Abstracts

Electrical Mashines and Apparatus

Bolukh V.F., Markov A.M., Luchuk V.F., Shchukin I.S. **5**

An engineering technique for calculating performance characteristics of electromechanical impulse induction converters

An engineering numerical-analytical technique for calculating performance characteristics and parameters of electromechanical impulse induction converters with liquid-nitrogen-cooled windings is suggested. A block diagram of the calculation algorithm is given, the algorithm taking into account considerable change and interdependence of electrical, magnetic, thermal, and mechanical parameters within a short-time operating cycle. All critical design parameters with accessory parameters affecting the calculation errors are presented.

Key words - **electromechanical impulse induction converters, cryogenic cooling, engineering calculation technique.**

Byalobrgeskiy A. V. **11**

Features of dynamic operation modes in DC generators.

The features of dynamic characteristics of DC generator are considered. A method taking into account magnetic properties of electrical engineering steel by introduction of eddy current contour into its equivalent chart is described. The method allows to define time factor of the system taking into account influencing of eddy currents.

Key words - **DC generator, dynamic characteristic, eddy currents.**

Vaskovsky Ju.N., Gibel Ju.A. **16**

Simulation of dynamic modes in electromechanical transformers by chain-field methods using the MATLAB–FEMLAB system".

The numeral methods of solving chain-field equations describing the dynamic modes of electromechanical transformers are considered. Efficiency of a variables division method and preferences of modern calculable complex "MATLAB–FEMLAB" at its realization are shown.

Key words - **electromechanical transformer, dynamic modes, simulation, chain-field methods, complex "MATLAB–FEMLAB".**

Golenkov G. M. **21**

The modeling of propulsion performance characteristics of linear induction motors.

Edge effect influence on the parameters of the linear induction motor is investigated. Mathematical equation of electromagnetic power in function of the motor constructive characteristics is obtained.

Key words – **linear induction motor**, **electromagnetic power, edge effect**.

Degtev V.G. Shulgin D.N. **23**

Synthesis of winding with diminished straight revolved harmonics in magnet-moving forces.

The structure synthesis of winding system with possibility of adjusting their magneto moving force harmonic composition is fulfilled, their properties are investigated and recommendations on their choice are formulated. The two-layer two-pole winding in 48 stator grooves, used in experimental sample of short-lock asynchronous motor, is designed. Comparative analysis technical and economical indexes of experimental and serial engines are resulted.

Key words - **asynchronous motor, two-layer winding, two-pole winding, magneto moving force**, **harmonic**.

Dorohov A.V. **26**

Dynamics characteristics of wind turbines induction generators at connecting them to network through damping resistance with his subsequent shunting.

Using before developed method the numeral experiment is conducted and dependence on peak currents and moments of asynchronous generator with damping resistor entered in its stator chain at connecting to network are set. Recommendations on optimization of connecting procedure are given. The phenomena concomitant to the transitional process are described.

Key words – **wind turbines induction generator, stator, transitional process, damping resistor, peak current, peak moments.**

Zablodsky N.N. **32**

Forming of output descriptions of the poly-module electro-thermo-mechanical system.

Methodology of output mechanical and thermal characteristics synthesis in poly-module electro-thermo-mechanical system is offered. The methodology used concept of poly-weight kinematic subsystem and pinch-analysis for a heat-exchange subsystem.

Key words – **electro-thermo-mechanical system, pinch-analysis, massive rotor, planning.**

Zavgorodniy V.D.; Moroz W.I.; Petrova O.A. **36**

Quantum mechanical model of induction type angle transducers (Part 4. Comparative analysis of output signals processing methods).

Comparative analysis of output signals processing methods in induction type angle transducer is resulted. New processing procedures, increasing resolution and accuracy of angle-measuring systems used in quantum–optical location and remote control environment devices are suggested.

Key words – **induction type electromechanical angle transducer, code–pulse measuring system, angle–to–digital converter.**

Karpovich O.Y., Onischenko O.A. **42**

Computer-based dynamic properties investigation of switched reluctance motor.

The computer-based model of switched reluctance motor for dynamic properties investigation and the results of experiments with the model are presented. The model permits to carry out calculations of electromagnetic and electromechanical processes taking into account of inverter switching peculiarities, to estimate the mechanical and dynamic characteristics of designing motor and to work up the algorithms of switches control.

Key words – **switched reluctance motor, computer-based model, dynamic properties investigation, simulation.**

Kotysh A.I., Pleshkov P.G. **46**

Conditions of development ferromagnetic resonance in air networks with voltage trans-

formers NAMI.

The article is devoted to a problem of solution reliable operation of type NAMI voltage transformers in electric networks with insulated neutral. Limit conditions of development ferromagnetic resonance are defined. This is very important for analytical solution of ferromagnetic resonance processes.

Key words - **voltage transformer, electric network, ferromagnetic resonance.**

High Electrical and Magnetic Field Engineering

Electric Transport

Education Structure in "Electrical Engineering" and "Electromechanics"

Information