

ABSTRACTS

ELECTRICAL APPARATUS

Varshamova I.S., Geljarovskaja O.A., Krjukova N.V., Lupikov V.S., Rudas Ju.D., Savshenko K.A.

PROSPECTS OF AUTOMATIC SYSTEMS APPLICATION IN POWER SUBSTATIONS FOR THEIR MAGNETIC FIELD COMPENSATION.

An analysis of external magnetic field levels in power substations is resulted. Possibilities of parametrical systems application in power substations for their magnetic field compensation are proved.

Index terms – **power substations, magnetic field, compensation, parametrical systems.**

Guk A.A.

ANALYSIS OF AUTOMATIC DIAGNOSTICS ACCURACY IN MEASURING SIGNALS.

An analysis of automatic diagnostics accuracy at measuring signals is resulted for intrinsic losses in a power transformer model in one of its operation mode.

Index terms – **power transformer, intrinsic losses, automatic diagnostic, accuracy.**

Krugova O.S., Grischuk Ju.S.

AUTOMATION OF ELECTRIC CONVECTORS TESTING.

The block diagram used for automation of electric convectors testing is developed. The base microcontroller for carrying out of testing is chosen. An algorithm of the convector testing in its various operating modes is developed.

Index terms – **electric convectors, testing, automation, algorithm.**

Mazmanian R.O.

EQUIVALENT CIRCUITS OF GALVANOMAGNETIC HALL CONVERTERS USING GIRATOR AND SPICE-MMACRO-MODELS.

New phenomenological equivalent schemes of Hall converters with structural division their properties onto constant and variable ones are described using gyrators and four-poles components and their connections. The macro model equations considered primary and secondary effects in the Hall converters and their testing are resulted.

Index terms – **Hall converter, equivalent schemes, gyrator, four-poles components.**

Sedova E.A.

METHODS OF INDIRECT MEASUREMENT OF CURRENTS IN ELECTRIC DEVICES.

Analysis of measuring systems using Hall transformers the for indirect measurement of electric devices parameters are resulted.

Index terms – **electric devices, currents, indirect measurement, Hall transformer.**

Codik I.A.

APPLICATION OF NUMERICAL MODELLING AT COMPUTATING AND DESIGNING OF AIR TRANSFORMERS.

An algorithm computing multiphysics parameters in a block of the air transformer intended for a galvanic outcome of the thyristor frequency converter by COMSOL is described. The algorithm takes into account vertical currents from the magnetic fields crossing conductors in a cross-section direction.

Index terms – **air transformer, parameters, vertical currents, computation, algorithm.**

Chepelyuk A.A., Khlobystin A.L.

INFLUENCE OF TECHNICAL CONDITIONS IN INTRAHOUSE DISTRIBUTIVE NETWORKS ONTO THE ELECTRICAL SECURITY OF HOUSEHOLD SINGLE-PHASE CONSUMERS OF ELECTRIC ENERGY.

Influence of technical conditions in intrahouse distributive networks onto the electrical security of household single-phase consumers of electric energy is analyzed.

Index terms – **household consumer, intrahouse distributive network, technical conditions, electrical security.**

ELECTRICAL MACHINES

Galaiko L.P.

IMITATING MODELLING OF THE RECUPERATIVE BRAKING WORKING MODE OF OPERATION IN A SWITCH RELUCTANT MOTOR INTENDED FOR MINER ELECTRIC LOCOMOTIVES.

Modeling transients from the motor to recuperative braking operation

by SIMULINK of the MATLAB software package is got up for the switch reluctant motor. The developed imitating models and computing dates are resulted for the motor of 27 kW and 1215 rpm.

Index terms – **switch reluctant motor, transients, modeling.**

Egorov A.V., Naniy V.V., Yhimchuk V.D., Pototskiy D.V.

CHOICE OF THE OPTIMUM MATERIAL FOR A CORE IN THE ELECTRIC MOTOR WITH ROLLING ROTOR BY NUMERICAL METHODS.

Thermal conditions in the electric motor with rolling rotor are considered in view of using various steels in its massive core and taking into account inconstancy of the heat conductivity factor. Optimization of the core design is got up.

Index terms – **electric motor, rolling rotor, optimisation.**

Milykh V.I., Shpatenko V.S., Kuzmin V.V.

DAMAGE SOURCES OF GLUED PACKAGES IN STATOR CORE OF LARGE TURBOGENERATOR.

An analysis of damage sources of glued packages in stator cores of large turbogenerators with equal structural and technological basis (TVV-320 and TGW-300) is resulted.

Index terms – **turbogenerator, stator core, glued package, damage sources.**

Mishin V.I., Kaplun V.V., Chujenko R.M., Gavriljuk V.V.

PROPERTIES OF COMPENSATED ASYNCHRONOUS MOTORS WITH COMBINED STATOR WINDINGS.

Basic electric schemes and properties of asynchronous motors with combined working and compensating stator windings are analyzed. Recommendations about their practical use are given.

Index terms – **compensated asynchronous motor, stator, combined windings, electric schemes.**

Codik I.A., Hudobin K.V., Bakajev O.V.

TEST OF AN ASYNCHRONOUS MOTOR IN THE MULTISPEED ELECTRIC DRIVE.

Test of the asynchronous motor intended for the multispeed electric drive powered from the special device with rotation control is got up and the drive working ability is estimated for two frequencies of rotation.

Index terms – **asynchronous motor, multispeed electric drive, rotation control, testing.**

***Batygin Ju.V., Gnatov A.V., Gnatova Sch.V., Chaplygin Je.A.*
TRANSITIVE PROCESS OF CAPACITOR STORE
DISCHARGE IN THE MAGNETO-PULSE INSTALLATION.**

Analysis of charge contours parameters influence on the transients proceeding in magneto-pulse installation at its capacitor store discharge is carried out. Analytical parities for computation of its current are received. Influence of active resistance and inductance in the charge contour on proceeding electromagnetic processes is investigated at the discharge. A recommendation on delaying a switch from the charge contour is proved.

Index terms – **magneto-pulse installation, capacitor store, discharge, transitive process.**

***Golik O.V., Khorugina V.V., Toloshnja Ju.P.*
NEW MATERIALS FOR POWER CABLES OF MIDDLE
VOLTAGE.**

Prospects of new materials use in manufacture of power cables of 20-35 kV are considered. Trends in using of traditional paper-impregnated insulation, insulation of cross-linked polyethylene and ethylene propylene rubber are analyzed. Comparative characteristics of various types of modern insulation used in manufacture of medium voltage cables are resulted.

Index terms – **power cables, middle voltage, insulation, new materials, prospects.**

***Schebeniuk L.A., Antonec T.Ju., Kotchin I.S.*
DETERMINATION OF SHIFTING ABILITY OF POWER
CABLE, LAID IN APARTMENT.**

Factors of reloading ability and heat transfer are experimentally estimated for APPA 32x5-1 cable, laid indoors.

Index terms – **power cable, reloading ability, heat transfer, estimation.**

***Yuferov V.B., Yegorov A.M., Shariy S.V., Druy O.S., Ilichova V.O., Shvets M.O., Svichkar A.S., Tkachova T.I.*
ABOUT SOME FEATURES OF SEPARATION DEVICES
WITH ROTATING PLASMA IN CROSSED ELECTRIC AND
MAGNETIC FIELDS.**

Researches of cylindrical plasma, rotated in crossed electric and magnetic fields are resulted. Computations and experiments showed that at cer-

tain correlations of electric and magnetic fields heating and separation of different kinds of ions are possible due to power supply of radial electric-field system.

Index terms – **plasma centrifuge, rotating plasma, ion-cyclotron instability.**

ELECTROTECHNOLOGIES USEGE

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

EXPERIMENTAL RESEARCH OF DYNAMIC CHARACTERISTICS FOR THE TWO-MASS ELECTROMECHANICAL IMITATION STAND WITH DIFFERENT SPEED REGULATORS.

The mathematical model and synthesis technique are developed for various types of speed regulators intended for the imitation stand of two-mass electromechanics system. Experimental transients of the stand are resulted in view of the synthesised regulator speed.

Index terms – **two-mass electromechanics system, experimental research, speed different regulators.**

DEVICES AND METHODS OF NOT DESTROYING CONTROL

Bagmet O.L., Poznyakova M.Je.

RESEURCH OF METROLOGICAL CHARACTERISTICS IN THE ELECTROMAGNETIC DIAMETROMER.

The metrological characteristics of the transformal electromagnetic converter used for measuring of diameter in the non-magnetic cylindrical wire by variable-frequency electromagnetic method are resulted. The method sensitivity and accuracy are computed.

Index terms – **electromagnetic diametromer, transformation electromagnetic converter, variable-frequency electromagnetic method, metrological characteristics.**

Guselnikov V.K., Tveritnikova O.Je., Belikova T.B.

UNIVERSAL METEOROLOGICAL CENTER.

The modern meteocenter developed by authors intended for measurement and analysis of environment meteorological parametres in power, industrial and transport facilities is described. The meteocenter block diagramme is resulted and measuring accuracy characteristics are given.

Index terms – sensor, measuring accuracy, meteorological center, block diagramme, measuring accuracy.

POVEW STATIONS

Nizhevskiy I.V.

RESEARCH OF SUBSTATION GROUNDING INFLUENCED BY TOP FROZEN (DRYING) SOIL LAYERS.

Efficiency of vertical electrodes which had on perimetre of substation groundings is investigated. It is shown, that application of horizontal electrodes in complex groundings should be defined proceeding from electrosecurity conditions. Necessity of modernisation of substation groundings instead of existing reconstruction is confirmed.

Index terms – **substation, grounding, vertical electrodes, modernization.**