CONTENTS & ABSTRACTS

METHODS FOR MEASURING VOTING POWER:
STATE OF THE ART. 2

Pogorelskiy K.B.

The paper considers the main approaches to the estimation of voting power based on power indices. Various types of power, critique of the indices from a theoretical point of view as well as general problems related to the use of a priori and a posteriori power indices and their verification is presented. Several applications of power indices are demonstrated, in particular for assessing power of shareholders in large corporations and in the International Monetary Fund.

Keywords: power indices, preference-based power indices, corporate governance.

ON INVERSE PROBLEMS OF NONLINEAR SYSTEM
ANALYSIS. A BEHAVIORAL APPROACH. 14

Rusanov V.A., Antonova L.V., Daneev A.V.

The paper considers the criteria for differential realization of nonlinear behavioral systems — set of ill structured dynamic «input — output» type processes with the model realization in the class of infinite-dimensional non-stationary ordinary differential equations of state with program control and nonlinear state feedback.

Keywords: inverse problem, of system analysis, nonlinear differential realization.

ECONOMIC ANALYSIS OF MANAGEMENT
DYSFUNCTIONS OF SCIENCE INTENSIVE
INDUSTRY DEVELOPMENT 22

Klochkov V.V., Krel' A.V.

The control algorithm that guarantees an object high-accuracy control under the presence of coordinate and parametric disturbances and noises was obtained. The task was solved with use of additional adaptive contour of control which is synthesized on the basis of adaptive system with reference model theory. The possibilities of the proposed adaptive algorithm simplification were considered.

Keywords: strategic management, science intensive industry, advanced studies, dysfunctions, voluntarism, imitation.

MATHEMATICAL MODELS AND ALGORITHMS
FOR OPERATIONAL CONTROL OF MAIL
AND CARGO TRAFFIC IN POSTAL NETWORK 32

Zak Ju.A., Turok E.B.

Mathematical models and algorithms for operational control of mail and cargo traffic in postal network in the form of large problems of linear boolean programming are proposed. The properties of these problems are examined, accurate and rough estimates of the value of the optimality criterion at different stages of the solution are given, operators of selection of areas that do not contain feasible solutions are given. The process of obtaining the exact and approximate solutions is presented in the form of an iterative process of solving the two substantially smaller and simpler tasks. The algorithms for solving the problem with use of modified branch and bound algorithm taking into account the specific peculiarities of the general problem are described.

Keywords: mail transport, linear Boolean programming, decomposition, branch and bound algorithm.

SOFTWARE PROJECT COST OPTIMIZATION
UNDER CONDITIONS OF REACTIVE RESCHEDULING:
TASK FORMALIZATION 40

Klimenko A.B.

The paper is devoted to the software project cost optimization task formalization under conditions of reactive rescheduling. The previous work overview and analysis in the aspects of software development process is given. The task of software project cost optimization is formalized.

Keywords: scheduling, uncertainty, computation system packaging.

TECHNIQUE OF MANAGEMENT OF INDUSTRIAL ASSETS
FOR ELECTRICAL NETWORK ENTERPRISES 46

Kitushin V.G., Ivanova E.V.

The technique of development of decisions which in the precise way defines sequence of actions at management of industrial assets of the enterprise is offered. The technique provides cost optimization at each stage of life cycle of the equipment at satisfaction of the established requirements to reliability and risk. The methods of definition of an optimum residual resource and effective operation life of the equipment are offered for realization of the technique.

Keywords: management of industrial assets, repair, technical re-equipment, reconstruction, costs, technological risk, technical resource.

AUTOMATION OF AN ACCIDENT REASON SEARCH
AT FLOAT GLASS FORMING 52

Domnich V.S., Ivashenko V.A., Petrov D.Y.

An approach to development of automated system on the basis of cause-effect complexes and production base of knowledge for searching reasons of accidents at float glass forming is proposed.

Keywords: glass production, float glass, float process, accident, cause-effect complexes, production base of knowledge.

METHODS OF ESTIMATION OF TIME OF THREATS
DISTRIBUTION IN TECHNICAL SYSTEMS 59

Mikrin E.A., Somov D.S.

The model of distribution of disturbances in technical systems is offered. Methods of estimation of time of achievement of critical state and guaranteed time of system functioning are offered. The theorem connecting the procedure for registration of threats with the order of activation of system elements is proved.

Keywords: technical system, threat, disturbance, interrelation graph.

A DIFFUSE BOMB PROBLEM. 66

Korepanov V. O, Novikov D.A.

The simulation comparative analysis of six variants with different «intellectuality» of moving objects (MO) behavior (adaptability, ability to reflexion, forecasting, etc.) for a so-called diffuse bomb problem (problem of group penetration through a defense system) is carried out. It is shown that giving MO the ability to take into account the parameters of defense system and forecasting of behavior of other MO increases the efficiency of group penetration through the defense system.

Keywords: group behavior, reflexion, adaptation.

ADAPTIVE ALGORITHM OF ATTITUDE CONTROL
FOR INFORMATIONAL LARGE-SCALE SATELLITES
WITH CHANGING PARAMETERS 74

Krutova I.N., Sukhanov V.M.

The approach to solution of adaptation problem of orientation control algorithm for informational large-scale spacecraft with changing frequencies of structure vibration is considered. At synthesis of adaptation law of algorithm parameters the requirements to velocity of an attitude control system are considered. The computer modeling examples illustrating working capacity of offered adaptive algorithm are given.

Keywords: flexible spacecraft, mathematical model, adaptive control.

PRECISION CONTROL OF THE NON-STATIONARY
FLIGHT VEHICLE BY BANK ANGLE 82

Rutkovsky V.Yu., Glumov V.M., Sukhanov V.M.

The control algorithm that guarantees an object high-accuracy control in the presence of coordinate and parametric disturbances and noises is obtained. The task was solved using additional adaptive contour of control, which is synthesized on the basis of adaptive system with reference model theory. The possibilities of the suggested adaptive algorithm simplification are considered.

Keywords: control system, adaptive algorithm, reference model, Lyapunov function.