ABSTRACTS

Vlasenko V.A.

RESEARCH OF PHASES MUTUAL INDUCTIONS IN THE SWITCH-RELUCTANCE MOTOR.

Field models of different induction motors are constructed for definition of their phase mutual inductances. Propositions concerning these phases mutual inductions account are formulated.

Index terms – **switch-reluctance motor, phases, mutual induction**.

Galajko L.P.

IMITATING MODELING OF DYNAMIC CHARACTERISTICS IN THE SWITCH-RELUCTANCE MOTOR USED IN WASHING MACHINES.

In close analysis of various dynamic modes of switch-reluctance motors used in washing machines based on Simulink program of Mathlab software is resulted. Developed imitating models and computation results are set out for the motors of 90 W and 2900 rotations per minute.

Index terms – **switch-reluctance motor, imitating model, dynamic characteristics, modeling**.

Getman A.V.

ANALYSIS OF METHODICAL ERROR AT MEASURING OF SPATIAL HARMONICS IN TECHNICAL OBJECT MAGNETIC FIELDS BY MEASURING SYSTEM OF FOURTEEN GAUGES.

Practical use of magnetic field spatial harmonics above dipoles is set up for estimation of the dipole methodical error at measuring of technical objects magnetic fields. Dependence of the methodical error from displacement of a dipole into the technical object is analyzed at measuring its magnetic moment.

Index terms – **technical object, magnetic field, spatial harmonic, dipole, measuring, methodical error.**

Goncharov J.V.

APPLICATION OF AN ELECTROMAGNETIC SUPERCONDUCTING CURRENT LIMITER.

In close an electromagnetic current limiter of short circuit is offered. The design of the limiter and its principle of operation are considered.

Index terms – **superconducting current limiter, design, principle of operation.**

Gurin A.G., Mostovoj S.P., Pidashov V.V., Jarmak N,S.

SEISMOPROSPECTING COMPLEX OF RADIATORS FOR MONITORING OFPETROLEUM STOCKS AND INTENSIFICATION OF ITS EXTRACTION FROM OPERATING CHINKS.

In close a seismoacustic complex for increase of working chink efficiency by simultaneous action on its productive layer superficial and chinks radiators of electrodynamic and electrohydraulic types is considered. It is offered to define preliminary stocks of petroleum in the chink collector by seismoacoustic method, scanning its volume by directed radiation.

Index terms – **electrodynamic radiator, electrohydraulic radiator, seismoprospecting complex, stocks of petroleum.**

Maleev A. M., Egorov B. A.

PROBLEM OF MAGNETIC FIELD COMPUTATION IN SRM AND MODERN METHODS OF ITS DECISIONIN.

The problem of magnetic field computation in SRM is especially topical at determination of its electromagnetic moment according to the magnetic field. Methods of the problem decisionin are proposed in the article.

Index terms – **SRM, magnetic field, computation.**

Kozorezov A. E., Egorov B. A

GEOMETRICAL COMPUTATION OF COLLECTOR KNOT INTERFACES.

Computation of safe interfaces of a plate, a cuff and a press flange in a collector knot are resulted.

Index terms – **collector knot, plate, cuff, press flange, computation.**

Konograj S.P.

FORECASTING OF OIL LAYERS TEMPERATURE IN THE POWER TRANSFORMER EQUIPMENT BY MEANS OF NEURAL NETWORKS.

Possibility and prospects of application of neural networks methods for forecasting of temperature in top oil layers of the power transformer equipment in its operation mode are considered. Comparison of forecasting and measurements dates are resulted.

Index terms – **power transformer equipment, oil layers, temperature, forecasting, neural networks methods.**

Kuznetsov B.I., Bovduj I.V., Voloshko A.V., Vinichenko E.V.

ROBUST CONTROL SYNTHESIS BY ROLLING MILLS MAIN DRIVES WITH RELATED THROUGH THE ROLLED METAL.

The method of robust control synthesis by main drives of flatting mills as a two mass electromechanics system for the short line and as a three mass electromechanics system for the long line are developed taking into account the resilient elements in transmissions boundary path by the executive engines, reducing gears and rental felling and taking into account the friction nonlinear moments between felling by the mutual influencing of rental rollers on each other during rolling through the rolled metal. The example of dynamic characteristics for such system is given.

Index terms – **rolling mills, main drives, robust control system.**

Lupikov V.S., Lelyuk N.A., Mvudjo E.

FEATURES OF MATHEMATICAL MODELING OF CONTACTS REBOUND IN SWITCHING ELECTRIC DEVICES.

Mathematical modeling of process of moving contact rebound process in a switching electric device are resulted for elastoviscous model of blow. Features of the model are considered and recommendations about increase of accuracy of modeling are given.

Index terms – **electric device, contacts, rebound, elastoviscous model, modeing**.

Moroz A.N., Cherenkov A.D.

DETERMINATION OF OPTIMAL PARAMETERS IN CONTINUOUSLY WORKONG DRYER USED FOR DRYING WOOL BY ELECTROMAGNETIC FIELDS.

Full factorial experiment determining optimal parameters in continuously working dryer of wool by electromagnetic fields of extremely high frequency range are resulted.

Index terms – **dryer, electromagnetic field, drying chamber, optimal parameters.**

Naboka B.G., Besprozvannyh A.V., Moskvitin E.S., Butko M.V., Butko S.M., GolovanA.A.

CRITERIA ON A TANGENT OF DIELECTRIC LOSS ANGLE AT ESTIMATION OF OPERATION QUALITY REQUIREMENTS IN POWER CABLES WITH PAPER-OIL ISOLATION.

Correlation dependences between a tangent of a corner of dielectric losses that characterized not destroying of cable isolation and fatigue dura-

bility on breaking strength of its paper-oil isolation are presented. it allows putting into practice the tg δ parameter as a criteria at estimation of operation quality requirements in power cables isolation.

Index terms – **power cables, paper-oil isolation, dielectric losses, estimation.**

Naniy V.V., Miroshnichenko A.G., Yukhimchuk V.D., Dunev A.A, Maslennikov A.M., Egorov A.V., Potochkiy D.V.

DESIGNING AND TESTING ASPECTS IN ELECTRIC MOTORS WITH ROLLING ROTOR.

Researches of dynamic characteristics in the motor with rolling rotor (MRR) are resulted for eight and six slotting machine designs. Magnetic field distribution in the motor are got up taking into account non-uniformity of air-gap for different types of motor designs and their comparative analysis is resulted.

Index terms **– electric motor with a rolling rotor (MRR), dynamic characteristics, air-gap, non-uniformity, six (eight) slotting machine design.**

Nesterenko I.A.

DESIGNING OF OPTIMAL ELECTROMAGNETIC SYSTEMS OF DRUM SEPARATORS.

The possibility of the purposeful synthesis of drum separators with open multi-pole electromagnetic systems is investigated on such criteria of optimality as minimum weight of active material and minimum power consumption in steady-state thermal regime. We derive the Equations of optimal relations between objective function and parameters of the electromagnetic system are got up.

Index terms **– drum separator, electromagnetic systems, designing, optimization.**

Sakhno A.A.

MATHEMATICAL MODEL FOR PREDICTION OF THE REMAINING RESOURCE OF CURRENT TRANSFORMERS OF 330-750 kV WITH OIP INSULATION.

This paper describe the results of the Mathematical model of current transformer 330-750 kV with OIP insulation is resulted for prediction of its remaining resource. The model is based on theoretical law of the Gompertz distribution and Cox's proportional hazards one. It is intended for current transformers on-line monitoring systems for improving their diagnostics.

Index terms – **current transformers, remaining resource, prediction, Cox's model.**

Tkachuk V.I., Bilyakovskij I.Ye.

ELECTRIC DRIVE WITH SWITCHED RELUCTANCE MOTOR FOR THE TRAM WITH NARROW TRAM-LINE.

An electric drive of wheels for the tram with narrow tram-line is offered basing on switched-reluctance motor with parallel buffer of energy. Its main characteristics allow the motor successfully to compete with traction collector ones. It has higher reliability and less volume of active part.

Index terms – **switched-reluctance motor, electric drive, buffer of energy, characteristics.**

Chepeljuk A.A., Emelianov V.L.

ANALYSIS OF CONSTRUCTIVE SCHEMES OF ELECTROMECHANICAL DEVICES FOR AUTOMATIC RESERVE INCLUSION OF 0,4 kV.

An analysis of constructive schemes of devices intended for automatic reserve of 0,4 kV is carried out. Perspective ways of improvement of the devices are defined in view of using in them domestic element base.

Index terms – **automatic reserve inclusion, devices, constructive schemes, improvement, domestic element base.**

Cherniavskaja M.V., Kuznecov A.I., Karpaljuk I.T., Glebova M.L.

COMPUTATION OF ADDITIONAL LOSSES AND ELECTROMAGNETIC MOMENT PULSATIONS IN SWITCH-RELUCTANCE MOTOR.

It is shown that at research of additional losses and pulsations of electromagnetic moment in the switched reluctance motor the traditional replacement of its real phase current form by trapezoid is not always correct. The comparative analysis of additional losses is carried out.

Index terms – **switched reluctance motor, electromagnetic moment, pulsations, additional losses, computation.**

Shevchenko S.Ju., Ganus A.I., Savchenko N.A.

SHORT-TERM FORECASTING OF A POWER CONSUMPTION IN INDUSTRIAL ENTERPRISES.

An analysis of main problems at short-term forecasting of a power consumption in industrial enterprises is resulted. Possible approaches concerned to choice of a short-term forecasting technique in industrial enter-

prises are shown in view of their power consumption.

Index terms – **industrial enterprises, power consumption, short-term forecasting, problems.**

Yuferov V.B., Egorov A.M., Sharuy S.V., Druy O.S., Ilicheva V.O., Shvec M.O., Tkachova T.I., Svichkar A.S., Higniak S.N.

MAGNETIC-PLASMA REGENERATION OF THE FULFILLED NUCLEAR FUEL.

The review and analysis of existing methods used for separation of substances in the fulfilled nuclear fuel is resulted. Productivity of separators is estimated. Results of researches on installation DIC-1 intended for division of substance on mass groups of the fuel plasma condition are resulted.

Index terms – **electromagnetic separator, fulfilled nuclear fuel, magnetic-plasma.**