

Summaries

UDC 514.762

N.M. Onischuk
SURFACES WITH CONSTANT EQUIAFFINE INVARIANTS

The paper proves that except for surfaces of the second order, there exist only 6 surfaces whose all affine surfaces are constant. In the definite stable affine system of coordinates, their equations are expressed in the following way: 1) $z(x^2+y^2)=1$ – affine sphere of hyperbolic type, 2) $xyz=1$ – affine sphere of elliptical type, 3) $z=xy-y^2$ – ruled improper affine sphere (Cayley surface), 4) $z=xy+\ln y$ – ruled improper affine sphere, 5) $z^2(x+y^2)^2=1$ – improper affine revolution surface of elliptical type.

The obtained results are considered to be new in affine geometry of smooth surfaces and are of theoretical value. The investigation is carried out by the method of Cartan exterior forms.

UDC 514.752

O.V. Vasilieva
**ON NONHOLONOMIC ROTATION HYPERSURFACES
IN 4-DIMENSIONAL EUCLIDIAN SPACE E_4**

Two classes of nonholonomic rotation surfaces (spherical nonholonomic rotation surfaces and nonholonomic double rotation surfaces) are considered in 4-dimensional Euclidian space. By constructing a moving frame, their basic invariants are studied; the properties of the curvature line of the 1st and the 2nd type and the properties of asymptotic lines of nonholonomic surfaces of that type are investigated.

UDC 519.21

O.L. Karelova, M.A. Banko
**DERIVATION OF EQUATIONS FOR MOMENT COEFFICIENTS
OF SOLUTIONS TO A SYSTEM OF LINEAR DIFFERENTIAL
EQUATIONS WITH SEMI-MARKOVIAN FACTORS**

The operator equation for density of distribution of solutions to the system of differential equations with semi-Markovian factors is obtained. On the basis of this equation, the dependences for moment coefficients of solutions are derived which enable to study the stability of the considered system.

UDC 536.46

K.O. Sabdenov
**THEORY OF SPONTANEOUS DETONATION IN GASES.
PART II. MODELLING OF EXPLOSIVE PROCESSES**

The paper considers the system of equations of burning gas dynamics on the basis of the original notions "normal speed" and "burning surface". The turbulent flame is described by one of the non-linear parabolic equations. The calculations of explosive processes in pipes for a number of fuel mixtures are performed. Theoretical data concerning length and time of transition of slow burning into detonation are in a good agreement with the experimental results.

UDC 553.411.071.242.4+550.4

I.V. Kucherenko
**GEOCHEMICAL ANOMALIES OF NOBLE METALS
AS AN IDIOGENOUS CONSTITUENT PART OF WALLROCK
METASOMATIC HALOS IN MESOTHERMAL GOLD DEPOSITS**

The paper discusses the reasons for alternative concept of metal-bearing nature of slaty masses which have existed for several decades and

which are considered as potential sources of ore. The methods of unification of applied geochemical studies are proposed which are designed to reconstruct the geochemical history of ore-forming elements and on this basis determine potential contribution of scattered metal rocks containing gold-ore fields into formation of ore bodies. The results of studying metasomatic and geochemical halos in the calciphyres of the Irokinskoye ore field of the Norden Transbaikalia are given. The interconnections of these halos and relations to ores are shown. In accordance with the set of features, the conclusion is made on formation of anomalies of Au, Ag and other metals in the process of metasomatism and ore formation by means of their shifting from solution-leading faults. The obtained data complement the set of facts confirming genetic uniformity of gold deposits created in non-slaty and black – shale substrate.

UDC 553.07

A.K. Mazurov
METALLOGENIC ZONING OF KAZAKHSTAN

For the first time, the classification of new geodynamic-based metallogenic complexes is developed for the territory of Kazakhstan. In accordance with spatio-temporal associations of ore and geological formations connected with definite paleogeodynamical conditions, 61 metallogenic complexes are distinguished. It is shown that in the same geodynamic conditions, similar metallogenic complexes are formed which do not appear in geodynamic conditions of other type. This allows to forecast types of deposits typical of every metallogenic complex, including those that are not present in the given complex but which are known to exist in similar complexes.

UDC 551.2:553.3 (571.15)

V.N. Korzhnev
**GEODYNAMIC CONTROL OVER RIPHEAN-PALEOZOIC
VOLCANOGENIC-SEDIMENTARY MINERALISATION
IN NORTHERN PART OF THE MOUNTAIN ALTAI**

The Riphean-Paleozoic volcanogenic-sedimentary mineralisation of the Mountain Altai is controlled by geodynamic conditions and structural-formational complexes. The megacomplex formed in the conditions of the continental marginal riftogenesis is the most productive. The deposits of Fe, Ti, Mn, Au, polymetals and others are connected with it. Commercial coal deposits are defined by the geodynamic conditions of the postcollision depression.

UDC 552.321.5

A.I. Gusev
**PETROLOGY OF RARE-METAL MAGMA-ORE
METASOMATIC SYSTEMS OF THE MOUNTAIN ALTAI**

Rare-metal magma-ore metasomatic systems of the Mountain Altai are paragenetically connected with anorogenic granites of A-type which were formed in the Devonian, the Carbon, the late Perm – the early Trias and the early Jura. They generated vein, greisen, scarn, rarely pegmatite mineralisation of tungsten, molybdenum, beryllium, tantalum, niobium and lithium. Biotites of intratelluric crystallisation phase of granitoids are characterized by increased concentrations of Nb, Ta, Li, Rb, Be, Cs, Mo, Sn and other elements. The parameters of fluid regime of magmatites – fugitiveness and partial pressures of oxygen, water, carbon dioxide, hydrofluoric and sulfuric acids are determined. Magma-ore-metasomatic systems with open fluoride regime (Kalgutinskaya system, Sinyushinskaya system, Alakhinskaya system, Karakolskaya system, Julalyu) are proven to be the most perspective.

UDC 504.45

**D.S. Vorobyov, V.K. Popkov
PETROLEUM HYDROCARBONS CONTENT OF WATER AND
BOTTOM SEDIMENTS IN THE VASYUGAN RIVER BASIN**

The paper considers spatial dynamics of distribution of petroleum products in the water and bottom sediments of the Vasyugan River basin (the middle Ob basin). The increase in the content of petroleum products in the bottom sediments of water courses flowing through the territory of oil fields depending on their lifetime is shown.

UDC 556.06:551.482.212

**O.G. Savichev
METHOD OF ESTIMATING ALLOWABLE ANTHROPOGENOUS
CHANGES OF THE CHEMICAL COMPOSITION OF SURFACE
WATERS**

New ways of calculating background concentration of substances in surface waters and specifications of maximum permissible dumps of substances in water objects with sewage are given. The mathematical model of background chemical composition of surface waters is created. The method of normalisation of run-offs dumping into water objects is elaborated.

UDC 504

**N.M. Rasskazov
BASIC FEATURES OF CHEMICAL COMPOSITION
OF SWAMP WATERS (ON THE EXAMPLE
OF THE SOUTH-EASTERN PART OF WESTERN SIBERIA)**

Based on the reference data and original factual information, the features of chemical composition of swamp waters of the south-eastern part of Siberia with account to the data on other wetland territories are characterized. The additional details of the process of formation of the content of swamp waters within the limits of vertical zones of lowland swamps of the region are revealed. The direct dependence of content of alkali-earth elements in peat waters and peats is discovered.

UDC 681.51.001.4

**A.A. Zorkaltsev, V.P. Krivobokov, S.V. Yudakov
CONTROL SYSTEM FOR THE INDUSTRIAL PLASMA PLANT**

The paper describes the experience of developing the control system for plasma equipment. The industrial plant Opal-3 created at TPU's Research Institute for Nuclear Physics is used as a basic object. The plant is designed for applying many-layer heat-reflecting coverings on the surface of sheet glass with the help of ion beams and continuous current plasma of magnetron discharge. The paper briefly considers the construction of the plant and its technological possibilities. The choice of the structure of the control system and some engineering solutions are grounded. The elements of software are described. The issues of practical implementation of the real control system, its setting, servicing and maintenance experience are raised.

UDC 537.521.7: 621.315.6

**O.S. Gefle, S.M. Lebedev, S.N. Tkachenko
BEHAVIOUR OF POLYMERIC COMPOSITE MATERIALS FILLED
WITH FERROELECTRIC CERAMICS IN ELECTRIC FIELD**

Results of the study of influence of preliminary polarisation of filled composites on the basis of PVC by unipolar millisecond voltage impulses on their dielectric strength are presented in this paper. It is shown that preliminary polarisation allows the dielectric strength and the storage energy to be increased by 30..50 % and up to 105 J/m³, respectively. It was found that the relation between the complex permittivity and the external electric field allows the estimation of the dielectric strength of composites to be realized without their breakdown.

UDC 621.762

**A.P. Ilyin, O.B. Nazarenko, D.V. Tikhonov, G.V. Yablunovski
PRODUCTION OF TUNGSTEN NANOPOWDERS
USING ELECTRIC EXPLOSION OF WIRES**

The dispersed content of nanopowders obtained with the help of electric explosion of tungsten wires in various gaseous mediums is inves-

tigated. The factors facilitating the increase in dispersed powders are stated. They include the following: pressure decrease in the gaseous medium surrounding the wire during the explosion and the use of chemically active gaseous additives. The possibility of obtaining nanodispersed tungsten powders, which are characterized by the maximum of particles distribution within the area of 100 nm in diameters, is depicted.

UDC 536.46:541.182

**A.P. Ilyin, O.B. Nazarenko, D.V. Tikhonov, G.V. Yablunovski
PRODUCTION AND CHARACTERISTICS OF ELECTROEXPLO-
SIVE NANOPOWDERS OF ALLOYS AND INTERMETALLIDES**

Phase and chemical composition of nanopowders, produced with electric explosion of copper and aluminum conductors, iron and aluminum conductors and conductors from alloy copper-nickel is investigated. The possibility of obtaining the intermetallides Cu₃Al₄, CuAl₃, FeAl₃, Fe₂Al₃, FeAl₃, Cu₃Ni in conditions of the electric explosion of wires is depicted. It has been determined that there is an increasing yield of intermetallides in conditions of highest possible mixing of components that is achieved by close contact of exploded wires or by the usage of alloy wires.

UDC 621.762

**S.V. Matrenin, A.I. Slosman, Yu.V. Myachin
SPUTTER-ION BAKING OF IRON-TITANIUM
ANTIFRICTION ALLOY**

The possibility of obtaining the iron-titanium antifriction alloy by means of baking of the corresponding powders in the plasma of glow discharge is described. The regularities of material hardening as a result of baking and due to physical and mechanical properties of baked samples are studied depending on the way of their insertion into titanium blank and on baking conditions. Significant hardening of the surface layer of samples is observed when they are baked in the ammonia plasma of the glowing discharge. The optimal regime of iron-titanium alloy baking is determined.

UDC 621.039.51; 541.126

**V.I. Boiko, D.G. Demyanyuk, O.Yu. Dolmatov,
D.S. Isachenko, I.V. Shamanin
SELF-PROPAGATING HIGH-TEMPERATURE SYNTHESIS
OF ABSORBER MATERIALS FOR NUCLEAR SET-UPS**

The possibility of obtaining absorbing materials based on B₄C for production of control system elements and protecting nuclear set-ups by means of self-propagating high-temperature synthesis is determined. Synthesis modes and processing characteristics of materials are investigated.

Methods of improving the properties of materials to make them correspond to the requirements of nuclear reactors are determined and implemented. These methods are based on modification of content and formation of intermetallic frame of ceramic material.

UDC 621.039

**V.V. Novikov, D.Yu. Yurkov, A.K. Polyakov
NUCLEAR THERMOELECTRIC POWER STATION
WITH ББЭП-300 REACTOR. THE USAGE OF PASSIVE
SYSTEMS FOR POWER STATION SAFETY**

The description of the ББЭП-300 nuclear setup developed to be implemented on nuclear thermoelectric power stations is provided in this work. Basic technical characteristics of nuclear setups, engineering solutions aimed at safety improvement, description of safety systems and principles of their operation are given.

UDC 621.311.22

**V.A. Karelin, E.N. Mikutskaya
POTENTIOMETRIC IDENTIFICATION OF FLUORIDE IONS
IN DESALTED WATERS OF POWER SETUPS**

Some metrological characteristics of fluoride selective electrodes with liquid internal contact (ИЦЭ-F-01) and with solid contact (Вольта-3000) are investigated. The influence of various base electrolytes' contents on the metrology of these electrodes is studied. A method of potentiometric identification of fluoride ions within the concentration diapason from 2 to 100 mg/dm³ in salted waters is developed.

UDC 543.253

I.E. Stas, T.S. Ivonina, B.P. Shipunov
INFLUENCE OF TETRABUTHYLAMMONIUM IONS ADSORPTION AND HIGH FREQUENCY ELECTROMAGNETIC FIELD ON MERCURY – FILM ELECTRODE POLARIZATION CURVES

The influence of tetrabutylammonium ions' adsorption on the position and form of cathode and anodic polarization curves of mercury-film electrode in background electrolytes containing superficially – inactive and surfactant anions is showed. It is established, that the greatest differences between curves are observed in presence of specifically adsorbed background anions. Under the influence of a high frequency electromagnetic field on a system the electrode – electrolyte an approaching of polarization curves is observed. This might be related to desorption of superficially – active ions from a surface of the electrode influenced by high frequency.

UDC 544.46

E.V. Smolentseva, N.E. Bogdanchikova, A.V. Simakov, A.N. Pestryakov, I.V. Tuzovskaya, M. Avalos, M. Farias, A. Diaz
INFLUENCE OF MODIFYING IRON AGENT ON PHYSICAL AND CHEMICAL PROPERTIES AND CATALYTIC PROPERTIES OF GOLD CEOLITE CATALYSTS

It is established that iron agent impedes on the gold nanoparticles aggregation. The modification of catalysts by iron agents improves the catalytic properties of samples during the process of CO oxidation.

UDC 544.46

E.V. Smolentseva, A.N. Pestryakov, I.V. Tuzovskaya, N.E. Bogdanchikova, A.V. Simakov, M. Avalos
INFLUENCE OF COPPER AGENTS ON ELECTRON AND STRUCTURAL CHARACTERISTICS OF GOLD APPLIED TO THE CEOLITE OF MORDENITE TYPE

The influence of modifying copper agent on electron and structural properties of gold applied to the ammonia mordenite is depicted. It is determined that the structure of the zeolite is not destroyed in the process of samples' preparation and thermal treatment. Joint regeneration of gold and copper is registered by means of thermally programmed regeneration.

UDC 541.128

I.A. Kurzina
DEEP OXIDATION OF METHANE ON PLATINUM AND PALLADIUM CATALYSTS APPLIED TO SILICIUM NITRIDE

Platinum and palladium catalysts applied to silicon nitride (Si_3N_4) in quantities of 0,12; 0,55 and 0,87 mas. % are investigated in the process of methane deep oxidation. The properties of samples surface before and after catalytic reaction are investigated by means of X-ray transmission microscopy. The interrelation between catalytic and physicochemical properties of the samples is obtained. It is determined that metallic particles of platinum for fresh systems are characterized by an average dimensions within the range of 1,7...5,3 nm, while after the catalytic reaction the formation of Pt crystals sized from 30 to 70 nm is observed. It is supposed that observed deactivation of platinum catalysts during deep oxidation of methane is related to crystallization of metallic particles and their dragging out with reaction products. It is shown that (0,5 mas. % Pd)/ Si_3N_4 sample is more active and stable than other investigated samples.

UDC 541.128;66.097

S.I. Galanov, A.Yu. Vodyankin, V.N. Popov, I.N. Mutas, L.N. Kurina
CATALYSTS OF NATURAL GAS POPPING

In the reaction of deep oxidation of light hydrocarbons $\text{C}_1\text{--}\text{C}_4$ the applied oxide catalysts on the basis of cobalt and tin oxides are studied. Active and thermostable systems are determined, the effect of catalysts' thermoactivation is observed, and the specificity of butane oxidation with equimolar content of oxygen in reaction mixture is considered.

UDC 678.744-13

V.M. Sutyagin, A.A. Lyapkov, O.V. Rotar
COPOLYMERISATION OF N-DIPHENYLAKRIEMIDE WITH 9-VINYLCARBAZOLE

The radical and cation copolymerization of N-diphenylacrylamide with 9-vinylcarbazole is studied and constants of copolymerisation of somonomers are determined and photosensitive elements characteristics of copolymer are measured. The monomers' activity in radical and cation copolymerisation are opposed: in radical active N-diphenylacrylamide is more active and in cation 9-vinylacrylcarbazole is more active that can be explained by the electron structure of monomers.

UDC 541.182:662.33

N.V. Chukhareva, L.V. Shishmina
INVESTIGATION OF KINETICS OF THERMALLY ACTIVATED CONTENT AND PROPERTIES CHANGES IN PEAT AND HUMIC ACIDS

The changes in content and properties of humid acids as a result of preliminary thermal treatment of peat up to 250 °C are studied. The element and functional content, concentration of paramagnetic centres, thermal stability, and content of hydrolysable substances are studied. Kinetic regularities of the processes of decarboxylation and dehydration during thermal destruction of humid acids are obtained.

UDC 665.61

N.N. Gerasimova, T.A. Sagachenko
LOW-MOLECULAR NITROGEN-CONTAINING OIL BASES WITH VARIOUS CONTENT OF SULFUR

The distribution and content of low-molecular nitrogen-containing bases in oil-fields of Jurassic Palaeozoic complex in Western Siberia with different content of sulfur are studied. It is shown that oil with low sulfur content contains in general less nitrogen than sulfurous oil. The nitrogen bases of oil of the first type the content of low-molecular strong compounds is higher. Their qualitative content doesn't depend on the degree of oil sulfur degree. All the studied samples containing sulfur bases also contain alkyl- and naphthenoderivatives of pyridine, quinoline, benzo-, dibenzoquinoline, azapyrene, thiazole, thiopheno-, benzothiopheno-, dibenzothiophenoquinoline and higher benzene analogs. The maximum of strong bases distribution is at quinolines, thiopheno- and benzothiophenoquinolines. The distinguishing feature of sulfur containing oils is a higher relative content of thiophenoquinolines. Using alkylbenzoquinolines as an example, it has been shown that the individual composition of strong bases also does not depend on the oil type.

UDC 665.12.001.57

N.V. Usheva, A.V. Kravtsov, O.E. Moizes, E.A. Kuzmenko
MODELING OF CRUDE OIL TREATING TECHNOLOGY

The principles of modeling system and development of mathematical models of crude oil treating are shown. Both the research results and the modeling system are represented. The choice of industrial-scale plant operating modes is made.

UDC 622.24.05

A.P. Slistin
INFLUENCE OF DRILL ROD THREADED CONNECTION ON P-WAVE PROPAGATION

Calculation principles of P-waves passing through the threaded connection of drilling rod (socket and nipple types) were substantiated. The drill rod joint has a great influence on the wave transformation passing through the threaded connection with the yawn in it. In all other cases such connection can be considered as the barrier represented in the form of finite length and changed cross-sectional area.

UDC 621.791.03

**V.T. Fedko, O.G. Brunov, A.V. Krukov, V.V Sednev
OPTIMIZATION OF SETUP UNIT GEOMETRY FOR PULSE
FEEDER WITH QUASIWAVE WIRE MOVEMENT**

Optimization of geometric parameters of mastering unit of electrode wire pulse feed is made to provide stable arch burning and electrode metal transfer to the molten pool. The dependence for the adaptation process using feedback along the shaft speed of electric feed motor is obtained.

UDC 629.7.054.847

**V.S. Dmitriev, T.G. Kostuchenko, V.A. Skripnyak
MECHANICAL ANALYSIS OF SPACECRAFT EFFECTOR**

The mechanical analyses results of spacecraft control system effector are obtained. Experimental check of calculation results showed the reliability of models, simulating the device operation.

UDC 629.782.05:629.783

**A.N. Gormakov, A.P. Mikheev
ELECTROMECHANICAL MODULE OF GYRODINES MOMENTS
MEASURING DEVICE**

The results of analyses carried out to design measuring instrument of "disturbing" moments on the actuators seats of spacecraft orientation control system are presented. The description of measuring device construction and its main technical characteristics are given.

UDC 62-83:621.313.2:681.513.68

**V.G. Bukreev, I.Yu. Krasnov, A.K. Chaschin, S.K. Sosnin
OPTIMIZATION OF TRANSITIONAL ELECTROMECHANIC
SYSTEMS WITH DISCRETE CONTROL**

The procedure of system structure synthesis and control laws based on Hamiltonian function is considered. Changes which take place on the optimal motion path allow to organize adoptive algorithms. The example of adoptive control applied for direct-current electric drive under considerable changes of the dynamic load moment is given.

UDC 621.314:658.512

**T.N. Zaichenko
TASK SOLUTION FOR ELECTROMECHANICAL SYSTEMS
DYNAMICS IN MARS AUTOMATED MODELLING MEDIUM**

The application of MARS automated modeling, which is domestically produced universal system designed to solve the problem connected with the electromechanic systems dynamics is considered. The examples of formalized idea about the electrical and mechanical parts of electromechanic systems structural and circuit modeling are given.

UDC 62-83

**A.V. Bubnov
MULTIFUNCTIONAL LOGICAL COMPARATIVE EQUIPMENT
DESIGNED FOR ELECTRIC DRIVE WITH PHASE LOCK**

Analysis of algorithm for designing the frequency and phase discriminator for electric drive with phase lock is carried out. Multifunctional logical comparative equipment is developed. This equipment allows to increase electric drive control performance.

UDC 621.372.5

**O.V. Stukach
CONDITION OF MINIMAL DEPENDENCE OF PHASE SHIFT ON
THE GAIN-FREQUENCY CHARACTERISTICS WITH VARIABLE
CONDITIONS**

Basing on the theory of linear systems, the condition of minimal changes in phase-frequency characteristics which depend on the amplitude-frequency characteristics are found in the equipment with the variable steady-state conditions. Equipment basic structure is examined and it is shown that the correspondence to invariance condition results in maximum permissible theoretical phase and frequency characteristics. As an example the construction peculiarities of controlled attenuator are given. Its main cha-

acteristics are discussed. The main circuit difference lies in its broadbandness and wide range of caused weakening. Insignificant phase shift can be noticed in the process of adjustment. In the course of optimization both the correcting circuit and controlled diode parameters are found.

UDC 621.397.2:621.315.2

**V.I. Tuev
VIDEOSIGNAL LINE BACKGROUND NOISE SUPPRESSION**

Background noise sources which appear in videosignal lines are considered. The influence of in-phase resistance on the value of background noise maximum suppression in differential equalizers is shown. The recommendations about calculation of differential input cascade of video correctors on the operating amplifiers are given.

UDC 615.471:616-7

**S.F. Gluschuk, Ya.S. Pekker
GASTROENTERIC ADAPTIVE ELECTRICAL STIMULATORS**

Issues connected with gastroenteric adaptive electrical stimulators projecting, their constructive design and simulative impulses generators design are considered.

UDC 621.317.727.1

**V.L. Kim, V.N. Dainakov
MODELING OF MULTIDECADE INDUCTIVE VOLTAGE
DIVIDER IN MATLAB**

Simulink models of multidecade voltage inductive divider were built within the MATLAB/Simulink system. Mathematical algorithm of single- and dual-decade engines in the form of transfer function of the third order is given as an example. Calculation inaccuracy of gain-frequency characteristic irregularity in the area of high frequency ranging from 20...200 kHz does not exceed 20 %.

UDC 681.306

**D.S. Larionov
MODAL LOGIC IMPLEMENTATION AIMED AT PROJECTION
OF EXPERT SYSTEMS SHELLS**

Modal logic application as an expert system output mechanism is considered. Autoepistemic logic, which develops Mak-Dermott's modal logic, is taken as an example. Basic theory properties such as completeness and adequacy are described. Due to these properties we get reliable system output. The definition of normal modal system is presented and the axioms due to which these systems may enrich are indicated. The decision making procedure applied for autoepistemic logic is given as an example. The situations where its implementation will be useful for expert system output mechanism are also described in this paper.

UDC 352.075:519.876.2

**A.A. Mitsel, A.A. Zakharova
APPLICATION OF NON DISTINCTIVE LINGUISTIC MODELS
DURING ELABORATION OF THE STRATEGIES
FOR MUNICIPAL EDUCATION DEVELOPMENT**

Expert information obtained from SWOT-analysis carried out to define social and economical city status is provided. It is represented in the form of not clearly defined statements. Linguistic variables are used to describe input and output parameters of the strategy development process elaborated for city development.

UDC 658.1

**Yu.A. Nikitina
WORKABILITY OF NOT CLEARLY DEFINED APPROACH
TO ENTERPRISES COMPETITIVE ABILITY ANALYSIS UNDER
THE CONDITION OF NONLINEAR ECONOMY**

Not clearly defined analytical potential developed to estimate the risks of economical systems is examined. The work of all modern enterprises is unstable and dynamic. Not clearly defined approach is considered to be the best way to estimate the enterprises risks within the nonlinear economic environment. This approach helps to make both efficient and adequate decisions.

UDC 519.81

Anna A. Kornienko, A.V. Kornienko
LOGICAL AND LINGUISTIC ANALYSIS AND ESTIMATION
OF FINANCIAL ACTIVITY

The paper shows the possibility of using logical and linguistic models for qualitative interpretation of quantitative indices regarding financial conditions, financial stability, and business activity of an enterprise. It also depicts the presence of a scientifically proved development of logical and linguistic structure over the present system of financial accounting and its ability to contribute to an adequate financial decision making.

UDC 316

M.V. Zheltov
SUBJECTIVE ELECTORAL LAW: BASIC NOTIONS

The paper considers various interpretations of the electoral law with reference to both citizens' rights who implement social functions in a society and to individual and personal human rights. The conclusion concerning the fact that voting is not only the realization of rights but also the implementation of a social function is made.

UDC 801.314.1

N.P. Knekht
COMPREHENSION OF THE PAST AS AN EXPERIENCE
OF SELF-KNOWLEDGE (TO THE PHILOSOPHY
OF AUTOBIOGRAPHY)

An attempt to ascertain the link between history as a form of discourse and inner experience revealed in it is made in the article. This interest was caused both by peculiarities of human existence in the contemporary world and by serious changes in the human sciences. It is regarded as an accentuation on the subjective perception of the social world and its individual adaptation strategies, as well as the experience of micro-research. "The Return of The Subject" is connected with an attempt to realize mental abilities of a human, both in the perception of the past and the methods of its description via autobiography genre. Not only a human as a completed, implemented in behavioral events and activities historical personality (even if it is an ordinary individual) presents a great interest, but also failed intentions, lost hopes, ideas, and incentives pave the way for new anthropology and new humanism perspectives.

UDC 101.1;008:1

Yu.S. Osachenko
THE ESSENCE OF A MYTH AS A PHILOSOPHICAL PROBLEM.
2. MYTH AS A PATTERN OF CONSCIOUSNESS EXPERIENCE –
EXISTENTIAL AND PHENOMENOLOGICAL SUBJECTS

The paper considers preliminary possible notions of understanding the myth within the framework of phenomenology and existential ontology. This implies the consideration of a myth as a form of thinking and consciousness experience, possessing specific true and larval (existential) features. The experience of the consciousness appears as the combination of primary elements (contemplation, suffering, and thinking phenomena) in changing relations and combinations.

UDC 894.344'3

A.F. Myshkina
PHILOSOPHICAL PROSE PECULIARITIES
OF THE VOLGA REGION NATIONAL LITERATURE

The paper analyses modern works of literature written by famous writers from the middle Volga region. It is shown that one of the most ambiguously considered and an eternal idea of self-sacrifice is chosen as a main characteristic feature for all characters.

UDC 39

I.V. Lotkin
INVESTIGATION OF THE SIBERIAN BALTIC DIASPORA BY
RUSSIAN AND FOREIGN SCIENTISTS

The paper considers investigation problems of the Siberian Baltic Diaspora (the Letts and the Estonians) by Russian and foreign scientists at the end of the 19th – beginning of the 21st century. It is stressed

that there is a number of works that appeared during the recent years written by historians, ethnographers, linguists on some problems of history (including the recent history), agriculture, traditional culture, religion, language similarities, and modern ethnical processes that occur among the settlers from the Baltic Region in Siberia.

UDC 378.018.4(571.1/ 5)(09)

V.V. Petrik
THE HISTORY OF HIGHER PART-TIME AND DISTANCE
EDUCATION IN SIBERIA (END OF 50^s – BEGINNING OF 90^s
OF THE 20th CENTURY)

The paper presents documentary investigation of activities of Siberian higher educational institutions on the development of higher part-time and distance education at the end of 50^s – beginning of 90^s of the 20th century. The author considers the measures required to develop new curricula, their methodical supply, increase of lecture and practical training quality, fostering of independent work skills among part-time and distance learning students. Objective and subjective causes of low educational efficiency are analyzed.

UDC 378:026.9

L.I. Ivankina
PEDAGOGICS OF CREATIVITY

The role of creativity pedagogics in the general process of human education is considered in this paper. The description of creativity pedagogics is provided, its content and forms of development are described. The understanding of the essence of spontaneous creativity lays in the basis of the proposed approach to the definition of creativity pedagogics. The factors influencing creative abilities among the students in the process of education are distinguished.

UDC 378.662(571.16)

O.E. Permyakov
METHODOLOGICAL APPROACHES TO DESIGNING
THE MONITORING SYSTEMS OF THE EDUCATION QUALITY

The methodological bases of the monitoring systems of the quality of education are described in the article as an element of an educational system.

Efficiency of planning and management of the monitoring systems of the education quality is based on the system, synergetic, quality, integration, program-target, dynamic, marketing, complex, optimization and normative approaches.

Development of the processes models of functioning and developing the monitoring systems of the education quality open opportunities for effective planning and perfection of quality management of education with the greater share of probability adequate to tendencies of the world community development.

UDC 378.146:51:681.3

V.P. Arefiev, A.A. Mikhalkchuk
COMPUTER STATISTICAL ANALYSIS OF QUALITY
OF ENGINEERING FORMATION. PREVENTIVE INSPECTION
OF MATHEMATICAL KNOWLEDGE

The computer statistical analysis of outcomes of mathematical knowledge preventive inspection is carried out. The role of the best component of technical education is estimated. Comparative analysis of outcomes of mathematical knowledge incoming inspection with outcomes of preventive inspection is carried out depending on different forms of tutoring at high educational institution. The conclusion about statistically significant distinctions of these outcomes is made. Reasons for the essential distinctions are considered. Correlation dependence of the outcomes of preventive inspection on the outcomes of incoming inspection of mathematical knowledge is considered.

UDC 546:378.26(076)

M.G. Minin, N.F. Stas, E.V. Zhidkova, O.B. Rodkevich
TESTING TECHNOLOGY OF CONTROLLING STUDENTS'
KNOWLEDGE IN CHEMISTRY

The advantages and disadvantages of testing technology of knowledge control among students are considered in this paper. The

results of the basic stages of its development and experimental use during the examination in chemistry are stated and the main lines for its further development are considered.

UDC 621.313.333:658.562

O.P. Muravlev

ACCURACY THEORY OF ELECTRICAL MACHINES AND ITS DEVELOPMENT IN TOMSK POLYTECHNIC UNIVERSITY

Basic investigation results are given and development prospects of the trend of quality management in design, manufacturing and operation of electrical machines based on accuracy theory non-traditional for electromechanics are shown. The review of scientific research

carried out at the department of electrical machines and apparatus of Tomsk Polytechnic University over the course of 40 years gives special understanding of the contemporary problems of electromechanics in the field of quality assurance.

UDC 55-05(574):929

E.K. Rakhimov

KANYSH IMANTAEVICH SATPAEV AND TOMSK

The article discovers the Tomsk period in life of the prominent Kazakh scientist academician Kanysh Imantaeyevich Satpayev who studied at TPU in 1921–1926.