

Kotov A. V., Chaus V. P. Improving the Mechanism of Grain Combine Concave Regulation

Improved mechanism of regulation of concave of KZS-7 «Palessie GS07» self-propelled grain combine is considered in the paper which enables to improve operational characteristics and simplify regulation of threshing mechanism. Various versions of the concave regulation mechanism design are analyzed and the recommendations on the selection of the most efficient version are given.

Tashbayev V. A., Shebzuhov Y. A. Combined Railed and Wheeled Machines

Current state of combined railed and wheeled multifunctional machines is considered and also the development trend of its use in transport communications of the Republic of Belarus.

The designs of combined railed and wheeled movement mechanisms are analyzed and also of mounted units for track works applied in the machines of this type.

Bobarykin Y. L., Burenkov V. F., Inozemtseva N. V. The Study of the Force of Cladding by Closed Broaching

Major energy-power parameter of metal blanks cladding with internal powder coating by closed broaching is the force of broaching. Determination of optimum conditions of broaching ensuring minimum force of broaching is very important problem the solution of which enables to minimize power inputs into the process and instrument wear. The force of broaching depends on mechanical properties of the blank material and coating, deformation-kinematic conditions of the process, and the shape of the face of piercing punch and the scheme of broaching.

The dependence of the force of cladding by broaching on the shape of the punch face: flat, spherical and conical, and on the scheme of broaching with unsupported container and fixed container are studied experimentally.

The studies were conducted at an experimental unit for cladding by broaching with the use of aluminum blanks AD0 with the diameter of 40 mm which were clad with internal coating of powder tin PO2. Finishing part of the punch had the diameter of 20 mm and the length of 15 mm.

After conducting experimental studies it was determined that the optimum shape of the piercing punch face is a spherical one with the face radius equal to the radius of the punch and preferable scheme of broaching is broaching with unsupported container.

Mikhailov M. I. Modeling Generating Tool Surfaces Formed by Interlocking Side Mills

The methods of providing shaping edges in the process of designing intricate profile of cutting tools made of standard modules with replaceable indexable inserts are proposed. Mathematical models of generating tool surfaces allowing for the location of replaceable indexable inserts are obtained.

Pankov A. A., Andreev V. V., Pankov I. A. Z' -Boson Effects at CLIC with Polarization

The method to perform model independent analysis of Z' -boson effects in the process $e^+ + e^- \rightarrow W^+ + W^-$ was proposed by means of generic parameters ξ_{+1} and ξ_{-1} which describe the class of models with extended gauge sector. Model independent constraints on the Z' -boson parameters were obtained with proposed method. The role of polarized beams to improve the sensitivity of explored process $e^+ + e^- \rightarrow W^+ + W^-$ to Z' -boson parameters was studied.

Stetsenko V. Y., Rivkin A. I. Gutev A. P. Improving Friction Wear Resistance of Aluminum-Silicon Alloys

Efficient chemical composition and dispersity of silumin microstructure having superfine microstructure are determined. It is established that silumin ingots obtained during casting by quench hardening containing 15 % of silicon, 3 ÷ 4 % of copper and having dispersity of silicon globular crystals of 3 ÷ 4 mcm in friction pair with steel have maximum friction wear resistance.

Stetsenko V. Y., Pevnev A. M., Konovalov R. V. Continuous Horizontal Casting without Modifiers of Fine-Crystalline Ingots Made of Aluminum-Silicon Alloys

It is shown that continuous horizontal casting of aluminum-silicon alloys into jet crystallizing pan with the use of submerged jet system of ingot secondary cooling and with adding into the charge 20 % of castings of AK12 alloy produced by the quench hardening method enables to produce ingots of AK12 and AK18 alloys which have superfine microstructure without doped modifiers.

Dobrodei A. O., Poddenezhny E. N. Current State of the Problem of Light Transforming Materials for Producing White-Light-Emitting Diodes

New modifications of the synthesis of luminescent materials for white light emitting diodes are developed. Spectral-luminescent characteristics of luminescent ceramics samples and coatings based on YAG: Ce³⁺ are studied. Alternative positions of luminescent converter relative to light emitting diode crystal are presented. The design of light emitting diode lamp as a source of diffused white light developed by the authors is described which can be used as a direct replacement of incandescent and halogen lamps.

Krotenok V. V. Overvoltage Determination in the Distribution Network during Discontinuous Arcing Earth at Various Conditions of Neutral Ground

The problem of the most efficient condition of neutral ground of medium voltage electric networks is considered. Maximum overvoltages during simulating various operational modes of the network are determined (neutral ground condition, the location of the phase ground, the point of overvoltage measuring). The results of the study of the efficiency of overvoltage limitation during discontinuous arcing earth at various neutral ground conditions are presented at mathematical models of real electric networks of 6–35 kV.

Shapovalov A. V. Heat Transfer Crises During Evaporation in Capillary-Porous Coating of Heat Exchange Surface of the Evaporator

The results of experimental study of heat exchange process during evaporation in annular mini-channels formed by heated wall with copper sintered powder capillary-porous coating and smooth wall are presented. During experiments standard methods were used for determining heat transfer coefficients in unconfined volume of liquid during arranging boundary conditions of heat flow constant density on heat transfer surface.

It has been established that during evaporation in narrow parallel plate ducts with heated internal porous surface and external smooth wall there exists a number of characteristic evaporation conditions – single bubble condition, slug regime and mist condition.

The method of determining critical heat flow corresponding to hydrodynamic crisis of heat transfer in the annular mini-channel with heated wall is proposed. The method is based on modified hydrodynamic theory of boiling crises in «restricted conditions» of G. F. Smirnov and the model of evaporation in capillary-porous bodies of S. L. Soloviev.

Kourganov V. V. The Method of Increasing Operation Speed of Overcurrent Protection Means of Electric Power Supply Lines

The method of increasing operation speed of the line digital overcurrent protection means due to combined application of dependent and independent response characteristics is presented and also dependent characteristics of various slopes of protection means of adjacent lines are given.

Ovsiannik A. V., Matsko I. I. Energy Efficiency of Applying Heat Pump Units in Technological Cycle of the Mini Heat Power Plant

Variants of applying heat pump units in the technological cycle of mini heat power plants are considered in the paper and the analysis of their energy efficiency is presented.

The possibility of utilization of low potential heat of water recycling system of the mini heat power plant with the use of heat pump units at particular values of transformation ratio is revealed.

The efficiency of the use of heat pump units in the water recycling system for reducing water consumption and respectively the cost of the energy generated at mini heat power plants.

Shirokov O. G., Kapanskii A. A., Moroz D. R., Fikov A. S. Automation of the Determination of Relay Protection Means Settings in Distribution Networks of Industrial Enterprises

The software is developed enabling without considerable labour inputs and high technical skills to determine force of current at normal and emergency conditions of energy system operation and also to select necessary protection of the design section of electric circuit.

Bielinskaya Y. V. Contradictions of Monetary Policy of the National Bank of Ukraine at the Stage of Recovering from Economic Depression. Contradictions of Monetary-Credit and Currency Exchange Rate Policies

Key contradictions of monetary-credit and currency exchange rate policies of the national bank of Ukraine are studied the elimination of which will enable Ukraine to go over to a new stage of development. Basic contradiction of currency exchange rate policy is connected with the determination of optimum measure of currency rate flexibility and such a rate value that will enable to smooth over the clash of interests of exporters as well as of population and banks which built considerable currency debts.

Yermalinskaya N. V. Theoretical and Practical Aspects of the Development of Agro-industrial Integration

The sequence of the stages of the evolution of the idea of cooperative-integration structures in the world theory is substantiated. Distinctive features of the formation of integrated associations in agrarian sector of market and transformation economy are established. The periods of the development are defined and economic analysis of the efficiency of agroindustrial integration in Gomel region is conducted.

The results obtained enable to systemize theoretical principles of the operation of cooperative-integration structures in agroindustrial complex, determine organization-economic problems arising in practice and to define possible ways of their solution.

Okhotenko A. S., Tretiakova E. V. Methodic Approaches to the Automation of the Process of Correcting Material Support Plan

Now the success of any organization in many respects is defined by timeliness and completeness of satisfaction of the demand of production for material resources. In this case if production is not supplied with materials in full three variants of production plan correction are provided: by each item of the product range by reducing the product range depending on the amount of deficiency, by the amount of profit per unit and by labour output ratio of product manufacture.

To reduce the expenditure of time for analyzing the procurement of materials for the production and corrections due to their deficiency automation of material support planning process is proposed.