions of tracking reference signals compensating both parametrical and external perturbation actions with required precision is proposed. Numerical examples and results of computer simulation, demonstrating efficiency of proposed controlling scheme, are presented.

Keywords: robust control, object of control, observer, state vector, auxiliary contour, Lyapunov function.

ROBUST STABILITY CONDITIONS FOR LINEAR NONSTATIONARY CONTROL SYSTEMS WITH PERIODIC INTERVAL CONSTRAINTS23

Morozov M.V.

The sufficient conditions of robust stability for considered class of systems are established using the method of comparison with the Lyapunov vector function of a special type. For the case of periodic interval constraints on system matrix elements the type of systems has been found for which derived conditions are not only sufficient but also required.

Keywords: control system, robust stability, interval constraints, Lyapunov vector function.

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Afanasyev V.N., Bovshuk E.R.

The paper concerns with problem of robust control of bilinear uncertain system in conditions of incomplete information on its parameters. The tasks of robust stabilization and d-robust terminal control are posed. Necessary conditions of existence of stabilizing control are found. Necessary and sufficient conditions of existence of terminal robust control are received.

Keywords: robust control, bilinear system, parametric uncertainty, robust stabilization.

MANAGING DISORDER: GLOBAL LESSONS

Nizhegorodtsev R.M.

The paper is devoted to sources, instruments and consequences of the global economic crisis. Some special features of the crisis in the USA, European Union and Russia are introduced. Some ways of overcoming the crisis, advices for government economic policies and for building the outlines of new global financial system are proposed.

Keywords: economic crisis, recessional gap, global financial system, macroeconomic policy.

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Goubko M.

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Keywords: organization structure, optimal hierarchy, non-uniform cost function, span of control.

EVALUATION PROCEDURE OF INNOVATIVE PROJECTS
PORTFOLIO INTEGRATED RISK. PART 1: ANALYSIS
OF BASIC APPROACHES TO ESTIMATION OF PROJECTS
PORTFOLIO INTEGRATED RISK

Dyomkin I.V., Pertsev D.V.

The paper gives the analysis of basic existing approaches used for estimation of integrated risk of industrial company innovative projects portfolio. Emphasis is placed on the analysis and experience of application of existing economic-mathematical methods and models of integrated risk estimation and also interference of projects in a portfolio. Authors offer the original approach to solving the problem of integrated risk estimation with allowance for effects of synergy and cannibalization.

Keywords: portfolio, innovative project, model, synergy, cannibalization, risk.

Dubina I.N.

This paper discusses the effectiveness of organizational mechanisms of innovation process participants' interaction to optimally stimulate and secure a high level of creative activity of idea generators. The paper goal is to analyze the problem of simulation of organizational creativity and innovation activity with taking into consideration latent and observable variables, and to develop a package of mathematical models of optimal strategies for innovation project participants. This research is based on the principles and methods of game theory (including hierarchical games and games of equal participants) and the theory of active systems. Basic situations of innovation project evaluation and implementation are formalized. Mathematical models of optimal strategies in these situations are developed and illustrated with imitating calculations.

Keywords: innovation, creativity, stimulation, venture investment, game theory optimality principles.

Asratian R.E.

An approach to multi-computer control systems modeling on the basis of virtual machines systems technology is considered. The main idea of the approach consists in the representation of multi-computer system in form of a set of parallel working and cooperating virtual machines organized in enough powerful host machine. The purpose of modeling is creation of the tool environment for multi-computer system's software debugging and testing. Princi ples of virtual machines interactions support and their parallel work in model time are described.

Keywords: virtual machine systems, computer systems modeling.

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