Dyomin V.F., Gurov V.V., Bajmuldin M.M., Demina T.V. DETERMINING THE REQUIRED LEVEL OF PERFORMANCE OF MATERIALS ANCHORING

Growth of a depth of mining and leaving from initial working off of the stocks which are lying down in more favorable service conditions involves development annual complicating factors of conducting mountain works. The factors, restraining achievement of parameters on coal mining: idle times of breakage faces because of a deterioration it is mountain the mine the equipment and its misfit to mining conditions. The comparative analysis of accident rate of the clearing equipment on pits of Coal department shows accident rate growth. The technological measures developed by coal department, are directed on increase in loading and decrease in the cost price of coal. One of rational ways of martempering of a condition of developments and economy of material resources is roof bolting application. Wide application anchoring fastenings is restricted to an insufficient level of scrutiny of geomechanical processes near to developments. Application steel the polymeric and the rope anchors expediently in difficult mountain-geological also is mountain-specifications workings out.

Key words: Underground mining, roof bolting, the factors efficiency, research, mining, geological and mining conditions developed processing, technological schemes of mining, the fastening points, the level of performance.

Dyomin V.F., Bajmuldin M.M., Surov E.G., Demina T.V. FACTORS INFLUENCING EFFECTIVENESS OF ROOF BOLTING IN UNDERGROUND WORKINGS

Growth of a depth of mining and leaving from initial working off of the stocks which are lying down in more favorable service conditions involves development annual complicating factors of conducting mountain works. The factors, restraining achievement of parameters on coal mining: idle times of breakage faces because of a deterioration it is mountain the mine the equipment and its misfit to mining conditions. The comparative analysis of accident rate of the clearing equipment on pits of Coal department shows accident rate growth. The technological measures developed by coal department, are directed on increase in loading and decrease in the cost price of coal. One of rational ways of martempering of a condition of developments and economy of material resources is roof bolting application. Wide application anchoring fastenings is restricted to an insufficient level of scrutiny of geomechanical processes near to developments. Application steel the polymeric and the rope anchors expediently in difficult mountain-geological also is mountain-specifications workings out.

Key words: underground mining, roof bolting, the factors efficiency, research, mining, geological and mining conditions of development, technological schemes of mining, the fastening points, the level of performance.

Oganesyan A.S., Agafonov V.V. ALGORITHM OF MODULAR SYNTHESIS OF ADVANCED COAL MINE MANAGEMENT PROGRAMS

In article the generalized algorithm of formation of technological schemes of collieries on the basis of the evristiko-evolutionary approach is resulted.

Key words: the module, synthesis, the technological scheme, a colliery.

Sidorov D.V. SCIENTIFIC AND METHODOLOGICAL RATIONALE PARAMETERS PILLOWY INTERCHAMBER PILLARS IN ROOM-AND-PILLAR SYSTEM BUMP HAZARD ORE DEPOSITS AT GREATER DEPTHS

The methodology of calculating the width of pillowy interchamber columnar and tape pillars for the changes in their mechanical condition as a result of self-destruction, including taking into account the dynamic shifting of Surcharging at rock roof with room-and-pillar system.

Key words: methods, width, interchamber pillar, room-and-pillar system, bump hazard, ore deposit.
Sidorov D.V. SCIENTIFIC AND METHODOLOGICAL RATIONALE SUPPORTING PARAMETERS BARRIER PILARS IN ROOM-AND-PILLAR SYSTEM BUMP HAZARD ORE DEPOSITS AT GREATER DEPTHS
The methodology of calculating the width of bearing barrier pillars in room-and-pillar system with the limit equilibrium theory and the specific manifestations bump hazard.
Key words: methods, width, barrier pillar, room-and-pillar system, bump hazard, ore deposit.

Terentiev B.D., Mukhin S.E. OUTLOOK FOR ANTHRACITE COAL MINING AND UTILIZATION IN THE EAST DONBASS
In this article prospects of development and use of anthracites of East Donbass is considered. Main directions of use of coals of East Donbass are analyzed. On the basis of the carried-out research by the author research need of search and creation of breakthrough technological decisions on production and processing of anthracites is proved. Characteristics of anthracites for the main layers of East Donbass are analyzed.
Key words: anthracite coal, East Donbass, mine stock fund.

Belyakov N.N. DEVELOPING GEOTECHNOLOGY FOR PRESERVING RESOURCES OF OPEN PIT MINING AT DEEP LEVELS OF COAL FIELDS WITH USING CONVEYOR
Based on the block model of the deposit a quarry is made on the effectiveness of resource-saving technologies in deep horizons. The indicators use of various technological solutions is determined based on a complex dynamic system performance evaluation of mining. To determine the limits of the life cycle of individual technical solutions for modeling open pit development the criteria is used that characterizes the rest of the life cycle of the facility under consideration at any specific time. In such criteria it is expedient to use the Current Net Present Value (CNPV) in the calculation of which moment brings consecutively all points of the time graph. Moreover, while optimizing the parameters of open pit mining the problems occur the solution of which depends on the time of their implementation. Considered a resource-saving technology for deep level pits are electric lifts and equipment with mechanical disruption of hard rock and technologies, enabling the development of mineral resources without moving the overburden into dump. A design of the conveyor as complying with the requirements imposed by technological processes in the deep horizons pits: a minimum of material and energy consumption, the short period of installation and removal, limited accommodation, the minimum limitation of transport communications for wheeled traffic. Using results can reduce environmental damage from the use of open pit mining and increase economic output.
Key words: open pit mining, Current Net Present Value, resource-saving technologies.

Fomin S.I., Shevelev V.A. EVALUATION OF ORE BLENDING IN A BUFFER-BLENDING STORAGE AREA OF AN OPERATING IRON ORE OPEN PIT MINE
Accumulation and bedding stockyards in a quarry is a complex system, the efficiency of which depends on many factors. At this article was found out distribution law of magnetite in iron ore and determined ore reclaiming efficiency in stockyards.
Key words: quarry, accumulation and bedding stockyards, ore reclaiming, distribution law.

Holodnyakov G.A., Vainonen N.S. COMPLEX DEPOSIT QUARRYING EFFICIENCY CRITERION IN DELINEATION OF OPEN PIT BOUNDARIES
At this article the boundary mining coefficient is the open cast criterion of efficiency during a complex field pit depth design and it allows to consider by-product minerals at borders design of open-cast mining.
Key words: pit borders, by-product mineral, complex field, mining coefficient.

Enrichment of minerals
Algebraistova N.K., Makshatin A.V., Burdakova E.A., Markova A.S. GOLD RECOVERY FROM THE TAILINGS WITH THE APPLICATION OF SINTER FLOCCULATION PROCESS
This article covers the problem of gold recovery from the tailings at concentration plants. The potential of sinter flocculation technology has been demonstrated. The article contains the findings from the tests of the current pulps at one of the plants, where the gravity-flotation scheme is used.

Key words: ore dressing, flotation, agglomeration flocculation, sorption, tales, concentrate, reagents, gold.

Ryabkin V.K., Cheprasov I.V., Tikhvinskiy A.V. STUDIES TO ACESS THE TECHNOLOGY FOR PROCESSING OF FERROUS AND ALLOY METALS USING POLYCHROMATIC PHOTOMETRIC METHOD OF SEPARATION

The studies were conducted on the separator Optosort Gemstar 300 for ore practice size -20 +5 mm on the samples of the carbonate manganese ore of Usinskoe deposit, chrome ore of Saranovskoe deposit, complex ores of Kalgutinskoe deposit and copper-molybdenum ore of Sorskoe deposit. The results obtained are sufficient for laboratory technical tests on representative samples of ore.

Key words: ore dressing, flotation, agglomeration flocculation, sorption, tales, concentrate, reagents, gold.

STUDIES TO ACESS THE TECHNOLOGY FOR PROCESSING OF FERROUS AND ALLOY METALS USING POLYCHROMATIC PHOTOMETRIC METHOD OF SEPARATION

Pavlov V.A., Serdyukov S.V. THE USE OF DIRECTIONAL-UNIAXIAL LOADING IN THE WELL TO EVALUATE THE STRESS STATE OF THE ROCK MASS

In permeable rocks for stress state estimation usually using the methods were based on the hydraulic fracturing utilize impermeable membranes. The stress state in this case, evaluated by measurements of the opening pressure (P_r) of several differently oriented cracks on the circuit hole. The use of borehole jack , allowing you to capture directional uniaxial loading, the most promising and relevant today . This study presents an improved downhole tool design allows you to create directional uniaxial loading . A numerical simulation of the loading of the borehole wall loading device aimed to determine the accuracy of the estimates of the values of the external field strength and orientation of fracture systems . The results of experiments to determine the technical characteristics of the well established directional loading device . Determine the accuracy with which the device used allows to determine the orientation of the fracture systems. Examine the technical and methodological issues of practical implementation of single and repeated observations .

Key words: stress state estimation, permeable rocks, borehole jack device.

Cirel S.V., Gaponov U.S., Shocov A.N. ASSESSMENT OF GRANULOMETRIC COMPOSITION EFFECT ON BACKFILLING MATERIAL' COMPRESSIBILITY AND POROSITY

The assessment of granulometric composition effect on backfilling material’ compressibility and porosity is given. Testing results are presented.

Key words: backfilling, rock walls, granulometric composition, compressibility, filling mass.

Automation and information systems

Samarin N.N. THE ANALYSIS OF THE VIRTUAL MACHINES IN ORDER TO USE AND TO CHECK THE POSSIBILITY TO APPLY FOR IDENTIFYING THE UNDOCUMENTED FEATURE OF THE PROPRIETARY SOFTWARE

The article contains the comparative characteristics of the main hypervisors used for virtualization of the system resources of the computing systems. The aim of the article is to rationalize the selection of the optimum hypervisor to receive the operation data of the guest operating system and their further automated analysis.

Key words: analysis of the software, sourceless software, virtual machines, hypervisor, dangerous construction.

Ustimov K.O., Fedorov N.V. AUTOMATION OF BUILDING OF SIMULATION MODEL OF BUSINESS-PROCESSES BASED ON IDEF0 METHODOLOGY AND COLOURED PETRI NETS

The basic concepts of conversion of functional IDEF0-model of business processes to simulation model represented as Coloured Petri Net are described. The situ-
lation model obtained as a result of the conversion can be applied as a basic model, which can be improved in accordance with features of the real system.

Key words: functional modeling, IDEF0 methodology, simulation modeling, Coloured Petri Nets, business process.

Measurement, control, diagnostics

Olkhovatenko V.E., Trofimova G.I. THE CHARACTERISTIC OF FIZIKO-MECHANICHESKIH OF PROPERTIES OF ERUNAKOVSKYS ROCKS OF THE SOUTHERN FIELD

Results of research of structure and physicomechanical properties of breeds of the Erunakovskiy Southern field are given in article. Experimental works it was executed in laboratory of a gruntovedenie and mechanics of TGASU soil. Results of research showed that the greatest durability sandstones and aleurolites, unaffected possess aeration that in many respects predetermines their behavior and stability in boards of pits. Breeds of a zone of aeration appeared less strong. And the lowest durability quarternary clays it loams possesses.

Key words: Erunakovskiy field; granulometric structure of breeds; sandstones; aleurolites; soapstones.

Mining machinery, equipment and transport

Vinokryov V.R. THE CALCULATION OF THE VELOCITY OF THE PARTICLES IN THE DESTRUCTIBLE SPEED CENTRIFUGAL MILL

When using a centrifugal mill speed of multiple dynamic impact is often necessary to calculate the optimal operating parameters: speed and radius of the working bodies. To do this, we calculated the rate of degradable particles in the laboratory speed centrifugal mill.

Key words: centrifugal mill, working bodies, the velocity of the particle.

Voronin B.V. NECESSITY FOR INTEGRATED ASSESSMENT OF TECHNOLOGICAL EFFECTIVENESS OF SCRAPER CONVEYOR DESIGN

In article necessity of the complex estimation of adaptability to manufacture of designs of scraper conveyors is proved, the scheme of formation of complex indicators is given; the concept of the share and factor of participation of the individual parameter in value of the complex parameter of adaptability to manufacture is entered.

Key words. Adaptability to manufacture, the complex estimation.

Grishko A.P. METHOD OF CALCULATION OF HYDRO-TRANSPORT LUMPY ROCKS IN CLAY SOLUTIONS

The method of calculation of parameters of hydrotransport crushed rocks (tiness to 70-100 mm) in the clay suspensions which are subsequent upon generalization of corresponding experimental data is developed.

Key words: hydrotransport of rocks, parameters of hydrotransport.

Ilushin Yu.V., Trushnikov V.E. SYNTHESIS OF CONTROL HOT ICE BOER GORNORAZVEDYVATELNOY RIG

The article discusses the synthesis of closed distributed control system temperature field drill. A technique based on the Green's function of controlling temperature fields. The analysis and modeling of the drilling process by passing drill through the environment (ice - soil - ice - water - ice) with the heating of the drill.

Key words: control systems, temperature fields, the drilling process, the drill, the environment variables.

Kuznetsov D.V., Malofeev D.E., Kosolapov A.I. MINING EQUIPMENT TECHNOLOGICAL COMPLEXES STUDY FEATURES FOR DEEP MINES OF THE NORTH

The features of modern systems of justification mining equipment in the deep northern pits are presented.

Key words: mining equipment technological complexes, drilling machines, shovels, mining trucks, conveyor systems.

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Makarov N.V. APERTURE ANGLE OF EQUIVALENT DIFFUSER IN BLADE CHANNEL OF RADIAL FAN WHEEL

The whirlwind-sources modelling as system of the distributed drains, has allowed to
specify the formula for calculation of a disclosing corner equivalent diffusor between-blades channel of the driving wheel centrifugal fan. It is proved, that decrease in an effective corner of the disclosing caused by interaction high-energy stream whirlwind-sourses with the basic current in diffusor on an exit from it. It allows to increase a disclosing corner between-blades the driving wheel channel, keeping thus a continuous flow and as result, the pressure developed by the fan is essential to raise.

Key words: equivalent diffuser, disclosing corner, circulation, effective area, vortical chamber.

Ngo KuokChung, Grabskiy A.A. DETERMINATION OF DYNAMIC PARAMETERS OF CONTROL PARTS COAL FLOWING WINDOW OF TOP-CAVING HYDRAULIC SUPPORTS……………………………………………………………

Coal flowing process in top-caving hydraulic support depends on characters of flowing window so that nowadays using control parts coal flowing is very important problem. This article introduces calculated results processing parameters, cylinder diameter and area of coal flowing window for improving productiveness coal flowing and area coal flowing window.

Key words: top-caving hydraulic support, flowing window, hydrocylinder, hinged part, rod hydrocylinder.

Popov Yu.V. MULTIPLE-ROPE HOISTING WITH GROUND ARRANGEMENT OF LIFTING MACHINERY…………………………………………………………

In case of the ground situated multirope hoisting gears a number of the new elements are appears, such as pile driver’s pulleys, rope string. Those elements introduce the new reality, which are not taking into consideration in the rating methodic. The appearance of the rope string force to evaluate the envelope angle in a new fashion.

Key words: multirope hoisting gears, ground situation, envelope angle.

Semakin M.S. SKIPS OF HIGH OPERATIONAL RELIABILITY…………………

The description of the skips with flap gate is presented. The mechanism of blocking-deblocking of the flap gate has a simple design and is absolutely reliable. Such skips do not require unloading curves. It allows to simplify a kinematic regime of a hoist unit and to lower of a hoisting cycle rate.

Key words: skip, skip with flap gate, skip hoisting, mine hoisting.

Slepcova E., Fedoseev S., Matveev A. ANALYTICAL CALCULATION OF RATIONAL WORK JIG WITH BED FROM MAGNETIC STRUCTURE CHAINS

In article work jig cars with bed from magnetic structure chains taking into account a pulsation of the dividing environment is considered. The area of rational work jig cars depending on the size of an enriched material is theoretically specified.

Key words: magnetic structure a chain, gravity, hydrodynamic resistance, intensity of a magnetic field.

Fedoseev A.P. INTENSE THE DEFORMED CONDITION THE DESTROYING TOOL FOR CRUSHING OF OVERSIZE ROCKS AT DYNAMIC LOADING……

Distribution of tension in time in shock part of the tool set in motion the diesel by a hammer at crushing of an oversized piece of breed is considered. It is accepted that the contact part of the destroying tool represents an ellipsoid which big axis has the constant radius of curvature equal to 220 mm. The sizes of a small axis as it is established by calculation on static durability taking into account efficiency of contact influence when crushing a stone 3,5 times smaller. The solution of a dynamic task of the theory of elasticity is carried out by a numerical method of final elements with use of the program ANSYS/LS DYNA complex.

Key words: the modeling, the destroying tool, crushing of oversize rocks, intense the deformed condition.

Terekhin E.P., Bulgakov I.S., Abramov V.N. DETERMINATION OF RATIONAL PARAMETERS OF SOIL PUMPS WITH A VIEW OF EVOLVEMENT OF HYDROMECHANIZATION IN THE KURSK MAGNETIC ANOMALY AREA………………………………………………………

Analysis of dredging pumps was carried out. New soil pump model characteristics
were proved. New family of soil pumps was worked out. Bench and manufacturer tests were carried out. The studies became bases to use new designs of domestic and foreign hydraulic equipment.

Key words: hydraulic mechanization, hydromixture, dredging pump, soil pump, parameters series, feeding, pressure, deterioration.

Aerology, methane, safety


In this paper represent results research dust dynamics in feeding skip for shafts №3 and №4.

Key words: mine, skip lift, dust aerosol, ventilating shafts, model, modeling.

Kazakov B.P., Isaevich A.G., Maltsev S.V. PECULIARITIES OF DETERMINATION OF THE AERODYNAMIC RESISTANCE OF DEEP MINE SHAFTS...

Analysis of factors determining the change in air density by depth shafts of deep mines. On the basis of the results of numerical calculations proved the correctness of linear approximation of the density of the air between the two measurement points in the normal mode of ventilation of the mine. The necessity of individual determination of the aerodynamic resistance of trunks.

Key words: ventilation network, mine depression, air-depressional shooting, air distribution, aerodynamic resistance, coefficient of roughness.

Kazakov B.P., Shalimov A.V., Zaitsev A.V. INVESTIGATION OF OPTIMAL CONTROL VENTILATION SYSTEM ON THE TEST BENCH

This paper presents the results of aerodynamic test rig simulating mine ventilation network, and the results of its application to the study of optimal control of ventilation systems.

Key words: ventilation network, optimal control algorithm, modeling, sensors, recirculation.

Levin L.Yu., Grishin E.L. PERFORMANCE RELIABILITY SYSTEM VENTILATION OF MINING WITH THERMAL DROP OF VENTILATION PRESSURE.

In this paper represent results of performance reliability system ventilation calculation for oil mine, potash mine and polymetallic mine with thermal drop of ventilation pressure.

Key words: mine, mine ventilation, air destruction, thermal drop of ventilation pressure, model, modeling, ventilation network.

Levin L.Yu., Kornshchikov D.S., Semin M.A. RAPID DETERMINATION OF COMBUSTION GAS DISTRIBUTION IN MINE WORKINGS

In this paper we formulate a computational algorithm of mine working aerodynamic drag coefficients calculation based on minimal set of experimental data. Proposed algorithm makes possible determination and visualization of combustion gas distribution in software package “Emergency Response Plan”.

Key words: mine, emergency response plan, mine fire, mine ventilation, air destruction, gas destruction, model, modeling, ventilation network.

Levin L.Yu., Semin M.A., Klyukin Yu.A. ESTIMATION OF SUBALLOCATED CONDITIONED AIR DISTRIBUTION SYSTEM EFFICIENCY AS A METHOD OF MINE MICROCLIMATIC PARAMETERS CONTROL

In this paper we formulate mathematical model of conduit with suballocated conditioned air distribution. Conditions, providing uniformity of air temperature field along the whole conduit, are received. Dependence between conditioned air input sections count and conditioning power usage efficiency is analyzed.

Key words: Mine ventilation, oil mine, differential equations, air velocity, temperature field, conditioning environment unit, mathematical model, optimal parameters, microclimatic conditions, mine atmosphere, air conduit, heat exchange, heat flux, air-depression measurements, heat-humidity measurement.

Economy, management and planning

Galieva N.V., Kozina E.V. SUBSTANTIATION OF THE PRODUCTION AND ECONOMICAL PERFORMANCE EFFECT ON COAL MINING ACTIVITIES IN TERMS OF THE SUEK-KUZBASS CO
The article discusses component analysis approach to substantiation of the effects exerted by the production and economical factors on the activities of coal mines, and to the production and economical performance management. The authors propose specific activities towards productivity enhancement in terms of the SUEK-Kuzbass company.

Key words: production and economical factors, coal mines, efficiency, component analysis, activities.

Laptev Yu.V., Titov R.S. OPTIMISATION OF PARAMETRES OF IS MATERIAL-INDUSTRIAL STOCKS OF AN OPEN-CAST MINE IN A MODE OF A SUSTAINABLE DEVELOPMENT OF THE MOUNTAIN ENTERPRISE. Part 2

Results of researches on optimisation of reserves of capacities of the mountain-concentrating enterprise on Open Society «Uralasbest» example, and also perspective technologies ore preparation with application of grohotilno-reloading points are presented.

Key words: ore preparation, material stocks, auto correlation function, transport flow, grohotilno-reloading item, optimization.

Prilukov A.N. MINERAL COMMODITIES PRODUCTION IN THE RUSSIAN FAR EAST AND PROPOSALS TOWARD MODERNIZING ITS ORGANIZATIONAL STRUCTURE

Data are presented concerning mineral resources base and mining activities in the Russian Far East. Proposals are substantiated to modernize the organizational structure of regional gold and non-ferrous metals mining industries.

Key words: Russian Far East, mining industry, organizational structure modernization.

Rusakovich V.I. SOCIO-ECONOMIC PROCESSES IN THE GULF AND THE ROLE OF EMPLOYMENT

Analyzed the socio-economic dynamics of the Persian Gulf and the role of employment - both residents of the countries and foreign workers - in preserving and securing long-term sustainable economic growth.

Key words: GCC, the Persian Gulf, the foreign labor force and unemployment.

Smolyakov A.R. DETERMINATION OF REPRESENTATIVE SAMPLING SIZE FOR STRUCTURAL ANALYSIS OF MINERAL RAW MATERIAL

The representative sampling size is determined based on the amount of mineral grains involved in the optical and geometrical structure analysis of representative ore specimens.

Key words: mineral, ore, structural analysis, geometrical and morphological parameters, partial sampling, general totality, accumulated distribution.

Ekology

Budaeva A.D., Zoltoev E.V. SURFACE MORPHOLOGY AND STRUCTURE OF NITROGEN-BEARING AMMONIUM HUMATE-BASED ACTIVATED CARBON

Surface morphology of ammonium humate-based activated carbon has been studied on the JSM-6510LV scanning electron microscope (Japan). The authors have defined chemical composition of the activated carbon and used X-ray phase analysis to study phase composition of cake and its ash.

Key words: ammonium humate, nitrogen-bearing activated coal, cake, electron micrograph.
Mathematical and computer modeling

Kozirev E.N., Goncharov I.N., Askerov R.O., Jelokov I.E. COMPUTER’S CALCULATIONS OF PROCESSES OF AMPLIFICATION IN THE CHANNEL ELECTRONIC MULTIPLIERS ON OXIDE OF ALUMINIUM...........

Describing computer modelling’s peculiarities of the amplification of secondary-emission channels in the porous structures of oxide aluminium’s. Channel’s diameter no more than one micrometr.

Key words: Secondary electronic emission, electronic multipliers, oxide of aluminium.

Peuzner L.D., Babakov S.E. MATHEMATICAL MODEL OF DYNAMICS QUARRY POWER-SHOVELS AS AN OBJECT CONTROL.................................

Description over of dynamics of motion of working organ of quarry power-shovel is brought taking of his calculation chart to the chart of equivalent five link manipulation robot on the method of Belousova (Keldysh Institute of Applied Mathematics). The mathematical model of kinematics of centre-of-mass of scoop of power-shovel and coefficients of equalizations of his dynamics are got. On the basis of the expected equalizations of dynamics and kinematics of manipulator a simulation model is built in the appendix of Simulink of the program Matlab.

Key words: excavator, quarry power-shovels, dynamics, control object, manipulator.

Potapov V.J. DEVELOPMENT OF A MATHEMATICAL MODEL OF THE MOTION OF PARTICLES IN THE SEPARATOR BY FRICTION AND ELASTICITY...........................

In this article the mathematical model of particle motion in the cage on friction and elasticity in the process of their separation.

Key words: separator on friction and elasticity, the mathematical model, the algorithm separation, friction coefficients and reconstruction, reflecting the elements.

Tedeev T.R., Pleva L.Yu. CONTACT PROBLEM ON MOISTURE-DEPENDENT ELASTICITY OF STRUCTURALLY UNSTABLE MEDIUM, CONSIDERING ANISOTROPY OF THE MEDIUM DEFORMATION............

The authors solve nonuniform moisture-dependent elasticity problem, taking into account anisotropy of medium deformation. The developed procedure allows solving the contact problem for the two component system of a structure and a foundation, considering bulking and subsidence processes. The article presents general algorithm for construction on structurally unstable foundations.

Key words: stress–strain state, structurally unstable medium, contact stresses.

Tsetskov A.B. NUMERICAL MODELING OF A FIELD OF TECHNOCENIC STRESSES TAKING INTO ACCOUNT GAS PRESSURE IN A COAL ROCK MASS........................................

The paper presents a mathematical model of the account of displays of gas pressure in a coal rock massif for the purpose of analysis of fields of technogenic stresses. To study the model developed a set of problem-oriented programs based on finite element method.

Key words: Mathematical model, rock massif, structural block, coal vein , adjacent strata, boundary value problem, theory of elasticity, numerical simulation, computer experiment, synthesis, gas, gravitation.

Oil and gas

Krapivsky E.I., Minnegulova G.S., Sadykova R.M. THE POSSIBILITY OF TRANSPORTATION MIXTURE OF LIQUEIFIED PETROLEUM GASES TO UN-GERGROUND LOW TEMPERATURE PIPELINES IN THE FAR NORTH..

They considered the possibilities of transportation of mixture of liquefied hydrocarbons by low temperature main pipelines, based on the addition of natural gas gas condensate, followed by liquefaction. In this paper we examine ways to improve the reliability of underground pipelines liquefied hydrocarbon gases in permafrost conditions.

Key words: low temperature pipeline, liquid hydrocarbons, LNG, gas condensate.
Metallurgy


The aim of the work is to investigate the formation of composite granules structure based on the heatresistant alloy Al-Cu-Mn-Zr system in the form of swarf with addition of boron powder 10 and 25%. The composites granules were successfully obtained by mechanical ball milling. The composites structures were studied using transmission electron microscopy and X-ray diffraction analysis. It was shown nanograined aluminium alloy structure formation with the grain size 54±6 nm at 25% boron carbide concentration and 90±10 nm at 10% boron carbide concentration during the milling. Annealing at 450°C lead to increasing the grain size for the composite with 25% boron carbide to 160±40 nm, and more than 200 nm for 10%B4C concentration. The formation of nanosized precipitates of T-phase [Al20Mn3Cu2] with dimensions 30-50 nm and length of 200 nm and Al3(Zr,Sc) phase with dimensions 10-20 nm were found.

Key words: composites, boron carbide, aluminum alloys, TEM.

Blasting operations

Chan Kuang hieu, Belin V.A. EFFECT OF THE WIND AND AIR TEMPERATURE ON THE DEGREE OF SHOCK AIR WILLS IN THE EXPLOSION ROCKS ON VIETNAM’S COAL PITS

Consider engineering-geological and technique conditions of the existing and planned Vietnam’s coal mines; improving management of energy explosions for no increase in energy consumption to achieve the required degree of crushing rocks while reducing peripherals on the environment, to reduce the danger zone of the explosion, is very relevant scientific and practical task in Vietnam.

Key words: open mining, coal mines, drilling and blasting operations, the parameters of blasting operations, hole charges, Vietnam.

Timuhin S.A., Tarasov P.I., Tarasov S.P. MOBILE VZRYVKAMERA FOR THE SAFE DESTRUCTION OF OVERSIZED CAREER

Conducting blast-hole drilling on the board and the bottom of the quarry appears outsizes that influence on the productivity of quarry and whole mining operation. One of the decision is creation movable blasting chamber for safe destracting of outsizes.

Key words: In English. blasting chamber, outsizes, second crushing, special technique.

Works of young scientists

Bobrakova A.A. RATIONALE REAGENT EQUIPMENT REGIME OF SULFIDE FLOTATION OF MOLYBDENUM ORES ALUMOSILICATE COMPOSITION

In the research of the preparability granite and slate type of Yuzhno-Shameyiskogo deposit presented by dark-green schist epidote-albite-phlogopite the composition and leucocratic quartz-feldspathic granites, containing 0,060% of molybdenum, of the reagent mode for sulphide cycle, aimed at obtaining molybdenum concentrate saleable quality.

Key words: Yuzhno-Shameyiskoe deposit, molybdenum ores and sulphide flotation.

Borisov E.A. 3D-VISUALIZATION OF PLACES OF INTEREST AS DATAWARE OF TOURISM

There is features of modern tourism. Virtual reality is an important element of dataware in tourism. It may be used 3D, Pano and others. This technologies may be attract clients. It also may use virtual tour.

Key words: tourism, 3D, virtual reality, virtual tour.

Brigida V.S. THE STOPING INFLUENCE ON STABILITY OF DEGASSING BOREHOLES

Features of work snubbed boreholes consisting in existence ahead of a wall of local minima of methane concentration are defined. The reasons of their zonality are established.

Key words: concentration of methane, boreholes stability, development of gas.
Bykova M.Yu. DECISIONS TOWARDS HIGHER OPERATING EFFICIENCY OF LOCAL COAL–GAS–POWER COMPLEXES……………………………………….. 311
The article is focused on scientific findings concerned with application of intra-cycle gasification technologies in local coal–gas–power complexes (LCGPC). Decisions on carbon dioxide gas removal from generator gas mixture allow 3–4 times higher calorific power of gas fuel. In order to even more enhanced calorific effect of gas fuel, it is recommended to use oxygen-steam blast in the LCGPC technologies.
Key words: coal, gas fuel, coal gasification, combination cycle utility, carbon dioxide gas removal, fuel combustion heat.

Vasilyeva O.V. THE CONTRADICTIONS OF GLOBALIZATION AS A FACTOR OF FORMATION OF INTERNATIONAL FINANCIAL CENTRES............ 315
The modern world is closely linked to the processes of globalization and caused contradictions in all spheres of life. Today review of any political, economic, financial and other processes seems to be impossible without global trends.
Key words: globalization, International financial centres, globalism, liberalization, market conditions.

Vishnyakova E.A. OPEN MARKET STOCK ACCOUNTING AND CLASSIFICATION PROCEDURE.................................................................................. 318
The article spotlights the issues of accounting and classification of open market stock, with current situation analysis, discussion of particular aspects of the proposed procedure application, with an emphasis made on individual elements of the procedure. The procedure drawbacks are presented. Finally, the author highlights the main procedural aspects and ways of amendment.
Key words: securities market, registration, classification, analyse

Zhigulskaya A.I., Guseva A.M. WAY OF THE RECEPTION FLAP POTS ON BASE ON THE PEAT AND ITS WOOD CUT-IN………………………………... 324
It is shown possibility rational and complex use local peat resource on example of the way production flap peat pots with use as connecting component of the wood enabling the peat.
The technological crushed wood of a peat deposit, wood inclusions of peat, pitch extraction, crushing, the fibrous weight, the binding additive.

Isayev M.N. INNOVATIVE DEVELOPMENT OF THE PERSIAN GULF: CURRENT SITUATION................................................................. 327
It is shown that innovation development is today the most important component of the socio-economic progress of the countries of the Gulf. The basis of this direction is innovative entrepreneurship, the development of which countries are giving serious public attention.
Key words: innovative entrepreneurship, the Gulf countries, innovative development.

Korobkova A.A. EVALUATION OF MINING IMPACT ON ATMOSPHERE...... 332
The author characterizes mining industry in the Irkutsk Region, analyzes dust and gas emissions, and calculates specific emission value and equivalent weight. The recommendations on mitigation of harmful effect of mining are given.
Key words: mining industry, placer mining, nonmetal building material extraction, coal production, dust and gas emission.

Morozova N.V. TO THE CALCULATION OF THE ANNUAL METAL AGGRADATION IN PREPARING ARTIFICIAL CUDWEED WASTE......................... 340
Preparation of artificial cudweed waste mined offers a unique opportunity of engaging cudweeds, substantially in vertical plane, in active development and subsequent flushing. Considering intense thawing and the forced removal of filtered fluid from a massif of peats, in cudweed formation is concentrated the metal of vertical plane. Therefore, the development of part cudweed formation can be made without affecting TEP of enterprise.
The received results of industrial experiments allowed authors to draw very important conclusion. The advancing of overburden works has to be always more than a volume determined by excessive capacity of peat which can’t be fulfilled in the block in a year of production of sand on annual fall.
Key words: placer accumulation, artificial sushentsi, peat, cudweeds, thawing defrosting.
After the ratification of the «Protocol on the accession of the Russian Federation to the Marrakesh agreement establishing the world trade organization, 15 April 1994» Russian Federation became a full member of this international organization, with all the attendant rights and responsibilities. Accession to the WTO, one way or another, affect all sectors of the economy of Russia. However, there is still no clear and unambiguous answer to the question, what is the socio-economic effect of the Russian Federation will receive from the WTO accession.

Key words: WTO, Russia, the foreign trade of Russia

The article focuses influence of disjunctive dislocations on stress pattern on flat-lying adjacent coal seams is considered.

Key words: adjacent seams, disjunctive dislocation.

Instrument-making is one of the key sectors in the development of international and national scientific and technological progress, the scope of the accelerated implementation of R & D and innovation. This is one of the younger branches of the world economy, but, in my opinion, she has a great future.

Key words: instrument-making, R & D, innovation development.

The article describes the systemic problems of post-crisis development of banking supervision and financial system. Close attention is given to international community's policy taken by Russia as a member of G20 and as a country represented in the Financial Stability Board and the Basel Committee.

Key words: banking supervision, the Basel Committee, «G20», reform, crisis.

We analyze the space segment of the national economy in light of trends in post-industrial environment. Highlights the challenges and prospects of the development of space activities in Russia.

Key words: space activities, the Russian Federation, a post-industrial way of life.
as well as the new level open pit mine organization results are presented in terms of the Razrez Tugnuisky JSC.

Key words: coal open pit mine, technique-and-technology level, new level open pit mine, technical and technological parameters, efficiency and safety, procedure and principles, process flow sheets, process standards.


Aiming at higher quality of crushed material production, the author analyzes theory and practice of process flow sheets included in ferruginous quartzite pretreatment and basic development trends in ore pretreatment techniques and technologies. The article describes alteration of structure, as well as micro-strains and micro-stresses caused by mechanical action on ferruginous quartzite extracted in the area of the Kursk Magnetic Anomaly, as well as on metal (magnetite, hematite) and nonmetal (quartz) minerals. The investigation of physical properties and the comparison testing of ore pretreatment flow sheets in open cycle of quality crushing have been performed on ferruginous quartzite from the Korobkovsky deposit in the Kursk Magnetic Anomaly area.

Key words: ore pretreatment, metal and nonmetal mineral, ferruginous quartzite.

Şincariuc V.A. PREDICTING THE STABILITY OF THE ROCK MASS IN UNDERGROUND DEVELOPMENT. The principles of sustainability parameters prediction based on seismic array technology in the process of monitoring of underground construction including engineering and geological conditions. Attention is focused on some important and specific features in the structure of the real distribution of the component of stress-strain states, which were identified in the process of tunneling.

Key words: mining, the stress-strain state, engineering and geological process mining.

Bodnaruk M.N., Saxon D.J., Marker E.V., Proskurnikova I.A., Adigamova J.A., Argatkina M.S., Larionova E.N., Polikhronova O.T. ENVIRONMENTAL AND ECONOMIC PROBLEMS OF FUEL AND ENERGY COMPLEX OF RUSSIA. This article describes the factors influencing the development system, recycling and reclamation of building ground in a metropolis. Presented the idea of the study of this work.

In article the author considers variety of funding mechanisms, in the course of implementation of state-private interrelations in various spheres and region kinds of activity. In article the special attention is paid to new forms of financial security at implementation of projects on the basis of the state-private partnership, providing economic efficiency, taking into account transition to ecologically focused activity of each certain subject of managing. The problem of municipal solid waste (MSW) in large cities is extremely urgent solution to this problem is to ensure the normal life of the population, resource conservation, environmental protection, complete cleaning of landfills and dumping of garbage and waste disposal pits in the goaf. In current article the appraisal mechanism of the lands in industrial regions including ecological aspect with short description of its components.

Key words: construction waste treatment building soils, financial resources, instruments of investment, regional investment funds, state-private partnership, financial security, investment potential, financial instruments, ecological aspect, land, appraisal, cost of direct using, cost of indirect using, damage, natural resources, economic value.

Gorinov S.A., Kuprin V.P., Maslov I.Y. EXCITATION DETONATION EMULSION EXPLOSIVES SENSITIZED BY GAS PORES OF THE DETONATION WAVE MOVING. The work conducted an appraisal of the excitation conditions detonation of emulsion explosives (EE) sensitized gas pores under the influence of the sliding detonation caused by the explosion of a linear intermediate detonator.

Key words: intermediate detonator, emulsion explosives.
Gorinov S.A., Maslov I.Y.  DENSITY OF EMULSION EXPLOSIVE SENSITIZED WITH GAS POCKETS LENGTHWISE AN UPCAST BLASTHOLE CHARGE................................................................. 212

The article describes the calculation procedure for an emulsion explosive sensitized with gas pockets lengthwise an upcast blasthole charge. It is shown that the upcast blasthole charge length is limited by the condition of coalescence of gas pockets at the top of the charge, and this fact must be taken into account in underground blasting using emulsion explosive charges.

Key words: emulsion explosive sensitized with gas pockets, upcast blasthole charge length, emulsion explosive density, coalescence of closely-spaced gas pockets.

Galkina N.V., Korkina T.A., Kuletsky V.N.  PERSONNEL MANAGEMENT IN MASTERING OF HEAVY-DUTY OPEN COAL MINING MACHINERY........ 244

The role of personnel in mastering of heavy-duty machinery at a coal open pit mine is described. The authors present a key personnel training technique and its implementation practice in the Razrez Tugnitsky JSC.

Key words: innovations, personnel management, human capital assets, motivation, qualification, certification.

Galkina N.V., Korkina T.A., Velikoselsky A.V., Kostarev A.S.  PERSONNEL MANAGEMENT IN THE COURSE OF INTERNAL INDUSTRIAL INNOVATION CYCLE IMPLEMENTATION IN A COAL PRODUCTION ASSOCIATION............................................................... 248

The article presents personnel management tool for internal industrial innovation cycle implementation by coal mining companies and the related case studies in terms of the SUEK-Khakassia and SUEK-Krasnoyarsk coal production associations.

Key words: coal production association, innovative activity, inside industrial innovation cycle, personnel management, personnel involvement.

The deposited manuscripts

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