

ABSTRACTS

Anishchenko N.V.

ANALYSIS OF TYPE CORRECTINGS DEVICES INFLUENCE ON DYNAMICS IN ELECTRODRIVE WITH COMBINED CONTROL.

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Features of transient functions choice in correcting devices are considered in view of providing a speed control system error compensation at presence of some influences. The drive modeling is fulfilled for the speed stabilizer with an indirect measuring of moment/current at static loading.

Index terms – **drive, correcting device, combined control, flow diagram, speed, speed stabilizer.**

Bolyukh V.F., Rassokha M.O.

CURRENT PULSE INTERRUPTIONS IN AN INDUCTOR OF A ELECTROMECHANICAL CONVERTER.

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Influence of current pulse interruptions in an inductor of the electromechanical converter on work efficiency as for moving so stalled core is considered provided that forming impulses have sharp fronts. Recommendations for improving the work efficiency are based of the converter modeling.

Index terms – **electromechanical converter, current pulse, interruption, sharp front.**

Varenik E.A., Kukulevskiy A.B., Gorchakov B.A., Jeleznyakov A.V.

EKVK ELECTRIC MOTORS FOR THE COAL COMBINE DRIVE.

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Topics decisions of designing, producing and exploiting of explosion-proof AC motors of EKVK type with improved technical characteristics are got up in the paper in view of modern economic situation concerned to drive of coal cleansing combines. Tests of the EKVK3,5-200-1 and EKVK4-220 motors are resulted.

Index terms – **explosion-proof AC motors, improved technical characteristics.**

Vas'kovskiy Yu. N., Shumilov Yu. A., Shtogrin A. V.

SIMULATION OF THE TOOTH'S FATIGUE DESTRUCTION PROCESS IN THE END PACKETS OF POWERFUL TURBOGENERATOR STATOR CORE.

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The computing model of the tooth's fatigue destruction process in the end packets of powerful turbogenerator stator core are proposed

and explained it by resonant phenomena in the tooth's under influence of the core vibrations.

Index terms – **powerful turbogenerator, stator core, teeth destruction, resonance.**

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MODERN METHODS FOR CONTROL OF OPTIMIZATION PARAMETERS IN DOUBLE-LAYER MULTIPHASE WINDINGS OF AC ELECTRIC MOTORS.

Strategy of multiphase symmetric circles designing of double-layer windings in AC electric motor is considered provide the different number of turns in the windings sections, the constant number of slot conductors, the full basis of all possible structures of phase zones and the date system of optimization parameters. The optimization algorithm of the parasite harmonics set is offered.

Index terms – **AC electric motor, double-layer windings, multiphase symmetric circles, structures, designing, optimization.**

Gal'chenko V.Ja., Ostapushchenko D.L., Vorob'eva T.V.

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ABOUT FEATURES OF SOLVING NUMERICAL ANALYSIS PROBLEMS OF CONFIGURATION OBJECTS' WITH DEFECTS INFORMATIONAL MAGNETIC FIELDS BY MAGNETIC NONDESTRUCTIVE TESTING.

Analysis of features of numerical research of informational magnetic fields of ferromagnetic objects with defects by magnetic nondestructive testing is realized. Revealed features permit to take conclusion about large difficultness of such problems in comparison with traditional ones in electrical engineering.

Index terms – **switch-reluctant-inductor motor, mechanical characteristic, modelling.**

Getman A.V., Zverev S.G., Kramchanin E.G.

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ABOUT PRACTICAL DETERMINATION OF SPATIAL HARMONICS IN THE MAGNETIC FIELD OF TECHNICAL OBJECTS BY DIFFERENT SYSTEMS.

Some features of systems for measuring of magnetic field in technical objects concerned to their practical use are considered for two types of spatial harmonics: on a basis of flux gate gauges and on a basis of selected contours. An error estimation at measuring of the dipole harmonic is got up and factors influencing on its value is analysed.

Index terms – **magnetic field, spatial harmonic, measuring system.**

Guryn A.G., Gontar Y.G., Abubakr Shekhi, Jarmak O.N. 55

THE ELECTRODYNAMICS VIBRATOR FOR A WELL.

In clause the design of the electrodynamic vibrator for excitation of low-frequency acoustic fluctuations in the collector punching zone is considered. Recommendations to frequencies characteristics of the vibrator agreed with an environment requirements and to those of power supply system are given.

Index terms - **electrodynamics vibrator, condenser battery, collector of a petroleum well.**

Druy O.S., Shariy S.V., Jufarov V.B., Shvets M.O., Tihonov V.F. 62

EFFECT OF HIGH ENERGY ELECTRON BEAMS ON METAL SURFACES.

Research of high energy electron beams effects onto metal surfaces is resulted. Features of electron beams autographs are described for metals surfaces with different melting temperatures. The role of the surface tension in forming and production of atomic smooth surfaces is pointed out.

Index terms - **atomic smooth, autograph electron beams, surface tension.**

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INFLUENCE OF PARAMETERS IN THE ELECTRICALLY EXPLODED OPENING SWITCH ON ELECTRICAL DISCHARGE CHARACTERISTICS IN THE CIRCUIT WITH AN INDUCTIVE STORE.

Characteristics of an electric discharge in the circuit with an inductive store and plasma load are studied in view of switch parameters influence to transients processes in its gap.

Index terms – **inductive store, electrical discharge, plasma.**

Egorov A.M., Jufarov V.B., Shariy S.V., Druy O.S., Ilicheva V.O., Shvets M.O., Tkachev V.I., Olhovskaya T.I., Svichkar A.S. 78

THE DIS-1 EXPERIMENTAL PLASMA ELECTROMAGNETIC INSTALLATION FOR IMITATION PARTITION OF SPENT NUCLEAR FUEL. PRELIMINARY RESULTS.

The experimental plasma electromagnetic installation is created. The installation imitates spent nuclear fuel elements separation from plasma state. Obtained results show that it is possible to separate the elements in rotating plasma. Power consumptions appear to be about 0.5 keV per ion due to weakness of applied magnetic fields and low level of accelerating voltages.

Index terms – **electromagnetic installation, spent nuclear fuel, separation, plasma, plasma source.**

Miakenkij J.V.

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RESEARCHES AND TESTS OF A HAND DISCONNECTING SYSTEM FOR AN ELECTROMAGNETIC DRIVE IN VACUUM MEDIUM VOLTAGE CIRCUIT-BREAKERS.

An analysis of systems for manual disconnection of drives in vacuum medium voltage circuit-breakers is resulted. The method imitative of counteractive forces imitation in the circuit-breakers is developed. Tractive and counteractive static characteristics of the drive are determined and researched. The manual disconnection diapason and the peak consumption value are determined provide of contacts wear and the peak consumption. An analysis of reasons causing the mismatch of computing and testing results is done.

Index terms – **vacuum circuit-breaker, electromagnetic drive, manual disconnection, contact consumption.**

Maslennikov A.M.

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DEVICE FOR CREATION OF DISCRETELY ROTATING MAGNETIC FIELD.

An algorithm and circuit of a device for creation of discretely rotating magnetic field are proposed. Experimental data concerned to joint work of the device and an investigated motor are resulted for loading regime at their supply voltage regulated frequency.

Index terms – **motor control, magnetic field.**

Naniy V.V., Dunev A.A., Yukhimchuk V.D.

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EXPERIMENTAL RESEARCHES OF THE ELECTRIC MOTOR WITH ROLLING ROTOR.

Dynamic characteristics of the electric motor with rolling rotor are researched in the eight polar motor are considered. Computations of its inductivities are performed taking into account non-uniformity of its air-gap and permanent transient is determined.

Index terms – **electric motor with rolling rotor, dynamic characteristics, non-uniformity air-gap.**

Naniy V.V., Egorov A.V., Miroshnichenko A.G.

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FEATURES OF THERMAL Computations in ELECTRIC MOTOR WITH ROLLING ROTOR.

The thermal state in electric motor with rolling rotor is simulated on a base of six pole construction. An equivalent thermal circuit is

made and computations of the motor winding temperature are fulfilled. Computed and experimental results are compared.

Index terms – electric motor with rolling rotor, equivalent thermal circuit, computations.

Rezinkina M.M., Jerisov A.V., Pelevin D.Je., Lobjanidze L.E. 111

EXPERIMENTAL RESEARCHES OF INFLUENCE OF INDUCED AND RESIDUAL MAGNETIZING IN FERROMAGNETIC CONSTRUCTIONS ON WEAKENING OF GEOMAGNETIC FIELD IN DWELLINGS APARTMENTS.

Experimental researches of the weakening geomagnetic field in dwellings apartments are resulted. The researches determined the magnetic field reductions in magnetized and non magnetized elements of ferromagnetic constructions (armature) that are used in the apartments are carried out.

Index terms – dwellings apartments, ferromagnetic constructions, induced magnetizing, geomagnetic field, weakening, experimental researches.

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ANALYSIS of RESONANCE TRANSFORMERS MODES of OPERATIONS ON THEIR EFFICIENCY And POSSIBILITIES of IT INCREASING BY USING OF CURRENT SNABBERS.

An analysis of continuous and discrete modes of operations in the resonance transformers is resulted in view of power losses. Graphic dependences of RMS commutated currents are got up. A valuation of efficiency for different circuits of these transformers is made.

Index terms – resonance transformers, modes of operations, current snabbers, efficiency.

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INFLUENCE OF FUSIBLE ELEMENT MATERIAL ON PROTECTIVE CHARACTERISTICS IN OF FAST-ACTING SAFETY FUSES.

Descriptions of fusible elements materials applied in fast-acting safety fuses and their influence on protective characteristics, are resulted in the paper.

Index terms – fast-acting safety fuses, fusible element, material, protective characteristics.

Chernyshov N.N., Shcherbak Je.L.

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RISE OF SIGNAL BAUD RATE IN CABLE.

Methods of renewal impulse signals forms by filters and synthesis of the filters are discussed in the article in view of reproduction the form accuracy and mitigation of noises. Features of filters for renewal of code signals, data rate and realizations of the filters on the base of deconvolution analysis are made.

Index terms – **impulse signals, reproduction the form, data rate, deconvolution analysis.**

Yuferov V.B., Mufel E.V., Tkachov V.I., Sharuy S.V., Shapoval A.N.

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ABOUT SOME FEATURES OF PLASMA DISCHARGES ABOVE THE WATER SURFACE.

The experimental setting allowing to get autonomous spherical plasma formation is created. Processes that occurs at the primary stage of discharge are investigated. Two possible scenarios of their development are described. Volt-ampere and spectral characteristics of plasmoids and photos of discharge development in time are presented.

Index terms – **spherical plasma formation, plasma discharge, plasmoid, characteristics.**