

Summaries

UDC 519.2

N.S. Dyomin, S.V. Rozhkova
SEPARATION THEOREM IN CASE OF MEMORY OBSERVATIONS

The paper proves the separation theorem for solving the task of the optimal control over stochastic systems in case when the observed process has the memory which is arbitrary to multiplicity relating to the vector of the system condition.

UDC 517.584

A.V. Anfilofyev, V.M. Zamyatin
GEOMETRICAL PRESENTATION OF ELLIPTICAL INTEGRALS

Normal Legendre elliptical integrals of the first and the second kinds are presented as peculiar angular measures of the arch of the stretched and compressed ellipse when the arch of the circle is displayed on the slants. In this presentation, elementary analytical expressions and the range are determined within which satisfactory accuracy of the values of these expressions is ensured.

UDC 621.314

E.E. Slyadnikov
BASIC STATE IN THE STRUCTURALLY UNSTABLE CRYSTAL

It is shown theoretically that in the vicinity of the structural transition of martensite type, external influence decreases the surface area of the hill which separates the minimums of the atom's double-well potential. This results into the effect of quantum tunneling and decrease in the asymmetry of the double-well potential, which allows to transit from the sites of the original grid into the sites of the final grid (configuration shifts), and pretransitional state emerges.

UDC 537.533.7

D.V. Karlovets, A.P. Potylitsin
**INFLUENCE OF ELECTRON BEAM DIVERGENCE
ON CHARACTERISTICS OF SMITH-PARCELL RADIATION**

The paper suggests the model for recording the influence of vertical divergence of the electron beam on characteristics of Smith-Parcell radiation. It is shown that unlike horizontal divergence, the line in the radiation spectrum shifts towards the "firm" part. The form of the line is found out with the account to two-dimensional divergence of the electron beam. The paper proves that vertical divergence exerts greater influence on the form and position of the line if compared to the horizontal one. It is also shown that divergence of the beam should be taken into consideration in the moderately relative case for small observation angles.

UDC 535.211

V.I. Ivanov, Yu.M. Karpets, A.I. Livashvili, K.N. Okishev
**SELF-ACTION OF GAUSSIAN BEAM IN LIQUID-PHASE
MICROHETEROGENEOUS MEDIUM**

The paper theoretically considers the non-linear optical effect of self-action of the Gaussian beam in microheterogeneous medium with the account to electrostrictive and thermodiffusion non-linearities.

UDC 539.3;539.215

**S.V. Astafurov, E.V. Shil'ko, A.V. Dimaki, V.V. Ruzhich,
V.V. Lopatin, V.L. Popov, S.G. Psakhie**
**INVESTIGATION OF RESPONSE FEATURES OF INTER-BLOCK
INTERFACES IN BLOCK-STRUCTURED MEDIA TO CHANGE IN
THEIR PHYSICO-MECHANICAL PROPERTIES AND DYNAMIC
LOADING. PART I: RESULTS OF LONG-TIME MONITORING
AND FULL-SCALE EXPERIMENTS**

The paper is devoted to investigation of response of seismically active faults to vibrations and change of their state by watering. The inves-

tigation is based on long-time monitoring of block displacements in seismically active fault zones and full-scale experiments. The main result of the research is revealing of the fact that combined use of "high-frequency" vibration and watering fundamentally changes response regime of watered fault and can initiate extensive but seismically safe "smooth" displacements of geo-blocks along the fault. Analysis of investigation results on the basis of Tomlinson model shows that the revealed change in response character of inter-block interfaces is general for block-structured media of different nature. The investigation allows authors to propose the new approach to manmade management of displacements along seismically active faults to reduce earthquake hazards.

UDC 553.411.071.242.4+550.4

I.V. Kucherenko
**MINERALOGICAL, PETROCHEMICAL AND GEOCHEMICAL
FEATURES OF WALLROCK METASOMATISM
IN THE WESTERN GOLD FIELD (NORTHERN TRANSBAIKALIA)**

The paper presents the data on the modes of occurrence and morphology of ore bodies, as well as on mineralogical composition, physical-chemical and thermodynamical modes of ore formation of the Western ore field of Northern Transbaikalia. For the first time, the order of mineral zoning (structure) and mineralogical-petrochemical features of aodolite near-veined metasomatic halos are shown. The paper proves that these halos belong to beresite metasomatic formation and the field belongs to gold subformation of gold-uranium-poly-metallic beresite ore formation. Weak contrasting anomalies of gold, silver and mercury are confined to inner zones of near-veined metasomatic halos in the direct framing of weak gold-bearing (the first grams per ton) of intervals of quartz veins. The paper gives reasons for genetic links of near-veined metasomatic and geochemical halos and their formation in the ore-forming process of the Late Paleozoic metallogenic age. The basic mineralogical-petrochemical and geochemical features of near-veined metasomatism are considered in comparison with the ones of other gold fields of Northern Transbaikalia.

UDC 550.422

R.Yu. Gavrilov, A.A. Potseluev
**METHODOLOGICAL ASPECTS OF HETEROGENEITY ASSESSMENT
OF GEOCHEMICAL SPECTRUM OF GEOLOGICAL FORMATIONS**

The paper presents the method for assessment and use of complex geochemical indices in studying the heterogeneity degree of geological formations. When calculating complex indices, the recommendations are given concerning the use of chemical elements with different accumulation level. The paper shows that such elements as magnesium, carbon, sulfur, scandium, vanadium, chrome, cobalt, nickel, copper, boron, nitrogen, samarium, gadolinium, arsenic, stibic, palladium, europium, terbium, and holmium significantly affect heterogeneity of the spectrum.

UDC 552.578.2:553.982(571.16)

**N.M. Nedolivko, A.V. Yezhova,
T.G. Perevertailo, E.D. Polumogina**
**THE SIGNIFICANCE OF DISJUNCTIVE TECTONICS
IN THE FORMATION OF VOID SPACES IN THE RESERVOIR
LAYER J³ OF WESTERN MOISEEVSKI SECTION,
DVYRECHENSKI OIL FIELD (TOMSK REGION)**

Void space formation in the oil-saturated sandstone layer J³ of the Vasyuganski suite (well 31R, Western Moiseevski Section, Dvyrechenski Field) is determined by the response to different processes during sedimentogenesis, diagenesis, katagenesis and superposition epigenesis. Sedimentation environment determined large confined cross-sections of sedimentogenic pores in relation to coarse-grained sandstones. Compaction was produced as a result of facies changes (such as conformal incorporative contacts and polymictic cement). Rock compac-

tion density decrease and secondary reservoir capacity (fracturing, micropores in and along grain boundary, sinu-packed pores in kaolinite cement) were formed as a result of tectonic deformation and carbon dioxide solution during faulting in the well influence zone.

Additional pore space was formed after solution of oil oxidation clastic products in the ancient water-oil contact. Hence, after intensive solution, rocks contain monomineral fragments (quartz), and after redeposition of these dissolved products, the pore spaces are filled with recrystallized biomineral quartz-kaolinite cement.

UDC 551.3 (571.15)

V.N. Korzhnev

SEDIMENTARY FORMATIONS – INDICATORS OF ANCIENT GEODYNAMIC CONDITIONS (BY THE EXAMPLE OF MOUNTAINOUS ALTAI SEGMENT OF RIPHEAN-PALEOZOIC PALEOAZIAN OCEAN)

The paper performs the comparative analysis of the discovered riphean-paleozoic geodynamical rows of volcanogenic-sedimentary formations of the Mountainous Altai and the geodynamical rows of contemporary oceans and theoretical models. The sedimentary formations which might serve as indicators of geodynamical conditions are determined.

UDC 551.435.132

S.S. Gudymovich

RIVER TERRACES (SOME REMARKS ON MORPHOLOGY, GENESIS AND CLASSIFICATION)

The paper considers three basic definitions of the notion "terrace" and stresses that the most precise of them is the following one: terrace is the platform formed as a result of the erosive or accumulative activity of the river during the previous morphocycle. According to genesis, terraces should be subdivided into erosive and accumulative ones; for the latter the presence of flood-plain alluvium is essential. Socle terraces are a kind of accumulative terraces which are further subdivided into open-socle and close-socle. According to interrelations, terraces can be incut, leaned, embedded and covered together with buried ones. When depicting terraces it is crucial to point out platforms of their surfaces and socles avoiding arched outlines.

UDC 535.36

B.V. Goryachev, S.B. Mogilnitsky

INFLUENCE OF OPTICAL DIMENSIONS OF DISPERSED MEDIUM ON LUMINESCENCE OUTPUT

The paper studies absorption of optical radiation by dispersed medium of final dimensions. It is shown that the value of absorbed energy depends not only on individual properties of molecules but to a great extent on optical volume of the medium which might be determining in assessment of the luminescence output value. The new mechanism which accompanies concentration extinguishing of luminescence is discussed.

UDC 539.21

S.Kh. Shigalugov, Yu.I. Tyurin, N.D. Tolmacheva

EXTINGUISHING OF LUMINESCENCE OF CRYSTAL PHOSPHORS BY ATOMIC OXYGEN. PART I. EXPERIMENTAL RESULTS

The paper studies extinguishing of admixture photoluminescence of crystal phosphors with the deficit of lattice oxygen by oxygen atoms. The decline in luminescence intensity by 1–2 orders is observed at exposing phosphors even by small ($10^{15} \dots 10^{16} \text{ cm}^{-2} \cdot \text{s}^{-1}$) flows of atomic oxygen.

When exposed to O atoms at increased temperature ($T > 700 \text{ K}$), dispersed powder-like crystal phosphors have the most vividly expressed extinguishing effect. After phosphor cools ($\leq 300 \text{ K}$), the information on the oxygen-containing atmosphere which affected it and which is "recorded" in photoluminescence of residual intensity might remain unchanged for a long period of time.

UDC 537.534.2

V.P. Narkhinov

GENERATION OF EMISSION PLASMA FROM LARGE SURFACES BY MEANS OF DEPENDANT SMOLDERING DISCHARGE OF LOW PRESSURE WITH FULL CATHODE

The work suggests and describes realisation of an effective method that allows to obtain volumetric plasma, delimited by two parallel-plane cathodes of large surface in cylindrical space of the common small height anode. It also describes the mechanism of electrical physical processes taking place in various modes of volumetric plasma generation. Threshold values for parameters of volumetric smoldering type discharge with full cathode are determined.

UDC 621.039.524

I.B. Valuev, V.N. Gluschak, A.V. Kuzmin

GRAPHIC-ANALYTICAL CALCULATION OF SAMARIUM POISONING OF A THERMAL REACTOR IN MANOEUVRE OPERATION MODES

Within the framework of point approximation, the grounding of the new algorithm of express calculation of samarium poisoning of a thermal reactor in manoeuvre operation modes is given. The behavior of "old" promethium and its contribution to poisoning kinetics are specified. The graphs and algorithms are presented for performing approximated operational calculations of poisoning dynamics. The comparison with the well-known method of calculation of similar tasks is made. The operation modes of transition to power of the fresh conditional thermal reactor with the subsequent increase (and decrease) in power after balanced promethium concentration is reached serve as examples.

UDC 621.039.51;541.126

V.I. Boiko, D.G. Demyanyuk, O.Yu. Dolmatov,**D.S. Isachenko, I.V. Shamanin**

USE OF MATERIALS OBTAINED IN THE TECHNOLOGICAL COMBUSTION REGIME, IN RADIATION SHIELDING TECHNOLOGY: EXPERIMENTAL INVESTIGATION OF SAFETY PROPERTIES

The paper investigates materials safety properties on the basis of tungsten boride, boron carbide, and their fibered combination at the interaction with fast neutrons and γ -quanta fluxes. Major units of a technological process to obtain multi-layer safety materials are shown; combinations of layers location and thickness succession from various materials which provide advantages to a multi-layer protection according to overall mass figures are defined.

UDC 621.039.532.21

V.I. Boiko, P.M. Gavrillov, F.P. Koshelev, V.N. Mescheryakov,**V.N. Nesterov, A.V. Ratman, I.V. Shamanin**

ESTIMATION OF A GRAPHITE RESOURCE OF THE ГТ-МГР REACTOR FUEL BLOCKS

The paper presents determination methods of a graphite reactor resource taking into account neutrons and accompanying gamma-radiation peculiarities in the active zone. The estimation of a graphite resource of the ГТ-МГР reactor fuel blocks taking into account the decrease of a critical fluence in a high-temperature area and increased flux density of damaging neutrons in a compact active zone is shown. Recommendations concerning the definition of an interval between refueling are formulated, the implementation of which provides guaranteed security of fuel blocks exploitation.

UDC 661.48.546.16

V.A. Karelin, M.V. Popadeikin

FLUORIDE METHOD OF URANIUM-PLUTONIUM NITRIDE TREATMENT OF THE FUEL REACTOR "BREST"

The paper presents thermodynamic and kinetic grounds of the fluorination process to treat uranium-plutonium nitride fuel of the "BREST" reactor with element fluorine. Issues concerning the creation of technological processes complex allowing treating nuclear fuel are discussed. Advantages of gas-fluoride technology are shown.

UDC 661.878

**T.I. Guzeva, A.S. Levshanov, F.V. Makarov,
V.A. Krasilnikov, S.A. Sosnovsky**
**FLUORATION THERMODYNAMICS OF TUNGSTEN CARBIDE
WC(CO) OF FLUORINE**

The results of thermodynamic analysis of solid bodies on the basis of tungsten carbide using element fluorine are presented. The paper proves the fact that in a range of temperatures 298...1400 K thermodynamic probability of CF_x and C_2F_6 formation is high; except for tungsten hexafluoride. Temperature intervals of CoF_3 and atomic fluorine formation are determined. Equilibrium concentrations of solid alloys WC(Co) fluorination products using element fluorine at 298...5000 K are calculated.

UDC 543.253

I.E. Stas, T.S. Ivonina, B.P. Shipunov
**THE INFLUENCE OF A HIGH FREQUENCY ELECTROMAGNETIC
FIELD ON THE ADSORPTION TETRABYTHILAMMONIUM
IONS VALUE LOCATED AT THE MERCURY-FILM ELECTRODE
SURFACE**

Loading curves of a mercury-film electrode at the presence of superficially active tetrabutylammonium (TBA) ions are received using the alternative current voltammetry method. Differential capacity of double electric layer values is determined. Parameters of adsorption isotherm are designed and adsorption isotherms of TBA ions on a mercury surface are constructed. It is shown, that under the influence of a high frequency electromagnetic field there is an essential change of TBA adsorption characteristics.

UDC 536.24

I.K. Zharova, G.V. Kuznetsov, E.A. Maslov
**INTERACTION CONDITIONS OF A CONDENSED PHASE PARTICLES
WITH THE SURFACE AT HETEROGENEOUS FLOW LEAKAGE**

The paper presents a conjugate task on termomechanical destruction of a construction material under the influence of high-velocity and high-temperature gas flow containing condensed phase particles. Results of a numerical analysis based on particles interaction with the construction material plane surface located normally to a heterogeneous flow are shown.

UDC 666.12.001.57

A.V. Kravtsov, N.V. Usheva, A.S. Knyazev, O.V. Shkrobotko
**MODELING OF HEAT-EXCHANGE PROCESSES
AT INDUSTRIAL GAS AND GAS CONDENSATE
PREPARATION ON SEVERO-VASYUGANSKOE FIELD**

Mathematical model for the calculation of heat-exchange processes happening at the industrial gas and gas condensate preparation is developed. The model accurately describes these processes and allows conducting their investigation without considerable time and material expenses. Heat-exchange machine unit modernisation is carried out on the basis of a technological scheme analysis and its calculation is done taking into account all the introduced changes.

UDC 669.86:536.21

V.P. Vavilov, G.V. Kuznetsov, M.A. Sheremet
**MATHEMATICAL SIMULATION OF CONJUGATE THERMO-
GRAVITATIONAL CONVECTION IN CLOSED DOMAIN**

The boundary-value problem of conjugate convective-conductive non-steady heat transfer for the domain describing a profile of a typical heat supply object is considered. The temperature fields' comparison with the data of the experiment is analysed. It is also proved that the heat transmission presents a three-dimensional process, the modeling of which on the basis of a plain model leads to considerable deviations according to the values of typical temperatures.

UDC 621.384.3

V.G. Torgunakov, M.S. Sukhanov
ACTIVE THERMAL CONTROL OF REVOLVING FURNACES

The paper considers active influence methods on the outer surface of the revolving furnaces in order to increase the accuracy of the internal layer defects detection at thermal control.

UDC 548.4.001:621.791.052.08:620.179.16

A.M. Apasov
THE SYSTEM OF WELDING ACTIVE DIAGNOSIS

Both method and device of a continuous control and prevention of welding defects in real-time scale are defined on the basis of separate parameters registration of the acoustic emission from incipient cracks and faulty fusions.

UDC 621.791.72

S.F. Gnyusov, D.A. Markov, V.G. Durakov
**PECULIARITIES OF ANTIWEAR AUSTENITIC COATINGS
FORMATION USING ARGON-ARC WELDING**

Investigation of structure, microhardness, and wearing capacities of austenitic coatings with carbide hardening applied to using argon-arc welding is shown. The paper presents facts proving the formation of a structure with multimodal particles distribution of a hardening phase leading to equal distribution of microhardness and increase in abrasive wearing capacity of a strengthened layer.

UDC 621.0

V.A. Dubovik, E.N. Pashkov
**TRANSITIONAL MOTION OF UNBALANCED ROTOR
WITH LIQUID AUTOBALANCING DEVICE AT STEPWISE
CHANGE OF ANGULAR VELOCITY**

The paper considers the task concerning the influence of a liquid autobalancing device on a transient process occurring at sudden change of an angular rotor velocity at a flexible shaft. Analytical formulae for shaft caving and rotor disbalance with autobalancing devices are obtained.

UDC 621.833

V.S. Korotkov
**CREATION OF A MANUAL MACHINE WITH WAVE
TRANSMISSION AND THE INVESTIGATION OF ITS EFFICIENCY**

The paper describes two variants of construction technical characteristics of manual electric drill containing collector electric drive with wave transmission. Automated choice method of an engine power is suggested. Testing results are provided.

UDC 621.316.9

**L.D. Safroshkina, Yu.R. Gunger, V.A. Kandaev,
Yu.V. Dyomin, E.G. Khromov, V.V. Zuikov**
**ESTIMATION OF BEARING RESISTANCE OF 6-10 kW AIR
CIRCUITS' FAULTY SUPPORTS**

Bearing resistance of 6-10 kW air circuits' faulty supports is defined. Supports' height necessary for further improvement is calculated. Recommendations on faulty supports repair are suggested.

UDC 68-83:681.513.68

V.G. Bukreev, A.A. Bogdanov, S.K. Sosnin, A.K. Chaschin
**LOCAL OPTIMISATION OF DISCRETE ELECTROMECHANICAL
SYSTEMS**

The article considers a solution to an optimal control synthesis problem for electromechanical systems with variable structure. It gives the algorithm of local error control minimisation for electromechanical object in each sampling interval of pulse converter. It considers the problem of speed stabilisation for a DC-motor with pulse-width modulator as an example.

UDC 621.312

S.I. Kachin, Yu.S. Borovikov, O.S. Kachin, E.N. Klyzhko
**COMMUTATING CHARACTERISTICS OF ELECTRIC DRIVE
COMMUTATOR MACHINES' ARMATURE WINDING AT THE
PRIMARY COMMUTATION STAGE**

Armature winding characteristics that influence the commutation process at the primary stage are examined. The analytical current dependences of simultaneously commutating sections are introduced. It is showed that the change of mutual magnetic connections between neighboring sections substantially influences the commutation process quality and stimulates development of new armature winding constructions.

UDC 621.91/92:534.014.3

M.V. Volkov, V.V. Litvak, G.Z. Markman
THE MODEL OF ENERGETIC AND FINANCIAL
FLUX – DISTRIBUTION

A new model of energofinancial flows of a company is proposed. Company balance, information on correlation with individual objects, real and average cost value of production, electric power and heat delivery, examination of company's operating regimes can be received on the basis of the model.

UDC 621.311.001

S.E. Kokin, S.A. Lysak, S.A. Dmitriev
THE STRUCTURE OF ELECTRICITY CONSUMPTION
IN THE HOUSING FACILITIES OF A CITY

Correlation of normative and actual demand of Ekaterinburg citizens is conducted on the basis of actual personal accounts and electric power pay-lists. Suggestions concerning the improvement of a given method are worked out.

UDC 621.165

V.E. Gubin, A.S. Matveev
HEAT DELIVERY SCHEME DEVELOPMENT OF A HEAT STATION
TAKING INTO ACCOUNT EXTERNAL FACTORS INFLUENCE

Temperature influence of return delivery water on the efficiency of dual-purpose unit of a heat station is considered. Analytical dependences for the evaluation of turbo-installation power change at delivery water parameters deviation from heating system temperature scheme are obtained. A model for the analysis of heat delivery scheme improvement is proposed.

UDC 621.311

P.I. Bartolomey, E.N. Begalova, A.V. Pazderin
THREE-LEVEL INCREASE IN MEASURING INFORMATION
AUTHENTICITY CONCERNING OPERATING REGIMES
OF ELECTRIC ENERGY SYSTEMS

New competitive relations that are formed in Russian power industry increase information authenticity requirements to telemetry systems. Mathematical regime model provides accuracy of an electric energy system. The use of mutual measuring information and mathematical modeling allows to substantially increase regime characteristics authenticity.

UDC 621.311.1.018.3

N.N. Kharlov
LOAD NODE PARAMETRIC MODEL WITH NON LINEAR
ELECTRICAL RECEIVER

When using mathematical modeling of the electrical energy quality based on the harmonic balance method it is necessary to apply relevant parametric model of the load nodes. At the same time their non linear and frequency properties should be taken into consideration. To create such models the specific approach is offered. Basing on the experimental data the algorithm aimed at models parameters defining is created. For one of the load nodes possessing such properties series of calculations is made.

UDC 621.311.1

S.A. Burdinski, V.K. Kistenev, A.S. Toropov
ELECTRICITY DEMAND PREDICTING BASED
ON STABLE H-DISTRIBUTION

The predicting possibility of electricity demand of big electric-power systems with the help of rank analysis method is shown.

UDC 621.311.45

V.Z. Manusov, A.V. Sedelnikov
FUZZY LOGIC IMPLEMENTATION USED TO COORDINATE
OPERATING MODES OF WIND-ELECTRIC SET AND ELECTRIC
ENERGY DEMAND

The design procedure, which takes into consideration the wind power uncertainty factor, is offered. The wind power can be used as

an energy carrier and treated as an incidental and uncontrollable natural phenomenon. System approach designed to coordinate the work of the wind power recourses, load-graph, and possibility of energy accumulation is offered. The evaluation approach of the wind power implementation is based on the fuzzy sets theory.

UDC 621.336.7

O.A. Sidorov, I.L. Salya
CALCULATION OF INTERACTION OF POLE TROLLEY
WITH HARD CURRENT-CONDUCTING WIRE

Calculation method for power collector of monorail electromagnetic transport with hard conduction is introduced. This method includes both the statistic and dynamic characteristics calculations taking into account conduction sag influence.

UDC 629.4.083

S.G. Shantarenko
PROCESSES MODELING OF LOCOMOTIVES SERVICING

The mathematical modeling results of the processes of locomotives servicing considered as complicated technological objects are given. The definition of available functionals and technical application for locomotive servicing processes identification is derived. Functionals dependence on time at the time of servicing is shown. The results obtained allow us to define average time during which the locomotives were unfixed.

UDC 621.311.004.13(075.8)

A.G. Rusina, Yu.M. Sidorkin
CALCULATION PECULIARITIES OF THE ELECTRIC ENERGY
NETWORK MODES UNDER MODERN CONDITIONS
OF THE MARKET OF ELECTRIC POWER SUPPLY OF RUSSIA

Wholesale and regional markets payment for electrical energy depends on plants and electric networks mode of operation. The requirements established for the address distribution algorithms of the power flow within the system are considered. These requirements allow to fix goods selling prices in generating station and purchase price in loadings.

UDC 621.316.001

B.I. Ayuev, P.M. Erokhin, T.Yu. Panikovskaya
AUCTION MECHANISM IMPLEMENTATION FOR ELECTRIC
POWER MARKET MODELING

The issues concerning methods of development and determination algorithms of electric power competitive prices are considered. It was carried out with the help of two well known implementation models of competitive power markets: pool models and two-sided contract models.

UDC 156.6

V.P. Grigoryev, V.N. Kalyuta, K.A. Kiselev
MODEL OF OPTIMAL RESOURCES DISTRIBUTION INTO THE
INDUSTRY

Mathematical model of optimal resources distribution for industry management is created. The optimisation criterion, which shows insufficient deviation from the standards set, is developed. Algorithmic support and software are developed. Food industry's data are used to carry out the testing.

UDC 331.5

G.A. Alekhina, A.Yu. Chekunov
LABOR-MARKET FORECAST PREPARED BY
HIGHLY QUALIFIED SPECIALISTS

Economic development and exaggerated industry growth is determined by the mechanism based on the highly qualified personnel application ("human stock"). All this turned out to be real when using technologies where the biggest part of the cost is human intelligence. It is necessary to train specialists to satisfy the needs of science intensive and innovative enterprises. For this reason it necessary to create the system, which would show what qualifications are required in the industry.

UDC 331.108.2

E.G. Novoselova
SPECIAL TREATMENT OF PERSONNEL LABOR OF BANK OF
COMMERCE AND NEW TENDENCIES IN ITS ORGANISATION

High level of regulation of working functions implementations is considered to be the main peculiarity of bank specialist's labor. The role of financial manager on the bankroll market is aimed at requirements setting for bank staff. They should look for new methods aimed at positions saving and winning on the market. Regulations and innovations define the way the bank personnel labor is treated. Reengineering application of initial processes provide concordance between different tendencies. It is used to organise the whole business process of innovative activity as administrative process, which integrates personnel's actions aimed at business development using different types of innovations. Their implementation by forming bank operations business processes allows to administrate industry of innovations in the regulated bank process. Innovation development is considered to be separate business process.

UDC 338.242(47+57)

T.A. Grosheva
RUSSIA IS ON THE WAY TO THE SOCIAL MARKET ECONOMY

The problem of socially oriented market economy elaboration in Russia is an essential process, which meets the requirements of modern tendencies of international development and national specific character. Transformation of functions of social state, social responsibility reinforcement in business, social relationship development, and also the accumulation and effective implementation of human and social recourses are considered to be necessary to form socially oriented economics. The increased living standards of population are considered to be essential.

UDC 332

V.G. Chaplygin
DIRECT RELATIONSHIP AND FEEDBACK OF MIGRATION
FACTOR AND TRADE FACTOR IN THE UNIFIED ECONOMICS

Place, role, and influence on the trade volume factor between partner countries are specified. This is caused by the fact that in the century of internalisation and globalisation, territorial closeness does not influence goods, work, services, and labor volume between independent territorial subdivisions.

UDC 325.1+314.74

S.V. Demytyeva
ADAPTATION PECULIARITIES OF MIGRANTS FROM
FOREIGN COUNTRIES IN RUSSIAN CITIES (INFORMATION
PROVIDED IS BASED ON THE SOCIOLOGICAL RESEARCH)

Adaptation processes of migrants from foreign countries are analysed. Social and economical, cultural, and political conditions of migrants' adaptation are studied with the help of sociological methods. Demographical problems of current importance in Russia are specified and correlated with unqualified migration policy. The conclusions about the necessity of carefully worked out administrative policy of federal and regional powers are drawn. The aim is to make demographical and economical situation in the country stable.

UDC 316.75:14

V.L. Khmylev
IDEOLOGY AS A CONCEPT

The situation, which now exists in the science and philosophy concerning ideology's place in the modern society is briefly described. The purpose of this article is to show that this phenomenon still exists in the modern society in the form of humanitarian knowledge. To say more, it exists even in spite of the fact that there is a wide spread opinion about "the end of ideology" and its exclusion from the society by the political PR and commercial.

UDC 930.1.09

V.I. Turnaev
HISTORICAL ROOTS OF NATIONAL PROBLEMS FOUND
IN RELATIONSHIP BETWEEN RUSSIANS AND EUROPEANS
AND ST. PETERSBURG ACADEMY OF SCIENCES

The origin and evolution of national problems, which existed in the relationship between Russia and Europe in St. Petersburg Academy of Sciences in the first half of the 18th century are studied. Common and particular reasons for national conflicts in Russian science at the time of its formation are analysed.

UDC 378(571.1/5)(09)

V.V. Petric
PREUNIVERSITY TRAINING ORGANISED AT
THE UNIVERSITIES OF SIBERIA FOR STUDENTS
AND WORKING YOUNG PEOPLE (1958-1991)

Group activity of the Siberian academies aimed at making university education attractive to young people and developing a responsible attitude towards their studying (end of 1950 – beginning of 1990) is shown. Universities' administration and social organisations use not only traditional and informational ways but also professional schools, schools' Olympiad, training courses, lectures on the topic "Knowledge" to popularise universities. They provide such atmosphere where graduates are interested in their profession.

UDC 378.146:51:681.3

A.Yu. Trifonov, A.A. Mikhalchuk
COMPARATIVE EVALUATION ANALYSIS OF KNOWLEDGE
OF MATHEMATICS OF THE FIRST YEAR STUDENTS

Evaluation methods of knowledge of students who study at universities are discussed. Comparative statistical analysis of the system of knowledge evaluation is carried out. It is based on the results of current control of mathematical knowledge of the first year students. Statistical analysis of the system of knowledge evaluation is represented in the test form similar to Centralised Testing (all the tasks are of A and B groups, tasks of group C are not included). This type of control is carried out with the help of computers. The system of traditional knowledge control based on tests fulfilling, which are further checked by the teacher are also used when evaluating students' knowledge. The conclusion is drawn about statistically sufficient differences revealed in the course of knowledge evaluation using these methods. Causes of such differences within the systems of knowledge evaluation are brought to discussion. Besides, the reasons for these significant differences in the considered systems of knowledge evaluation and the place of these systems in the control technology of students' knowledge quality are discussed.

UDC 608.3

V.M. Zikov
TPU PATENT SERVICE CELEBRATES ITS 40TH ANNIVERSARY

Historical essay about formation and development of TPU patent service is outlined. All basic activities of the patent service, problems connected with inventive work, patent and license activity, scientific and research work, work accomplished by Universities are analysed. Issues connected with the application of TPU inventions, which can be used in industry, scientific and engineering developments, educational process are considered. The results of participation of TPU patent department in different contests and competitions aimed at inventive, patent, and license work are introduced.

UDC 666.973(09)

V.N. Gurina
PETER GRIGORIEVICH USOV – A SCIENTIST
AND A TEACHER (100TH ANNIVERSARY)

The article is about life and work of the scientist Peter Grigoryevich Usov (1905–1977). He worked in the chair of silicate technologies of Tomsk Polytechnic Institute.