

## CONTENTS

---

### Underground mining

- Alekseyev O.N.** APPLICATION OF MODERN DRILLING EQUIPMENT AT THE URANIUM MINES OF JSC "PRIARGUNSKY INDUSTRIAL MINING AND CHEMICAL UNION" (JSC PIMCU)..... **5**  
*The article deals with the basic principles in ensuring radiation safety at the uranium mining in Russia. The comparative industrial tests are shown and the experience of modern domestic and foreign drilling equipment practical use at the uranium mines is analyzed.*  
*Key words: radiation safety, drilling equipment, mining, ore, hardness.*
- Anikin V.V., Asanov V.A.** EXCAVATION POSSIBILITY ESTIMATION OF OUTBALANCE RESERVE OF SYLVINITE LAYERS "KrIII" AND "V" AT POTASH MINE OF UPER KAMA SALT DEPOSIT ..... **9**  
*Geological factors and mine technical conditions of three-sheeted sylvinitic layer excavation possibility (with additional drawing into exploitation of sylvinitic layers "KrIII" and "V") at mine field OAO "Uralkali" are studied.*  
*Key word: Mine, mineral reserves, salt rocks, sylvinitic, commercial seam.*
- Anikin V.V., Zhikharev S.J.** DETERMINATION OF TECHNOLOGICAL CONDITIONS OF THREE CONNIVENTS SYLVINITE LAYERS EXCAVATION ..... **15**  
*In this paper the technique for determination of heading-and-stall method parameters that makes possible to decrease costs of excavation of three connivent sylvinitic layers at "Uralkali" mine field is offered.*  
*Key words: underground mine, heading-and-stall method parameters, sylvinitic, workable beds, backfilling.*
- Anferov B.A., Kuznetsova L.V.** SHIELD MECHANISATION DEVELOPMENT OF THICK STEEP COAL BEDS WHEN UNTRADITIONAL DIVIDING OF EXTRACTION LINE..... **20**  
*The development of thick steep coal beds in straps downstream includes preparation of extraction pillar by gates, of extraction line – by flank and near chutes both sides of line, driving of mounting chamber near ventilation gate, mounting of expandable back-connected overlap of support in it, coal layer mining by development machine and transportation of coal by self-propelling car.*  
*Key words: thick steep coal beds, shield development system, shield support, thin layers, development machine, self-propelling car.*
- Baryakh A.A., Lobanov S.Y., Shumihina A.Y., Lomakin I.S.** ANALYSIS OF CHANGES IN LOAD-CARRYING ABILITY OF RIB PILLARS DURING THE FAILURE OF TECHNOLOGICAL PARTING ..... **27**  
*With the use of mathematical modeling methods the influence of technological parting failure on changes in load-carrying ability of rib pillars is estimated.*  
*Key words: load-carrying ability, chamber method of mining, pillar loading degree, mathematical modeling, parting.*
- Baryakh A.A., Telegina E.A.** THE RESEARCH ON FAILURE CONDITION FOR VARIOUS KINDS OF HEADING-AND-STALL METHOD ..... **34**  
*By the use of mathematical modeling methods the comparative analysis of waterproof thickness failure conditions was carried out and its deformation patterns were established for various kinds of heading-and-stall method.*  
*Key words: mathematical modeling, heading-and-stall method, mode of deformation, failure.*
- Volkov Yu.V., Sokolov I.V.** COMBINED UNDERGROUND ORE MINING GEO-TECHNOLOGY ..... **41**

<p>The article exhibits the effect of distance between an open pit area and underground openings on the underground extraction technology performance. Value of isolation coefficient has been found for different isolation techniques. The authors propose an approach to the assessment of underground geotechnology efficiency, taking into account influence of specific factors. The underground technology substantiation is exemplified in terms of extraction of mineral reserves occurring below the bottom of the Udachnaya pipe open pit mine.</p>	
<p>Key words: combined mining method, underground geotechnology, capacity and technique of isolation, isolation coefficient, safety ore layer.</p>	
<p><b>Kaplunov D.R., Yukov V.A.</b> TO THE ASSESSMENT OF THE INTENSITY OF THE EXPLOITATION OF ORE DEPOSITS .....</p>	48
<p>Scope study on mining a minor copper-pyrite deposit coupled with a processing plant maintaining different production rate and ore quality standard</p>	
<p>Key words: intensity, quality, underground mining, production rate, processing rate.</p>	
<p><b>Maslennikov S.A., Galenko A.A., Shinkar D.I., Mihalko I.V., Beljakov E.S.</b> CONSTRUCTION TECHNOLOGY CREPES WITH MANAGED MODE OF OPERATION .....</p>	53
<p>The paper deals with the development of construction technology shafts combined with reinforced concrete is attached with adjustable duty. The results of comparative calculations of the rate of construction on various technologies</p>	
<p>Key words: reinforced concrete lining, vertical shaft, rock pressure, hydrostatic pressure.</p>	
<p><b>Pleshko M.S.</b> ESTIMATE OF ROCK MASS INHOMOGENEITY INFLUENCE ON BEARING CAPACITY OF VERTICAL SHAFT SUPPORT .....</p>	61
<p>Counteraction of shaft strengthening with heterogeneous rock massif has been considered. Conformities of exercising influence of the main factors over the tension distribution in strengthening concrete have been determined. Conclusions about the governing affecting mechanisms have been made.</p>	
<p>Key words: area of interbedding, face area, crack formation, concrete support.</p>	
<p><b>Open-cast</b></p>	
<p><b>Eremín G.M.</b> CHARACTERISTICS OF BYPASSING IN SURFACE AND UNDERGROUND MINE PLANNING .....</p>	65
<p>The argumentation for choosing bypass schemes involving ore chutes is given in the article. It is shown that accounting for a bundle of mining-and-geological and mine engineering factors can only ensure high-efficient and extended operation of ore chutes, with reduced damage of shafts and ore chute bins.</p>	
<p>Key words: ore chute, vertical, inclined, ore chute parameters, bin, oversize, snow, ore adfreezing, crushing unit, inclined conveyor.</p>	
<p><b>Kosolapov A.I., Ptashnik J.P., Ptashnik A.I.</b> RESEARCH OF INFLUENCE OF THE FORM OF THE BOARD OF THE PIT IN THE PLAN FOR PRODUCTION EFFICIENCY AND THE SUBSEQUENT DEVELOPMENT OF TECHNOGENIC EXCAVATIONS .....</p>	73
<p>In article questions of formation of technogenic stopes in conditions of an urbanization of modern society are considered. Researches of change of volumes and labor input of mountain works on technological processes, depending on a form of a board of a pit in the plan in its limiting situation are executed.</p>	
<p>Key words: pit board in limiting situation, development of excavations.</p>	
<p><b>Panov V.V., Tsymlyakova S.S.</b> ANALYSIS OF MINE ENGINEERING CONDITIONS IN THE WORKED-OUT PEAT BOG VASILEVSKY MOKH AND ITS USAGE PROSPECTS .....</p>	79
<p>Analysis of mining conditions worked out peat deposits that enable you to determine their resources for small-scale development. This will require the development of a new method for the extraction and processing of raw materials using modern compact equipment. Another promising direction developed torus fyanyh deposits are growing biomass, low-rise construc-in, an organization of small peat enterprises. These types of development will al-</p>	
	421

low returning abandoned peat extraction in the management of natural resources, which will reduce the development of negative processes that will create jobs, reduce social tension in the industrial communities.

Key words: peat deposits, peat, Vasilievsky moch.

**Petrosov A.A.** ANALYSIS OF INTERACTION OF PRODUCTIVE RESOURCES IN GOLD PLACER MINING ..... **85**

The article analyzes interaction of productive resources during gold placer mining, shows effect exerted by the intensity of use of the productive resources on the production results, as well as defines the limits of the efficient use of the resources depending on conditions and quantity of the production.

Key words: economic and mathematical models, production functions, short-term and permanent resources, production efficiency.

#### **Automated control systems**

**Rogkov M.S.** PARKINGS AS A METHOD OF COPING WITH TRAFFIC JAMS ..... **95**

The problem of traffic jams caused by car parking on the road is considered in this article. In order to solve this problem by building various types of parking the decision support system involving simulation and geometric modeling methods are being used.

Key words: problem of traffic jams, parking, support system, involving simulation, geometric modeling.

#### **The Physicotechnical control of processes mining manufacture**

**Sheinin V.I., Blokhin D.I.** ROCK SALT SAMPLES DEFORMATION STAGING UNDER DIFFERENT TYPES OF LOADING USING ACOUSTIC EMISSION AND INFRARED RADIATION DATA..... **98**

The paper describes the testing of rock salt samples uniaxial compression under different types of loading, which carried out with synchronous recoding of changes of acoustic emission (AE), infrared radiation (IR) and strain parameters. The purpose of the work is to justify the effectiveness of techniques developed for complex geomaterial deformation processes diagnostic with respect to considered type of geomaterial. The obtained results show that the techniques may be used as a part of monitoring system of real geomaterial events.

Key words: rock salt, stress, deformation, acoustic AMIS this, infrared radiation.

#### **Enrichment of minerals**

**Vashlaev I.I., Mikhailov A.G.** DETERMINATION OF MASS TRANSFER PARAMETERS DURING CAPILLARY EMERGENCE OF FLUIDS IN MILL TAILINGS..... **107**

The base parameters for definition of moving fluid at a capillary ascent of solutions in a tailingsstorage is described .

Key words: tailing storage, technogeneous deposit, geo-fluid process.

**Petukhov A.N.** REDUCTION OF COAL PREPARATION COST USING A NEW THREE-PRODUCT FLOAT-AND-SINK SEPARATOR..... **110**

Plants use complicated technological schemes while preparing coal of low washability.

The application of the three-product dense-media separation unit offers the possibility to simplify the process scheme and reduce production costs of coal preparation.

Key words: preparation, coal, dense-media separation, production cost.

**Ryl'nikova M.V., Emelianenko E.A., Angelov V.A.** FORMATION OF A TECHNOGENIC FILE FROM ENRICHMENT TAILS IN THE FULFILLED SPACE WITH THE SET STRUCTURAL PARAMETERS ..... **115**

In article the new technology of formation of technogenic deposits, by means of filling of current tails of concentrating factory in the special capacities made from of a material marks Geolon (geotextiles) is offered.

Key words: technogenic deposits, warehousing of a waste, tailing dump, technology Geotube.

**Ryabov Yu.V., Moiseeva R.N., Komarova Z.A., Lygatch V.N.** STUDYING THE PHOTOMETRIC ORE MINING AND CHEMICAL RAW MATERIALS AND THE PROSPECTS FOR ITS PRACTICAL USE..... **118**

The article presents the results of long-term exploratory research in the field of photometric separation of ore mining and chemical raw materials. It is shown that during the pre-enrichment of barite, phosphorite, and boron-gypsum ore can be removed much of the waste rock and achieved a significant recovery of minerals in high-quality concentrates.

Key words: photometric separation, barite ore, phosphate rock, gypsum, boron ores.

**Smoliakov A.R.** ESTIMATE OF HANDING PROPERTIES OF INTERGROWN PIECES DURING GRAVITY PREPARATION..... **123**

Influence of binary mineral composition grains gold with other minerals on density of particles is reviewed. Maximum sizes  $L_{max}$  to which individual mineral grains can be liberated determine the size  $D_{max}$  of particle composition for classification.

Key words: mineral, gold, liberation, grain, particle composition, density, gravity concentration.

### Geochemistry

**Radomskii S.M., Radomskaya V.I.** THE RATIO OF ION AND METAL FORMS OF NOBLE METALS AT GOLD-SILVER LAYER POKROVSKOE (UPPER AMUR REGION) ..... **128**

Distribution studies results of noble metals over the ore bodies in host rocks at Pokrovskiy gold deposit of Upper Amur region are presented. Set migration of ionic forms of silver, platinum, and gold in vertical and horizontal directions in soft sediments over of the ore field. Shows the features of the geochemical ratios of precious metals depending on the thermodynamic and physical-chemical parameters of the state of the enclosing environment.

Key words: geochemistry, thermodynamics, noble metals, migration, distribution, ionic and mineral forms.

### Physics of rocks and processes

**Afanasiev A.E., Efremov A.S.** OPTIMIZATION OF CYLINDRICAL LUMP PEAT BACKFILL..... **135**

Lumpy peat cylinders are considered as models to study the apparent density variations of filling the constant minimal quantities, which depend on length-to-diameter ratio. Lumpy peat cylinders are compared with spherical lumps, taking into account a change of solid volumes, a probability of solid imperfections, particle number density and their concentration in a constant quantity, coefficients of heterogeneity and ripping.

Key words: apparent density, lump form, solid imperfections, filling optimization.

**Kuskov V.B., Kuskova Ya.V.** THE DENSITOMETER ANALYSIS OF SMALL PARTICLES ..... **143**

Separation of particles on density in heavy liquids (densimetric analysis) is widely applied to an assessment of results of gravity concentration. Densimetric analysis of fine particles very labour-consuming operation. It made the gadget for simplification of densimetric analysis of fine particles.

Key words: heavy liquids, densimetric analysis, fine particles.

**Mokhov A.V.** TRANSFORMATION OF ROCK MASS STRESS-STRAIN STATE UNDER IMPACT OF BITUMINOUS COAL UNDERGROUND MINE FLOODING ..... **147**

Appearance of dynamism in the stress-strain state of rock mass enclosing flooded bituminous coal underground mines has been discovered (cyclic inception of new forms, pulsation of opening, translation of fractures, jumps in mine inundation level, shocks, local breaking of rocks and engineering structures). The cause is the buoyancy forces that initiate discrete-regime formation and reduction of field of mechanical stresses.

Key words: coal underground mines, sets of flooded excavations, stress-strain state of rock mass, transformation.

### Mining cars, the equipment and transport

**Aluyshin Yu.A., Verzhanskij P.M., Kalinkin M.N.** MANAGEMENT OF MOVEMENT OF THE NAVIGATING ROBOT OF CAPACITY OF DRIVES OF DRIVING WHEELS ..... **154**

For the description of movement of the mobile navigating robot the principle of superposition with the description of movements in the form of Lagrangh with imposing three

<p>simple movements is used. The equations for speeds and accelerations are received by differentiation of the equations of spatial movement. Angular speeds and accelerations of driving wheels are used as arguments at calculation of components of kinetic energy of forward and rotary movement, speed of their change and the capacity submitted on driving wheels. Examples of management are resulted by simple and complex movements of the robot.</p> <p><i>Key words:</i> a principle of superposition of movements in the form of Lagranzh, kinetic energy, capacity of drives, driving wheels.</p>	
<p><b>Afonichev E.V., Golosenko S.V., Kruchkov A.A., Shevyrev U.V.</b> TASK AUTOMATION ELECTRICAL CURRENT TREATMENT MECHANIZED COMPLEXES.....</p> <p><i>A review of modern mechanized longwall equipment used in the mines of Russia and its main characteristics. The problems and identify long-term objectives of automation control equipment.</i></p> <p><i>Key word:</i> automation, sewage treatment complex electrical equipment.</p>	163
<p><b>Diachenko V.P.</b> BELT CONVEYOR DRIVE OPERATING MODE IN CASE OF RANDOM FREIGHT FLOW .....</p> <p><i>Here are given relationships to determine probability characteristics of traction force developed by belt conveyors drive at condition of random mineral stream fluctuations. The above characteristics are given for two types of models describing of random mineral stream, they are: classic one, and the offered by author of the article.</i></p> <p><i>Key words:</i> belt conveyor, estimation, random mineral stream.</p>	175
<p><b>Minasyan D.G., Kamenetsky E.S., Khetagurov V.N., Sobolev S.E., Pliyev V.A.</b> THE INFLUENCE OF THE VERTICAL TYPE ROTOR CENTRIFUGAL MILL RADIAL RIBS CONFIGURATION THE TECHNOLOGICAL PARAMETERS OF GRINDING.....</p> <p><i>In the article are presented the results of testing vertical type centrifugal mill. Using three-dimensional computer simulations we revealed that output of the mill vertical type when installed in the rotor radial ribs with cutouts at the hub of the rotor is more than with the solid edges. The results are experimentally proved and the productivities growth occurs at the low specific energy consumption values.</i></p> <p><i>Key words:</i> vertical type centrifugal mill, the ground material movement, the design of the rotor edges, computing experiment, experimental studies.</p>	180
<p><b>Matveev I.A., Ereemeeva N.G., Matveev A.I.</b> EXPERIMENTAL STUDY OF THE INFLUENCE OF STRUCTURAL AND OPERATING PARAMETERS OF THE BOTTOM OF THE ANGLE ON THE DEGREE OF REDUCTION AND TO IMPROVE THE QUALITY OF CONCENTRATE.....</p> <p><i>Results of research on disclosure of the influence of the angle of the relaver plates and water flow to reduce and improve the quality of concentrate</i></p> <p><i>Key words:</i> steeply inclined concentrator, transverse angles, concentrate storage, recovery, concentrate.</p>	185
<p><b>Reutov A.A.</b> SELF-OSCILLATIONS OF THE BELT ON THE DRIVING PULLEY OF A CONVEYOR .....</p> <p><i>The movement of the discreet element of a belt on surface of the conveyor drive pulley has considered. The equation of the self-oscillations of the belt was developed with nonlinear dependence between friction force and slip velocity. Numerical solution was received.</i></p> <p><i>Key words:</i> a belt, a conveyer, a drive, a pulley, oscillations.</p>	189
<p><b>Exhibition MiningWorld-2013</b>.....</p>	192
<p><b>Fedotov P.K.</b> ORE DESTRUCTION IN ROLLER PRESSES.....</p> <p><i>One of the effective ways of the disintegration of the ore is to fracture it in roller presses. So far it is not determined the mechanism of destruction of ore in roller presses, do not know the reasons of the high efficiency of these devices. This paper presents a mathematical model of ore in a layer of particles between the rollers roller press. Pre-</i></p>	193

<p>sented the mechanism of interpartical ore destruction.  Key words: disintegration, roller-press, FEM, microcracks, crushing, grinding, fracture, strength, selective, destruction.</p>	
<p><b>Fedotov K.V., Tyutyunin V.V.</b> CENTRIFUGAL CONCENTRATORS OPTIMIZATION .....</p>	<p><b>208</b></p>
<p>An approach for centrifugal concentrators optimization using fluidization in rotary cone are observed in the paper. It consists of two steps. First – effective radian frequency calculating for recovering small ore particles. Second – determination of fluidization pipe system pressure for making mineral bad floating.  Key words: gravity separation – centrifugal separation – centrifugal concentrators – fluidization – radian frequency – gold processing.</p>	
<p><b>Gorlov I.V., Bolotov A.N.</b> INFORMATION CONTROL SYSTEM OF EXPLOITATION OF MACHINES FOR PEAT EXTRACTION .....</p>	<p><b>216</b></p>
<p>The innovative approach to the operation of peat complex machines with the use of information technologies on the basis of object condition complex diagnostics. An original algorithm, calculated the parameters of working capacity restoration, provides the highest efficiency of machine using in the season of peat extraction and peat processing.  Key words: the restoration, repair, diagnostics, algorithm, information technology.</p>	
<p><b>Pankratenko N.A.</b> DEFINITION OF RELIABILITY INDICES OF TUNNELING COMPLEX DURING THE CONSTRUCTION OF ESCALATOR TUNNEL .....</p>	<p><b>222</b></p>
<p>Here are shown values of coefficients of readiness, average recovery time and number of failures per shift for the tunneling complex during construction of escalator tunnel.  Key words: reliability, tunneling complex.</p>	
<p><b>Fomin K.V., Krylov K.S, Zhigulska E.Y.</b> ESTIMATION OF REGIMES OF THE LOADING IN ELEMENTS OF THE DRIVE OF PEAT MILLING ASSEMBLIES AT THE DESIGN STAGE .....</p>	<p><b>225</b></p>
<p>Paper is devoted definition of regimes of a loading in elements of the drive of peat milling assemblies at a design stage. Thus it is offered to consider the preliminary information on an aspect of a density function of the moment, gained on the basis of experimental data. The offered approach allows to consider a moment random in character on the tool, elastic - inertia properties of the drive, a design and operating modes of the milling assembly. The gained information on loading regimes serves as a source material for strength calculation of elements of the drive and sampling of its optimum parameters.  Key words: loading regime, random loadings, dynamic loads, the drive of the milling assembly.</p>	
<p><b>Environmental protection technologies</b></p>	
<p><b>Versilov S.O., Frolov A.V., Versilova E.S., Dremov V.I.</b> OPTIMIZATION OF THE TECHNICAL SYSTEM LETO ORE-DRESSING PLANT «UNDERGROUND MINE - TAILING» .....</p>	<p><b>233</b></p>
<p>Waste from mining and mineral processing are a threat to environmental security in the region. In the waste may contain valuable components with content comparable to the natural deposits. The content of lithologic "Mine - tailings" - the basis of environmental technologies for the extraction, thus optimizing the amount supplied to the mine backfill.  Key words: litotekhnicheskaya system, mine tailings, bookmark, nature protection, waste mountain.</p>	
<p><b>Geotechnology, geodynamics, geomechanics</b></p>	
<p><b>Kartozhiya B.A.</b> TRADITIONAL ENGINEERING PROBLEM GEOMECHANICS .....</p>	<p><b>236</b></p>
<p>The author analyzes the situation in one of the most difficult scientific sections of Geomechanics - theories of the is stressed-deformed state of rock massive and attempts by analytical methods to predict of different forms of rock pressure in mining workings. The reasons of such position are considered, and one of the most possible ways out is offered.  Key words: geomechanics, rock massive, mining workings, rock pressure, stressed state, deformation.</p>	

<b>Pankov I.L., Asanov V.A., Udartcev A.A.</b> THE RESEARCH ON THE INFLUENCE OF LOAD DEGREE AND SAMPLE SHAPE ON SALT ROCK DEFORMATION DURING CREEPING .....	<b>246</b>
<i>Test results of the influence of load degree on salt rock creeping are obtained for various samples height. Dependence of salt rock viscosity on load degree and sample form is established.</i>	
<i>Key word: salt rock, sylvinite, creep, viscosity, long-term strength.</i>	
<b>Fedorin V.A., Varfolomeev E.L., Kassina O.V.</b> GEOTECHNOLOGICAL SUBSTANTIATION OF SHORTWALL MINING SYSTEM PARAMETERS FOR HIGH-SEAM APPLICATIONS WITH USAGE OF PERMANENT RESISTANT MOVING SUPPORT SETS.....	<b>253</b>
<i>The parameters of shortwall mining system for slice mining in high-seam applications are under consideration in this article. The upper slice is mine out using of permanent resistant moving support set, the bottom - using longwall top coal caving.</i>	
<i>Key words: high coal seam, slice, permanent resistant moving support sets, longwall top coal caving roof support.</i>	
<b>Geotechnology and peat production</b>	
<b>Galtchenko Yu.P., Sabyanin G.V., Shuklin A.S.</b> HIGH GEOTECHNOLOGY INTEGRATED DEVELOPMENT OF SHALLOW AND INCLINED VEIN DEPOSITS .....	<b>259</b>
<i>The article describes a new system design with an open sewage disposal space with a solid hollow sections along the strike of the ore and ore breaking parallel to the horizontal wells drilling workings with the gross breaking lived. High rates of labor productivity are provided by the wells of breaking the ore and the maximum degree of alignment in time all the major processes of purification cycle with an increase in security due to breakage seizure withdrawal rights of cleaning space. Studies conducted for the setting of a Bald Hills gold deposit.</i>	
<i>Key words: gold deposit, vein, module of the gross excavation, ore shaft, system design, excavation of the strike, losses, dilution.</i>	
<b>Tsvetkov I.V., Pukhov O.V., Timofeev A.E.</b> MATERIAL QUALITY CRITERIA OF PEAT AND ITS PRODUCTS.....	<b>266</b>
<i>The characteristics of quality criteria for sod peat are given. The influence of raw peat mechanical processing on the products' strength properties is established. Curves of dependence are plotted; equation of dependence for sod peat strength on the degree of processing at different moisture contents was created.</i>	
<i>Key words: peat materials, dispersion, products of peat processing, peat quality criteria of sod peat.</i>	
<b>Economics and management</b>	
<b>Arhipov G.I.</b> THE ECONOMIC IMPORTANCE OF THE ORE MINERAL RESOURCES IN THE FAR EAST .....	<b>270</b>
<i>Annual gold production - 70-100 t, silver - up to 760-1180 m, platinum - 4.2-5.5 m Contribution to GRP from mining to Yakutia. Sakhalin, Magadan, Chukotka - 17-50% for the other subjects of the region - from 0.5% (EAO) to 7% (Amur region). Necessary to develop strategies to learn ore mineral complex.</i>	
<i>Key words: ore mineral resources, the gross regional product, mining.</i>	
<b>Galiev J.K., Romanov S.M., Galieva N.V.</b> THE ANALYSIS OF INTERACTION OF FINANCIAL RESOURCES OF ECONOMIC ENTITIES IN THE MARKET CLEARING COMBINE.....	<b>277</b>
<i>In article the economic analysis of interaction of financial resources of economic subjects in the Russian market of clearing combines is carried out: the equilibrium price is defined, the graphic method of determination of surpluses of sellers (producers of clearing combines) and consumers (coal mines) is given.</i>	
<i>Key words: clearing combines, market, demand, offer, equilibrium price, surplus of the producer, surplus of the consumer.</i>	
<b>Galiev J.K., Serpukhovitina N.V., S.M., Galieva N.V.</b> THE ECONOMIC ANALYSIS OF MARKET STRUCTURE OF CLEARING COMBINES APPLIED IN THE COURSE OF COAL MINING.....	<b>281</b>

<i>In article the economic analysis of market structure of clearing combines applied in the course of coal mining is carried out: conditions of the imperfect competition in the market of clearing combines with application of an index of Lerner are considered, ways of overcoming of a monopoly position of manufacturer are defined.</i>	
<i>Key words: clearing combine of a domestic production, clearing combine of import production, limiting expenses, price of clearing combines, imperfect competition, Lerner's index.</i>	
<b>Grebeneva M.G., Becker V.F.</b> INCLUDING OF INDUSTRIAL ENTERPRISE STAFF IN QUALITY CONTROL OF PRODUCTS.....	<b>285</b>
<i>The mechanism of the inclusion of staff in quality control of products is given. Means of questionnaires obtained control actions implemented by the staff in the system of quality control is described.</i>	
<i>Key words: quality, quality management, questioning, demote controlling influence.</i>	
<b>Dmitrieva O.V.</b> IMPROVEMENT OF INCENTIVE SCHEME OF THE STAFF OF FINANCIAL RESPONSIBILITY UNIVERSITY CENTERS.....	<b>290</b>
<i>The incentive scheme of the staff of financial responsibility University centers is suggested. It is based on the interest increase of each employee in increasing of the University's revenue from realization of educational and other paid services.</i>	
<i>Key words: management, University, incentive scheme, salary.</i>	
<b>Izumov D.V.</b> TO THE QUESTION OF DETERMINING THE COMPOSITION OF THE BASIC ELEMENTS OF THE ECONOMIC MECHANISM OF MANAGEMENT IN AGROINDUSTRIAL COMPLEX .....	<b>293</b>
<i>This article examines the elements, tools and methods of economic management mechanisms in the agricultural sector at the present stage. Describes the types and components of the economic mechanism in the agro-industrial complex. Notes the role of state regulation of agro-industrial complex, planning and forecasting and competent pricing at the level of agrarian formations. Formulated conclusion about necessity of development and implementation of sound agricultural policy in the agricultural organizations.</i>	
<i>Key words: mechanism of economic management, economic mechanism, the organizational-economic mechanism, the elements of the economic mechanism, the agro-industrial complex.</i>	
<b>Latypov D.V.</b> FEATURES OF CARRYING OUT OF THE ECONOMIC ANALYSIS OF ACTIVITY STONEPROCESSING ENTERPRISE IN THE CONDITIONS OF THE MARKET .....	<b>297</b>
<i>In the conditions of the present-day market-oriented economy, one of the most important functions of economic administration at a stone milling plant is the systematic analysis of the plant's business activity and financial position, as well as evaluation of the production performance and total assets turnover.</i>	
<i>Key words: plant business analysis techniques, technical and economic assessment of every product unit turnout, periodicity of the production efficiency data preparation.</i>	
<b>Isaev I.A.</b> DISCRETE CONCAVITY AND ECONOMY WITH INDIVISIBLE GOODS ....	<b>301</b>
<i>The authors have derived necessary and sufficient conditions of discrete concavity of continuously differentiable functions on an integer lattice with any spacing h. The article shows that, in the presence of the listed properties, the utility function enables equilibrium in discrete economy models, including economy with transportable utility.</i>	
<i>Key words: discrete-concave functions, triangles, "neighboring," inequalities, contraction of a function, economy with indivisible goods, convexity, concavity, utility function, economic equilibrium.</i>	
<b>Economy and nature management ecology</b>	
<b>Bragina V.I., Baksheeva I.I.</b> ENVIRONMENTAL SAFETY ISSUES AND ORGANOMINERAL FERTILIZER PRODUCTION .....	<b>308</b>
<i>The authors show environmental safety capability using waste of bio-chemical, hydrolysis and mining-and-processing plants in deep concentration of phosphorites. The article offers methods for manufacturing organomineral fertilizers from lignine and phosphorite; oxidized coal and phosphorite (apatite concentrate); and lignine, oxidized</i>	



- coal and phosphorite. The developed organomineral fertilizer production technology enables enhancement of grain harvest by 62% with rock phosphate meal and by 95% with superphosphate.
- Key words:* hydrolyzed lignine, oxidized coal, phosphorite, apatite, concentrate, organomineral fertilizer.
- Pashkevich M.A., Moiseeva K.A.** DEVELOPING A RATIONAL TECHNOLOGY OF UTILIZATION A SLAMES FROM BIOLOGICAL CLEARING OIL REFINING FACTORIES ..... **316**
- The paper deal with the problem of developing a rational technology of slime and silt recycling for company "KINEF", which nowadays is one of the leading companies in Russia in it area. Therefore the question of soil-waste utilization is one of the major issues to adress for this organisation. During the reaserch samples of soil waste were taken and analysed, which helped to work out a complite technology of recycling. The technology of processing based on methods «wet chemistry» and hydrometallurgical processes. Special attention is paid to the necessity of extraction of the useful components.*
- Key words:* slime, recycling, components, methods.
- Yastrebinskiy M.A.** WORKING OUT OF EKOLOGO-ECONOMIC CLASSIFICATION OF THE TECHNOGENIC SECONDARY RESOURCES CONTAINING COLOR, PRECIOUS METALS AND RARE-EARTH ELEMENTS ..... **320**
- Features of formation of economic classification taking into account prepotent signs and the ecological factor on classes of the danger, technogenic stores of secondary resources reflecting unique characteristic platinoids and a household waste are considered.*
- Key words:* economic classification, secondary resources platinoids, danger classes, danger indicators.
- Information technology and management**
- Isaev A.B., Markhiev R.M.** THREE-DIMENSIONAL SURFACE RECONSTRUCTION ALGORITHM BASED ON THOSE ORIGINAL 2D IMAGES..... **329**
- Recovering three-dimensional surface based on the original images to increase the number*
- Key words:* Diffuse reflection, specular reflection, three-dimensional surface, pattern recognition, lighting model, computer vision.
- Works of young scientists and students**
- Avetisov R.I., Meshkov V.E., Khomyakov A.V., Akkuzina A.A., Potapova K.A., Mikhailov A.A.** THE PROSPECTS OF LOW-ENERGY LIGHT SOURCE BASED ON ORGANIC LUMINOPHORS ..... **331**
- The effect of synthesis and purification conditions on structure and luminescent properties of organic electroluminophores tris-(8-hydroxyquinoline) aluminum and lithium (8-hydroxyquinolinato)-boron were studied. OLED structures was made by VTE technique and their spectral properties were measured.*
- Key words:* organic luminophors, light source, OLED, energy efficiency.
- Bogomolov V.A.** DEVELOPMENT OF THE PROCEDURE FOR GRAVITY PRECONCENTRATION OF ORE WITH FREE GOLD FOR HIGHER RELIABLE INTERPRETATION OF GOLD PRESENCE ..... **338**
- For ores containing free gold, developed a methodology for quickly preparation of samples for reliable determination of its content. The method is based on gravitational allocation of free gold from the milled ore into concentrate, receiving poor tails, analysis, and then calculating the gold content by the balance of these products.*
- Key words:* gold ores, free gold, gravity concentration, "running wave" concentrator.
- Ivochkina M.A.** GEOTECHNICAL PROVIDING STABILITY OF PHOSPHOGYPSUM DUMPS IN TOWN VOSKRESENSK ..... **345**
- Features of geotechnical conditions of the phosphogypsum dumps' forming in town Voskresenske were considered. It is marked, the waste production of phosphate fertilizers is forming of two sorts: dihydrate and hemihydrate calcium sulphite. Reviewed*

<p>phase transition of hemihydrate calcium sulfate in dihydrate. The results of studying the phosphogypsums' physical-mechanical properties are given.</p> <p>Key words: dihydrate phosphogypsum, hemihydrate phosphogypsum, dumps, geotechnical conditions, physical - mechanical properties.</p>	
<p><b>Kaplunov V.Yu.</b> DETECHOGENISATION SAILINGS OF THE LIQUIDATED INES TAKING INTO ACCOUNT GEODYNAMIC CONDITIONS.....</p> <p>Prior to the beginning of liquidation of mines in territories in coal regions of Russia adverse anthropogenous conditions were generated. The basic negative factor influencing environment, it is defined slag-heap formation. During liquidation of coal manufactures it is required detechnogenisation sailings. The account of geodynamic conditions of environment surrounding them is thus necessary. A seminar № 12.</p> <p>Key words: detechnogenisation, anthropogeny, mines, sailings, geodynamic conditions.</p>	<p><b>350</b></p>
<p><b>Kisilichin S.A.</b> FEATURES OF ORE DRAWING FROM WORKING EXCAVATION ENDS IN MINING WITH ORE AND COUNTRY ROCK CAVING.....</p> <p>The article emphasizes peculiarities of working excavation ore discharge and describes factors that influence a drawing point ellipsoid. It is shown how the gravity flow depends on the shape and width of a drawing point, and on digging depth of load-haul-dumpers. Finally, the author recommends on formation of drawing points in ore mining with sublevel caving and drawing from working excavation ends.</p> <p>Key words: sublevel caving, ore, ellipsoid.</p>	<p><b>359</b></p>
<p><b>Leusheva E.L., Turitsyna M.V.</b> EVALUATION TECHNIQUE METHOD OF SURFACTANT EFFECT ON HARD ROCKS DESTRUCTION AT WELL DRILLING.....</p> <p>Possibility of hard rocks destruction enhancing on the well bottom with surfactant use as a rock hardness reducer is considered in the article.</p> <p>Key words: drilling, surfactants, rock destruction, hardness reducing, method.</p>	<p><b>365</b></p>
<p><b>Meshkov V.E., Avetisov R.I., Khomyakov A.V., Akkuzina A.A., Prisyazhnaya O.O., Majorov I.S.</b> DEVELOPMENT OF COMPOSITE LIGHT SOURCE BASED ON INORGANIC LED AND ORGANIC LUMINIPHOR COATING.....</p> <p>The development of composite light source (CLS) based on inorganic LEDs emitting in UV and blue visible spectrum range and reflecting coating in the form of heteromixture of powdered organic luminophor and binding polymer agent. Dependences of spectra properties of CLS upon the luminophor composition and LED parameters were investigated. CLS parameters providing white color light were found out. The CLS energy efficiency is estimated to be 45-50 Lm/Wt.</p> <p>Key words: white light source, organic luminescence, energy efficient light source.</p>	<p><b>368</b></p>
<p><b>Nansonov A.A.</b> ASSESSMENT OF STRESS-STRAIN STATE IN ROCKS IN VERGES OF THE RE-USED MINE ROADWAYS.....</p> <p>The ways of supporting under-ground workings used repeatedly have been considered. Numerical mathematical model of the underground working with protective constructions in the form of rock blocks has been worked out. The dependence of intensiveness of tensions in the berm rocks of underground mining on physics-mechanical properties has been determined.</p> <p>Key words: deposit, pillarless extraction, mine transport.</p>	<p><b>376</b></p>
<p><b>Nguyen Van Duc</b> CHARACTERIZATION OF HUMUS IN MOUNTAIN SOILS OF VIETNAM.....</p> <p>In this paper presented results of study concerning on the characteristics of humus in highlands soils of Vietnam, the proposed activities for the protection of agricultural land subject to erosion on the steep slopes of Vietnam. A study of highland humus soil state and given its overall assessment, considering the efficient use of land in Vietnam.</p> <p>Key words: mountain soil, humus, Vietnam, chemicals, factors, wet tropics and perennial plantings.</p>	<p><b>379</b></p>
<p><b>Nikiforova A.I.</b> INTEGRATED INTERPRETATION OF UNEVEN-AGED SEISMOSTRATIGRAPHIC DATA FOR OVERLAIED HALOGEN AND REEF FORMATION.....</p>	<p><b>385</b></p>

<i>Estimating the complexity of the structure and the deterioration of the salt stratum VKMKMS over reefs Berezniki paleoplato, based on complementary learning subsalt and salt-rock complexes is shown.</i>	
<i>Key words: upper Kama potash deposit, seismic, reef, facies, adverse changes.</i>	
<b>Razaev D.D.</b> BURNING OF LUMPY AND MILLING PEAT .....	<b>391</b>
<i>Boosted utilization of peat as a heat and electric power generation fuel in peat producing regions may become an appreciable support for peat producing plants in their struggle for survival and a “locomotive” for the peat production industry to step up the next development level.</i>	
<i>Key words: lump peat, milled peat, combustion, combustor.</i>	
<b>Rusak O.E., Marinin M.A., Komarov Yu.A.</b> ROCK STOCKPILE PARAMETER EVALUATION WITH ALLOWANCE OF CONCEPT OF MINE ENGINEERING STAGE OF RECLAMATION CHOSEN .....	<b>401</b>
<i>Importance of rock stockpiling is shown. Importance of reclamation of rock stockpiles is shown. Formulas for stockpiles parameter estimation are shown.</i>	
<i>Key words: stockpiling, reclamation, dumping.</i>	
<b>Sabon V.L.</b> TRADE AND ECONOMIC COOPERATION BETWEEN RUSSIA AND INDONESIA.....	<b>406</b>
<i>Recommendations to promote the trade and economic cooperation between Russian and Indonesia have been elaborated.</i>	
<i>trade and economic cooperation, export, import, commodity circulation, share, economic advance, balance of trade, recession.</i>	
<b>Khusainova R.G.</b> CHANGE OF ENERGY EXPENSES IN THE CONDITIONS OF THE COOLING CLIMATE.....	<b>409</b>
<i>The short review of the researches devoted to the influence of climatic conditions on the metabolic rate and energy expenses of employees of the mining enterprises of the North is done. It is shown that the energy expenses of human change proportionally to the temperature of the air and affect the severity and intensity of the work. By results of the analysis of existing system of certification of workplaces on severity and intensity of work it is revealed that applied criteria don't consider seasonality of change of the severity and intensity of workers and need improvement.</i>	
<i>Key words: mining industry, severity of work, energy expenses, temperature factor, North.</i>	
<b>Alexander Onisimovich Spivakovskiy (to the 125th anniversary of his birth) .....</b>	<b>413</b>
<b>Preprints</b>	
<b>Adigamov A.E., Gushchina E.N., Redkozubov S.A., Simacheva I.N., Simachev N.D.</b> A GAME OF TWO PERSONS WITH A GIVEN VECTOR OF PAYMENTS TO SELECT THE OPTIMAL SOLUTION .....	<b>8</b>
<b>Khalkechev R.K., Khalkechev K.V., Khalkecheva L.K., Khalkechev O.M.</b> MATHEMATICAL MODELING HARD TO BE FORMALIZED OBJECTS.....	<b>72</b>
<b>Vasjanovich Yu.A. etc.</b> PROBLEMS OF GEORESOURSE DEVELOPMENT OF THE FAR EAST. ISSUE 2.....	<b>191</b>
<b>Tsvetkov A.B., Vasilev P.V., Petrova O.A.</b> SYNTHESIS OF THEORY OF ELAS- TICITY AND STATIC PRESSURE SELVAGE PROBLEM FOR MATHEMATICAL MODELING OF STRESSED AND DEFORMED STATE IN COAL STRATUM AND DEADS IN GRAVITATION EFFECT .....	<b>328</b>
<b>The deposited manuscripts</b>	
<b>Melnik V.V., Sergeev S.V.</b> ANALYSIS OF EXISTING TECHNOLOGIES OF WORKING OFF OF ABRUPT COAL LAYERS .....	<b>26</b>
<b>Melnik V.V., Sergeev S.V.</b> TECHNOLOGICAL JUSTIFICATION OF EXPEDI- ENCY OF USE OF MOBILE HYDROMONITOR UNITS.....	<b>33</b>

<b>Melnik V.V., Khutsishvili A.A., Lunev S.A.</b> THE ANALYSIS OF THE TECHNOLOGICAL SCHEMES OF OPENING, PREPARATION AND DEVELOPMENT OF STOCKS OF COAL LAYERS ARE DEPOSITED IN THE FORM OF BRACHISINCLINALES.....	52
<b>Melnik V.V., Khutsishvili A.A., Lunev S.A.</b> THE DEVELOPMENT OF THE VARIANTS OF TECHNOLOGICAL SCHEMES OF OPENING, THE PREPARATION AND HANDLING OF COAL LAYERS LYING IN THE FORM OF BRACHISINCLINALES .....	60
<b>Anisimov V.N.</b> THE PHYSICAL INTERPRETATION OF THE DEGRADATION MAGNETIC KINETIK (TRIGGER) EFFECT FERRUGINOUS QUARTZITES UNDER EXPLOSIVE MAGNETIC INFLUENCES.....	94
<b>Golosov A.M.</b> RESEARCH OF ACOUSTIC EMISSION IN ROCK SAMPLES .....	97
<b>Kharlamov V.E., Fomin K.V., Krylov K.S., Morozikhina I.K.</b> DETERMINATION OF DYNAMIC PARAMETERS OF THE PEAT MACHINE-TRACTOR UNIT EXPERIMENTAL METHOD .....	114
<b>Kharlamov V.E., Fomin K.V., Krylov K.S., Morozikhina I.K.</b> THE MAIN CHARACTERISTICS OF PEAT DUST, CAUSED METAL CONSTRUCTIONS OF MINING MACHINES AND FEATURES THEIR IMPACT ON THE TECHNICAL CONDITION OF FRICTION PARTS .....	117
<b>Seifullaeva Maisa Emirovna, Andrascikova Kristina</b> ESSENTIAL TRENDS OF THE GLOBAL IT MARKET. INFLUENCE OF THE IT ON STRATEGY OF THE ENTERPRISES.....	162
<b>Fomin K.V., Krylov K.S., Zhigulskiy N.A., Fomin P.K.</b> ESTIMATION OF REGIMES OF THE LOADING ELEMENTS OF ELEMENTS OF THE DRIVE OF PEAT MILLING ASSEMBLIES WITH USE OF LINEAR MODELS AT THE DESIGN STAGE.....	184
<b>Efremova E.I.</b> EVALUATION OF THE EFFECTIVENESS OF THE INTERNAL CONTROL SYSTEMFINANCIAL RESULTS OF ORGANISATIONS OF FRUIT AND VEGETABLE TRADE.....	245
<b>Lukina N.V.</b> ECONOMIC AND LEGAL PECULIARITIES OF APPLICATION OF THE SIMPLIFIED SYSTEM OF TAXATION INDIVIDUAL ENTREPRENEURS ON THE BASIS OF A PATENT (PATENT THE SYSTEM OF TAXATION) AFTER 31.12.2012.....	375
<b>Lukina N.V.</b> ECONOMIC AND LEGAL PECULIARITIES OF CHANGES SYSTEMS OF TAXATION IN THE FORM OF A SINGLE TAX THE TEMPORARY INCOME AFTER 31.12.2012 .....	412

