Summaries

UDC 517.518.8

Dimaki A.V., Svetlakov A.A.
APPROXIMATION OF DISTRIBUTION DENSITIES
OF VARIATES USING CHEBYSHEV–HERMITE
ORTHOGONAL POLYNOMIALS

The method of density approximation of statistic distribution by Chebyshev-Hermite polynomials for further generation of random numbers sequence the distribution law of which is close to approximated law has been proposed. The technique of solution regulation of linear algebraic equation set appearing at solving the problem of density distribution approximation is developed. The possibilities of applying the proposed method to approximate the smooth and peaked distributions having one mode as well as bimodal distribution are studied.

UDC 519.22(075.8)

Svetlakov A.A., Svinolypov Yu.G., Shumakov J.V.
SYNTHESIS AND SOME RESEARCH RESULTS OF EQUATION
SOLUTION ALGORITHMS APPEARING IN USING STUDENT
DISTRIBUTION

Numerical methods of solving equations appearing in using t-distribution for the interval estimation of random value characteristics have been researched. The results of solving equations by means of Newton's method, chord, and the most optimal, dichotomic division are presented.

UDC 681.5.015

Karelin A.J., Svetlakov A.A.
USING GRAM–SCHMIDT ORTHOGONALIZATION
TO INCREASE THE EFFICIENCY OF MULTIPOINT
ALGORITHMS OF RECURRENT PARAMETER ESTIMATION
OF CONTROL OBJECT MODELS

It has been shown that application of Gram-Schmidt orthogonalization of measured value vectors at recurrent estimation of control object model parameters permits to decrease the number of arithmetical operations due to rejection of pseudoinversion procedure of the matrix obtained. In this case at each iteration of estimation algorithm orthogonalization of only one current vector of the values measured is necessary. Such approach results in sufficient increase of operation speed of the estimation algorithm.

UDC 681.5

Shidlovskiy S.V.
MATHEMATICAL SIMULATION OF COMPLEX OBJECTS
WITH DISTRIBUTED PARAMETERS IN THE PROBLEMS
OF AUTOMATIC CONTROL
OF STRUCTURAL-RECONSTRUCTED SYSTEMS

Simulation of object control with complex geometric formation by non-stationary temperature fields has been considered. The comparative dynamic characteristics of closed systems of automatic regulation with reconstructed and fixed structures are given.

UDC 519.7:007.52;519.81

Kolesnikova S.I.
ON THE APPROACHES TO ESTIMATION
IF FEATURE INFORMATIVITY IN THE TEST RECOGNITION

Two approaches to the calculation of weighting coefficient of characteristic features used in test expert support systems are suggested, namely: the approach on the basis of variety formalism and the method of hierarchy analysis solving the problem of feature weighting coefficient definition partially for the case when dimension of the feature space is large enough. The methods realising the given approaches are discussed.

UDC 519.6:004.652.4

Kruchinin V.V., Titkov A.V., Khomich S.L.
APPROACH TO DEVELOPMENT OF DATABASE BASED
ON THE GENERATION ALGORITHMS
AND TUPLE IDENTIFICATION

An original model of relational database, the foundation for which is presentation of domains in the form of AND-OR trees has been proposed. Original algorithms of cartridge generation and identification are developed. The possibility of sufficient compression of database at small values of domain power is shown.

UDC 621.397

Layevskiy V.J.
ALGORITHM OF ONE–LEVEL MARKOVIAN
FIELDS CONSTRUCTION

The generation method of one-level Markovian fields has been considered. Properties of generated field, choice of the type of its constituents (alphabet) are set by an operator. The algorithm proposed permits to obtain horizontal/vertical and diagonal types of mosaics.

UDC 621.317.6

Loshchilov A.G., Semenov E.V., Maljutin N.D.
DIGITAL MEASURING COMPLEX FOR MEASURING
FREQUENCY AND PULSE CHARACTERISTICS
OF QUADRIPOLES

Structural scheme of measuring complex, providing measurement of characteristics of quadripoles at pulse interaction is proposed. Mathematical models and algorithms underling the pulse method of measuring time and frequency of a device are presented. The results of experimental measurements performed by pulse and traditional methods are compared. The advantages of the pulse measuring method are shown by the example of characteristic change of low-and-high pass filter.

UDC 621.382

Davydov V.N., Troyan P.J., Zaytsev N.G., Belayev S.V.
AUTOMATED COMPLEX FOR INVESTIGATION
OF SEMICONDUCTOR STRUCTURES

Automated complex for investigation of semiconductor structure properties providing measurement of wide range of their electrophysical and photoelectric characteristics due to application of mearuring methods, circuit and design-technological solutions elaborated by the authors has been developed. In comparison with the known analogues the complex permits to measure a wider range of structural parameters with higher accuracy. In this case the long-term measurement stability and results independence on temperature and moisture of environment is increased.

UDC 621.315.592

Davydov V.N., Troyan P.J., Zaytsev N.G.
PROGRAM OF CALCULATION OF MIS-STRUCTURE
PARAMETERS BY TERMAN METHOD

Models of calculation of high-frequency volt-farad characteristics have been analysed. On the basis of the chosen model program of parameter calculation of MIS structure as well as ideal volt-farad characteristic and density of surface state on the semiconductor-dielectric boundary was developed.

UDC 519.6;517.44;543.08

Kan A.G., Romanenko S.V.
FILTRATION OF VOLTAMMETRIC SIGNALS BY MEANS OF WAVELET TRANSFORMATION

The application of wavelet-transformation stripping voltammetry curves to extract a valid signal from residual current and high-frequency noise is shown.

UDC 519.71:622.3

Sevostyanov D.V.
INTEGRATED MODELS AND ALGORITHMS OF IDENTIFICATION OF OIL EXTRACTION IN TERMS OF PRIOR INFORMATION

The problem of predicted oil production and estimation of extracted product stock in terms of additional prior information and expert estimation of technological parameters of field development is considered. The results of estimation accuracy analysis depending on the number of development years are presented.

UDC 622.692

Yakupov V.A., Korikov A.M.
APPROXIMATION OF SIGNALS IN DESIGNING AUTOMATED SYSTEMS OF ESCAPE DETECTION IN OIL PIPELINES

The problems of designing systems of auto escape detection have been considered, the variants of solving the problem of possessed data delivery to data collectors and possessing centres are suggested. Appropriateness of applying data approximation for compression and filtration of current changes is shown.

UDC 620.179.16

Nikitin E.S.
FORECASTING OF RUPTURES IN MATERIALS BY ACOUSTIC METHOD BY THE EXAMPLE OF M16C AND CT.3сп STEELS

The phenomenon of macrolocalization of deformation in M16C and CT.3сп has been studied. With the help of acoustic complex the coordinates of signal sources of acoustic emission in the range of frequencies up to 2 MHz were obtained. By the method of evolutional distribution of coordinate fields it was shown that at all stages of plastic deformation their periodicity is observed and the coordinate of rupture coincides with one of the maximums of resultant signal source distribution of acoustic emission. The method suggested allows the investigation of kinetics of localization experimentally in the process of deformation (in situ) and determination of possible rupture coordinates.

UDC 621.396

Voroshilina H.P., Tislenko V.I.
ANALYSIS OF AUTOTRACKING METHODS BY RANGE

Analysis of the nature of probabilistic data integration algorithm has been carried out in the case of tracking of single or multi targets, when it is unknown what changes are caused by the target and what are due to re-reflection of signal. The result of algorithm operation is shown and statistic properties of evaluation are presented.

UDC 621.396.962.33

Purik D.V.
OPTIMAL ALGORITHM OF FORMING RADAR IMAGE IN POLARIMETRIC RADAR SYSTEMS WITH SYNTHETIC APERTURE

Optimal algorithm of forming radar image of the Earth surface by means of polarimetric radio systems with synthetic aperture is proposed. Comparative analysis of the obtained and base algorithm is carried out. The analysis shows that the proposed algorithm permits to provide a high degree of conformity of radar image to the basic scene. The mathematical expressions allowing the estimation of potential characteristics of the considered systems are obtained, in particular, resolution factor.

UDC 621.396.96

Babur G.P.
ADAPTIVE FILTER OF POLARIMETRIC RADAR WITH COMPOUND SIGNALS

Adaptive filter of polarimetric radar station for decreasing level of side-lobes of compressed received signal when using compound vector sounding signal has been presented. Signal processing is carried out by three stages. Decreasing the level of side-lobes provides more accurate estimation of matrix elements of point scatterer dispersion in the structure of radar target than matrix matched filter by means of changing vectors of weight ratio of the proposed adaptive filter.

UDC 004.75:004.9:004.7

Boychenko I.V., Katayev M.Yu., Petrov A.I.
DISTRIBUTED INFORMATION SYSTEM OF PROFILE DEFINITION OF OZONE CONCENTRATION, AEROSOLE AND TEMPERATURE FROM THE DATA OF LIDAR SOUNDING

Description of distributed information system assigned for remote processing of lidar sounding data of such parameters of atmosphere as profile of ozone concentration, temperature and distance relationships has been presented. The distributed system is designed on the bases of client-server principle, where server operates as an accumulating and processing centre, whereas the client's functions are reception-transmission of data and results of processing as well as visualisation. The capabilities of the system in organization of the network of lidar station are shown.

UDC 535.3

Dudorov V.V., Kolosov V.V., Filimonov G.A.
ALGORITHM OF FORMING INFINITE TURBULENT SCREEN FOR SIMULATION OF LONG-TERM LASER EXPERIMENTS IN THE ATMOSPHERE

A new algorithm of forming random phase screens used in numerical solution of the problem of laser radiation propagation in the turbulent atmosphere has been proposed. Modelling of the screens is carried out in terms of time fluctuations of medium refraction index, which permits to remove periodicity caused by transverse displacement of screens having finite size. Thus, it is possible to form changing in time turbulent screens of infinite extent. The new approach finds its application in the problems of modelling long-term experiments in the turbulent atmosphere. The comparison of numerical and real experiments is made.

UDC 535:621.372.8

Appelt V.E., Zadorin A.S., Kruglov R.S., Chernov P.V.
DYNAMIC SIGNAL DISTORTIONS IN SHORT SEGMENTS OF MULTIMODE OPTICAL FIBRES

The work is devoted to simulation of the processes of linear dynamic distortion of optical signals in multimode fibres conditioned by dispersion of waveguide mode and intermode connection caused by roughness of core-cladding interface. It is shown that at the lengths of optical fibre exceeding the coupling length the signal achieves a stable form independent on the conditions of fibre excitation and close to response of low pass filter. The comparison of the results of calculated and full-scale experiments in investigation of dependence of band width on SI POF length indicates good agreement of calculated and experimental data.

UDC 535.2:621.373.826

Zadorin A.S., Martsipaka J.Yu., Shibelgut A.A.
CHARACTERISTICS OF LASER DIODE WITH MICROINHOMOGENIETIES OF ACTIVE LAYER

Mathematical model of determining characteristics of multimode semiconductor laser with rough surface of active layer has been developed. It is shown that the indicated roughness results in radiation loss of waveguide modes and cause the formation of stochastic intermode couplings within the mode spectrum. It is stated in particular that given effects influence the laser parameters similar to increase of Petermann's coefficient. The quantitative ratio between spontaneous emission level and roughness statistic characteristics of optical waveguide is determined.

UDC 004.032.26 (06)

Zamyatin N.V., Medyantsev D.V.
TECHNIQUE OF NEURAL MODELLING OF COMPLEX SYSTEMS

Technique of neural modelling of complex systems is presented. Efficient algorithms of solving the problems of separate stages, in particular, modified "box-counting" algorithm of developing neuralnet of counter propagation are proposed. The presentation is accompa-

nied by the results of practical modelling of technological production process of ethylene at petrochemical plant.

UDC 004.032.26 (06)

Zamyatin N.V., Maximov V.P., Platonov N.V., Tarasevich M.N.
INFORMATION NEURALNET SYSTEM
FOR INTELLECTUAL ANALYSIS OF DATA

Technique of neuralnet data analysis (data mining) is presented. It is shown that application of Kohonen neuronet permits to identify effectively the groups of connected data and to define the regularities among them. Information system for geophysical sphere has been developed.

UDC 004.93 12

Makarenko A.A., Kalayda V.T.
TECHNIQUE OF LOCALIZATION OF FACE IMAGE FOR THE
SYSTEMS OF VIDEOCONTROL ON THE BASES OF NEURONET

The method and algorithm of localization of human face image for automated systems of recognition and video control on the bases of convolutional neuronets. The advantage of using convolutional neuronets consists in their providing stability to the changes of scale, displacements, rotating, and foreshortening change of input image. The topology of neuronet applied and technique of its instruction is grounded.

UDC 004.93'12

Elizarov A.I., Afonasenko A.V.
METHODOLOGY OF DESIGNING CAR LICENSE PLATE
RECOGNITION SYSTEMS

Technique of designing car license plate search and recognition system has been considered. Modified algorithms providing increase of reliability and accuracy of such systems are proposed. Given algorithms have been used to develop program complexes consisting of a set of program modules performing pre-processing of image, recognition of license plate, symbol extraction and recognition.

UDC 004.932.4

Afonasenko A.V.
RAPID MORPHOLOGICAL TRANSFORMATIONS
FOR THE PROBLEMS OF CORRECTION
AND TRANSFORMATION OF BINARY IMAGES

Rapid algorithms of morphological transformations of binary images have been presented. The peculiarity of the presented algorithms is exclusion of search operations of minimal or maximum element within structuring element, which increases sufficiently the rate of realization of the given algorithms.

UDC 004.056

Davydov I.V., Shelupanov A.A.
FORMALIZATION OF MODEL OF COMMITTING
CYBERCRIMES USING HARMFUL CODES

Model of committing cybercrimes using harmful codes has been considered. Formalization of the model proposed as well as possible measures of counteractions at the stages of committing cybercrimes is carried out. The aspects of investigation of information tracks of these crimes at the stages of examination are distinguished.

UDC 004.056

Filkin K.N.
BASIC STATEMENTS OF INFORMATION SECURITY MODEL
OF HIERARCHICAL DISTRIBUTED SYSTEMS

Basic statements of information security model of hierarchical distributed systems are presented. Fundamental problems of the given systems, confidence levels, properties of distribution state and hierarchy of the system segments, policy of time verification are considered.

UDC 004.75

Kopytkov D.Yu.
MODEL OF IDENTIFICATION OF DISTRIBUTED DATA
IN THE BASES OF ALGORITHMIC CODES

The problems of choice of data identifier in distributed environment have been considered. Model of data multialcodity is proposed. Both special and common cases of model operation are considered. It is shown that using construction functions of algorithmical codes is possible not only in models of data replication with a single alcode construction algorithm, but also those models where each participant of replication uses own construction algorithm.

UDC 004.75

Kopytkov D.Yu.
MODEL OF INTERCORPORATE DATA REPLICATION USING
ALGORITHM CODES WITHOUT A SINGLE SYNCHRONIZING
TIME INTERVAL

The problems of application of the intercorporate data replication have been considered. Model of asynchronous database replication is proposed using algorithm codes and without a single time interval within which operations with local data are forbidden.

UDC 004.7:004.4

Silich V.V.
METHOD OF ORGANIZING SYSTEM
OF SEARCH ADVERTISING IN INTERNET

Method of organization of search advertising system based on the fuzzy set theory is proposed to choose advertising sites relevant to a user's retrieval request observing advertiser's restrictions.

UDC 681.3

Katina A.M., Shidlovskiy S.V.
SYNTHESIS OF MULTISTRUCTURAL INTELLECTUAL SYSTEMS

Fundamental principles and approaches to the design of multi-structural systems on the basis of linguistic processor have been considered. Mathematical tool of fuzzy set theory is applied to design a simulation model of linguistic system.

UDC 621.376.9

Dolgih D.A.
ESTIMATION OF LINEAR PHASE SHIFT OF OFDM SIGNAL

The way of estimation of linear phase shift of OFDM signal based on the method of the least squares and its modification is suggested. Efficiency of the given method is estimated. The possibility of realizing the given technique on the shield programmable gate away is considered.

UDC 621.311.6

Shinyakov Yu.A.
ENERGY ANALYSIS OF STRUCTURAL CHARTS OF POWER
SUPPLY SYSTEMS IN AUTOMATIC SPACECRAFTS

Structural charts of power supply systems of spacecrafts have been considered. Their comparative energy analysis is carried out. The expediency of its application in the objects with variable operation conditions and abruptly changing load diagram of universal parallel-serial structure of a power supply, which provides a possibility for optimizing control of solar battery power and has the better energy characteristics, is grounded.

UDC 621.311.6

Shinyakov Yu.A.
REGULATION AND CONTROL EQUIPMENT OF HIGH-VOLTA-
GE POWER SUPPLY SYSTEMS IN AUTOMATIC SPACECRAFT

Structural chart of a power supply system with sectioned solar battery and control methods for energy transforming equipment, which provides a possibility of producing reliable high-voltage power supply systems in automatic spacecrafts, have been considered.

UDC 621.3.011.739

Babak L.I.
STRUCTURAL SYNTHESIS OF MICROWAVE SOLID-STATE
CIRCUITS ON THE BASIS OF DECOMPOSITION APPROACH

Decomposition approach to structural synthesis of microwave circuits is considered. Statement, methods, and algorithms for problem solution at the main stages are discussed, and the main results are reviewed.

UDC 621.372.51.049.774:658.512.26:004.92

Sheerman F.I., Babak L.I., Zaytsev D.A.
INTEGRATED ENVIRONMENT FOR "VISUAL" DESIGN
OF CORRECTION AND MATCHING NETWORKS
FOR MONOLITHIC MICROWAVE CIRCUITS

An interactive «visual» procedure for designing of correction and matching networks for monolithic microwave circuits is proposed. It is based on the model transformation technique. Realization of the procedure in the integrated environment combining LOCUS-MMIC, a tool for «visual» design of passive networks, and Microwave Office, a design system for microwave circuits, is considered. The efficiency of the proposed procedure is demonstrated by the example of synthesis of monolithic matching circuit.

UDC 621.372

Petrova T.S., Yeryomina H.L., Ignatiev M.G.,
Kozlova L.A., Barov A.A.
MONOLITHIC INTEGRATED CIRCUIT
OF DOUBLE–POLE MICROWAVE GaAs COMMUTATOR

Monolithic integrated circuit of double-pole microwave commutator based on ion-implanted GaAs structure with FET of submicron Schottky gate obtained in using optical photolithography has been developed and produced.

UDC 519.876.5:621.865.8

Goritov A.N., Alferov S.M.
SMOOTHING OF MOVEMENT PATTERN
OF ROBOT–MANIPULATOR TIP

Programming movement pattern of tip in Cartesian coordinate system results in necessity of smoothing digital string of movement nodes. Traditional method of least square is not applicable because of the fact that in smoothing the initial and final positions of robot-manipulator tip should have been strictly defined. To solve this problem modified method of the least squares is suggested. This method allows the construction of smoothed tip movement pattern keeping its initial and final position as well as decrease of dynamic drive and link load in robot-manipulator.

UDC 579.262

Smirnov D.G., Volkova N.N.
NANOBACTERIA AS BIOINDICATOR OF ENVIRONMENTAL
PROBLEMS OR HUMAN DISEASES

Photomicrographs of different mineral formations obtained by means of electron photomicroscopy as well as some experimental results indicating that all these formations contain apatite carbonates are presented. Histograms of nanobacteria size distribution in man's different mineral formations (in water, dental, renal and biliary calculus) are considered. It is suggested that the basis of these minerals is formed by nanobacteria membranes, the presence of which can serve as a bioindicator of environmental problems or human diseases.

UDC 593.11:665.61

Kartashev A.G., Smolina T.V., Cherdantsev A.Yu.
INFLUENCE OF OIL POLLUTION ON SURFACE
AND SOIL INVERTEBRATES

The influence of oil pollution on the number and species diversity of surface and soil invertebrates has been studied in natural conditions after revegetation. The dependence of species and number composition of surface invertebrates on different concentration of oil pollution in 1 and 3 years after revegetation is shown. The number and species diversity of soil invertebrates increases with decrease of oil product concentration.

UDC 593.11:665.61

Kartashev A.G., Smolina T.V.
INFLUENCE OF OIL POLLUTION ON POPULATION
OF SHELL TESTATE AMOEBAE

The influence of oil pollution on the number and species diversity of shell testate amoebae in the field and laboratory conditions has been investigated. In the field conditions the influence of residual concentration of oil products in water-logged grounds of peat soil on popula-

tion of shell testate amoebae was studied. In the model experimental conditions the influence of oil pollution of 10, 20, 30 mg/kg concentration of unpolluted soil on natural population of shell testate amoebae during 30 days was investigated. In the model experimental and field conditions decrease of the number and species diversity of shell testate amoebae was stated depending on concentration of oil in soil.

UDC 612.766.1;612.825.8

Nesmelova N.N.
ORIENTATIVE REFLEX OF A MAN AND ACCURACY
OF REPRODUCTION OF TIME INTERVALS

The interconnections between peculiarities of vegetal component of human orientative reflex and his ability to reproduce time intervals from 0,8 to 35,3 sec are considered. Psychophysical mechanisms underling the revealed peculiarities are analyzed.

UDC 004.056:336.717

Korikov A.M., Momot M.V.
ESTIMATION OF EFFICIENCY OF ELECTRON STANDARDS

The technique of efficiency estimation of electron standards by efficiency factors of automation and safety has been suggested. On this base the comparative analysis and efficiency estimation of the known standards and the standard developed by M.V. Momot are carried out. It is shown that the latter is quite functional and surpasses the known analogues in many respects.

UDC 519. 865

Mitsel A.A., Yefremova H.A.
FORECASTING OF PRICE MOVEMENT IN STOCK MARKET

On the basis of neuron network device the investigation of forecasting problem of price movement in stock market is carried out. Automation model permitting to simulate network parameters is realized.

UDC 681.51.015.26:330.43

Gribanova E.B., Mitsel A.A.
ALGORITHMIC IMITATION CONTROL MODELS
OF MATERIAL STOCK AT WAREHOUSE

Description of imitation control models of material stock is presented. Algorithms of imitation models are suggested, automation system «Stock» has been developed and simulation has been carried out. The advantage of imitation modelling is a possibility to simulate complex systems in the cases when it is difficult to use analytical methods and it is necessary to take into account stochastic character of current processes in the system, system components changing in time and interacting.

UDC 336.762.3:681.324

Chetverina A.A.
CRITERIA OF SUCCESSFUL INFORMATION OPENING
IN INTERNET IN THE PROCESS OF ISSUE
OF GOVERNMENT BONDS

Making decision of organization of public loan, regional and municipal government should take care of potential investors' proper relation to future issue. Among the most important information for investors when making decisions of investing money in bonds is that about budget, economical conditions, structure of Debt Instruments and government structure and dynamics of political relation development in region or municipality.

UDC 330.16

Kotova I.N.
PSYCHOLOGICAL ASPECTS
OF HUMAN ECONOMIC BEHAVIOUR

Theoretical and empirical concepts and psychological theories dealt with investigation of human ability to adapt and directly concerned with the sphere of economists' interests have been considered. In particular, the case in point is probability of impulsive acts inherent in human nature as well as necessity of instantaneous reaction to sudden situations occurring in the life of society.

UDC 338.46

Gutkevich A.E.
INTRODUCTION OF THE ELEMENTS OF BUSINESS CULTURE INTO EDUCATIONAL AMBIENCE (MARKETING RESEARCH)

The main elements of modern business culture, its peculiarities at the contemporary stage of development of society, economy and education are described briefly. The possibility of introduction of some elements of business culture into innovation university corporate culture, application of which increases efficiency of its activity is analysed. Marketing research of students' reception of business culture and their readiness of following its principles in the course of higher education system is carried out. A new form of management of education quality and increasing its efficiency such as School of practical management is proposed and introduced.

UDC 1:37.01

Pustovarova A.O.
EDUCATION IN THE ASPECT OF HISTORICAL TRANSFORMATION: FROM PAIDEIA TO EDUCATIONAL COMMUNICATIONS

The history of education is shown as a transformation of its ontology. Beginning from the ancient times development of classic (unified) educational paradigm substantial in its ontology has taken place. Then, in the XIX–XX centuries in the course of classic model there appeared non-classic (communicative) one for which desubstantial ontology of education is a distinctive feature.

UDC 331.522

Malysheva A.A., Nevrayeva I.V.
COMPETENCES OF YOUNG GRADUATES THROUGH THE EYES OF EMPLOYERS

Research results of job placement problem of young graduates of higher schools are described. The stress is made on the fact how employers perceive young specialists and what they are expected to be. The competences which provide competitiveness of the graduates in the market conditions are underlined.

UDC 304.4+304.5

Melnik N.M.
THEORETICAL KNOWLEDGE AS A MAIN PRINCIPLE OF INFORMATIVE SOCIETY

The present stage of civilisation development is defined as «knowledge of society» in the documents of the Bologna process. Thus, it is underlined that to renew all the aspects of social life the knowledge resource, but neither industrial capital nor demographic resource plays a crucial role. It becomes a distinguishing feature of modernization and information of the society. An important peculiarity of «knowledge of society» is unexampled growth of prestige of higher education. The education has become an important factor of renovation of different industrial processes and culture in general.

UDC 378.147

Moskovchenko A.D.
V.I. VERNADSKIY, RUSSIAN COSMISM, AUTOTROPHY, PERSPECTIVES

Outstanding contribution by V.I. Vernadskiy to philosophy and methodology of science, his prognostic ideas in the sphere of human autotrophic future is considered.

UDC 378.147

Moskovchenko A.D.
AUTOTROPHIC FORMULA OF INVENTION

The technical formula of invention (novelty, invention level, applicability) is suggested to add by technospheric (material, production, waste) and autotrophic (autonomy, optimality, harmony) criteria. Analysis is made on concrete technical material concerned with the present and future of the atomic energy.

UDC 930.085

Kirdyashkin I.V.
SOCIAL–POLITICAL ACTIVITY OF MODERN YOUTH – FROM PRESENT TO FUTURE

Trends and forms of youth participation in the social-political process of modern Russia are defined. Analysis of substantial and instrumental aspects of social-political activity of the modern youth is given. The main historical factors of political adaptation of the youth connected with worldwide processes are determined.

UDC 130.3

Kornyushchenko-Ermolaeva N.S.
KIERKEGAARD ON HUMAN ASEITY AND SOLITUDE

It is shown the ways of development of existence concept important for philosophical anthropology by S. Kierkegaard. The process of appearance and actualisation of solitude problem in the modern philosophy is analysed.

UDC 947.084

Grik N.A.
COMMODITY–MARKET MODEL OF THE SOVIET ECONOMY AND ITS FOLLOWERS IN THE 1920'S: UNLEARNED LESSONS

The main achievements of the Russian economists in the 1920's in the sphere of interaction of the government and the market have been considered. The significance of this historical experience for the contemporary Russian economical policy is shown.

UDC 681.518.52:37(075)

Shevelev M.Yu., Musev N.S., Romanyuk A.A.
ON NON–ANTHROPOMORPHOUS APPROACH TO DEVELOPMENT OF KNOWLEDGE CONTROL MEANS FOR SYSTEMS OF COMPUTER-MANAGED INSTRUCTION

In the modern computer systems of instruction the control of learning information is based on copying the traditional «handmade» control systems and is realized by means of comparison of a student's answers with keys stored in computer memory (anthropomorphous principle). The possibilities of non-traditional approach is considered in case when computer «does not know» right answers to no one question, but it is able to distinguish the right answers from the wrong ones are considered. Such approach is called non-anthropomorphous. Its application allows the solution of a number of urgent problems in the sphere of computer-managed training, which are problematic for anthropomorphous approach.

UDC 378.016

Kruchinin V.V., Magazinnikov L.I., Morozova Yu.V.
MODELS AND ALGORITHMS OF COMPUTER SELF–DOING WORK ON THE BASIS OF GENERATION OF TEST TASKS

The article covers models and algorithms of the computer self-doing work based on application of generators of test tasks are considered. The structure of such program is shown and the generalized algorithm of work is offered. The training technology using computer self-doing work is described.