ABSTRACTS

Theoretical electrical engineering and electrophysics

SPIRIN V.M. (Kyiv) **Stability of a high-frequency electric arc of alternating current**

The results of teoretical and experimental investigations of an inductive circuit with a high-frequency electric arc are given. A criterion of an arc extinction in an inductive circuit with a high-frequency current is determined. Sufficient condition of stable burning of a high-frequency electric arc at current transition through a zero is established.

Conversion of electric energy parameters

LYPKIVSKY K.A., RUDENKOYu.V. (Kyiv)
Particular features of the external characteristic of the divided stabilized power supply

The form of the external characteristic of the divided power supply is analyzed at different laws of a transfer constant change of an executive structure: the linear one and in accordance with the law of geometrical progression. Analytical expressions for construction of the external characteristic are obtained, the numerical analysis of the external characteristic parameters are made.

SARATOVSKY R.N. (Alchevsk)
A parametric current stabilizer

Analytical dependences and results of the analysis of a parametric current stabilizer made by G-shaped circuit considering losses in a throttle are given.

Electromechanical energy conversion

ANTONOV A.E., KIRIK V.V. (Kyiv)
The intellectual system of rotation speed adjustment of a rotor of a non-invasive electro-magnetic engine

The results of application of a fuzzy logical comptroller at rotation speed adjustment of an electromagnetic engine rotor are presented.

STAKHIV P.G., SELEPINA I.R. (Lviv)
Macromodeling of elements of a system of electric drive on the example of an asynchronous motor with a diode bridge in a stator circuit

A process of a mathematical macromodel construction of a valve electric drive of alternating current by experimentally taken values of transient characteristics at different modes of its operation is described.

ZINCHENKO E.E. (Kharkiv)
A mathematical model of a rectifier feeding valve inductor-jet engine

At some phase plugging of a valve inductor-jet engine winding in accordance with an applied mathematical model a sign of voltage at a winding changes to an opposite one, and the stress rate with this remains unchanged. Such a mathematical model is adequate in case that a valve inductor-jet engine is fed from a generator of direct current or an accumulator. At a valve inductor-jet motor feeding from a rectifier at plugging the energy stocked in a winding inductance passes into a reservoir at a rectifier output, and a rectifier is locked by the increased voltage at a reservoir. With this the system of differential equations describing electromagnetic processes in the engine is changed. A mathematical model taking into account the stated particular qualities is proposed.

TSYGANKOVA G.A. (Kyiv)
Mathematical simulation of a magnetic field in an electrodynamometer for computation of currents in a discoid rotor

Special features of eddy currents origin in a discoid electrodynamometer rotor with an axial operating air-gap at tooth-slot configuration of a magnetic core of an inductor are considered. The results of an experimental investigation of magnetic induction distribution change in a gap under the influence of eddy currents in a rotor disk for different correlations between the width of the tooth and the slot are given.

GAVRYLJUK R.B. (Ivano-Frankivsk)
Structural designing of symmetric three-phase double-speed circuits of windings with switching of a number of pole pairs in correlation 4:5

Characteristics of all possible variants of symmetric three-phases double-speed circuits of windings of asynchronous electric motors with correlation of a number of pole pairs 4:5 and a number of slots of $z = 60$ are considered

MALYAR A.V. (L'viv)
An algorithm of computation of steady-state modes of an electric drive of rod oil-producing plants

An algorithm of computing of periodic dependencies of electrical and mechanical co-ordinates in steady-state modes of an asynchronous electric drive operation of a rod oil-producing plant by the boundary problem solution method is proposed. With this, dependence of inertia moment and the plant loading moment on a crank rotation angle as well as saturation of a magnetic core and current displacement in rotor bars of a driving motor are taken into consideration.

Electric power systems and installations

STOGNIY B.S., TANKEVICH E.N., YAKOVLEVA I.V., VARSKY G.M. (Kyiv)
High-voltage measuring complexes of electric power with automatic correction of errors
The universal mathematical model of a high-voltage electric power measuring channel error is elaborated. Influence of different factors on a channel value error is investigated. Methods of its digital correction are proposed and experimentally checked up.

DANILJUK O.V., KOZOVY A.B., SHVETS M.M., MELNYK I.R. (Lviv)
Neuromathematical equivalenting of nontelemechanical fragments for the tasks of operative optimization of the modes of electric networks
One of the approaches for solution of the sum of electric networks modes optimization in real time conditions taking into account the partial informative vagueness is described.

ANDRIENKO P.D., BEZUGLY S.L., ZEM-LJANSKY V.V., KRAZHAN V.S., TCHEPKUNOV A.I. (Zaporozhje)
The results of experimental-industrial operation of a high-voltage frequency transformer at the ammonia pipe line "Toljatti - Odessa"
The saving of electric power by 20-50% is achieved as a result of experimental-industrial operation of a high-voltage frequency transformer for an asynchronous drive developed and produced by the scientific-research institute "Transformer" at one of the pump stations of the ammonia pipe line "Toljatti - Odessa". Possibility of the pipeline productivity increase by 30-40% and increase of life time of the basic equipment of the pipeline are shown

Electrotechnology

KARLOV A.N., KONDRATENKO I.P., RASHEPKIN A.P. (Kyiv)
Computation of an electromagnetic field in a cylindrical crystallizer of a multi-winding electromagnetic mixer of liquid metal
Description of magnetic fields distribution in a crystallizer of machines of continuous casting of billets depending on current load of an electromagnetic mixer is made.

Information measuring systems in power engineering

VASILENKO A.D., MELNIK V.G., NOVIK A.I., RUBANCHUK M.P. (Kyiv)
Stabilization of sensitivity of differential conductive biosensor transformers
Compensation-bridge measuring circuits with an output signal amplitude balancing, in which it is possible to obtain a direct reading of active conductivity increase at a sequential circuit of a differential sensor impedance substitution are proposed.

MIKHAL A.A. (Kyiv)
Method of half sections for linearity error control of precision thermometric bridges
A new method of linearity error control of transformer bridges of alternating current at the level of 10-7 without use of standards of high accuracy is considered. Its hardware is proposed.

PRONZELEVA S.Yu. (Kyiv)
Comparative analysis of static characteristics of precision sources of variable signals
Static sources of alternating current amplitude with multiplicative, additive and combined correction are presented. The considered sources can be used for creation of high-precision measuring devices based on a non-electric signal conversion into an electric one, which is proportional to a summable value. Such circuits can also be used in other pertinent arts, where it is necessary to provide stable voltage or current with small nonlinear distortions.