ABSTRACTS

To the 60-anniversary of the Institute of Electrodynamics of NAS of Ukraine

GRYNEVYCH F.B., TARANOV S.G. (Kyiv) **Development of investigations in a scientific direction "Information-measuring systems and metrological provision in power engineering"**. Basic directions of investigations conducted in the department of electric and magnetic measurements and in the department of electromagnetic processes parameters control over the whole period of their existence are stated, the obtained theoretical and practical results are enumerated.

SHIDLOVSKA N.A. (Kyiv) **Investigations in theoretical electrical engineering in the departments of the Institute of Elecrodynamics NAS of Ukraine**. Short descriptions of investigations in theoretical electrical engineering in the departments of the Institute of Electrodynamics NAS of Ukraine, their achievements since the moment of its creation up to nowadays are given.

BOZHKO I.V., VASETSKY Yu. M., GORODZHA L.V., EMETS Yu.P., KONDRATENKO I.P., PODOLTSEV A.D., RASCHEPKIN A.P., FALKOVSKY N.I. (Kyiv) **Investigations of the electromagnetic fields and electrophysical characteristics**. A retrospective view of investigations development of electrical characteristics of heterogeneous systems, forceless magnetic configurations, and also develop-ments of asymptotic and numerical methods of com-putation in the theory of an electromagnetic field are presented. A brief description of the results on a theory and methods of induction systems computation for heat processing of flat metal section elaboration is given. The main results of electric discharges investigations in gaseous and hard dielectrics, conducted in the Institute of Electrodynamics NAS of Ukraine are stated.

Theoretical electrical engineering and electrophysics

GLUKHEN'KY A.I., GORISLAVETS Yu.M. (Kyiv) **Transient hydrodynamic processes in a locking electromagnetic batcher**. Characteristics of an unbalanced flow of liquid metal in a locking electromagnetic batcher are determined on the basis of a numerical solution of Navier-Stokes equations. A supply system and a batcher operation algorithm, which provide a complete exclusion of transient electromagnetic processes and essential reduction of transient hydrodynamic processes in a batching cycle, are proposed.

Conversion of electric energy parameters

LIPKOVSKY K.A. (Kyiv) **Decrease of the set power of a sectionalized autotransformer of a discrete voltage regulator by extreme sections reformation**. It is shown that a forming of extreme sections of a power sectionalized autotransformer that causes decrease of its set power can be implemented in an executive structure of a discrete voltage regulator with two electromagnetic elements.

KOMAROV N.S., STATSENKO A.V. (Kyiv) **Acceleration of an asynchronous motor of an electric drive with frequency-current control**. A problem of an electric drive control with a frequency converter on the basis of a tracking current inverter at an asynchronous motor acceleration to a preset speed of rotation is considered. A control algorithm providing a converter load minimization considering restrictions of a frequency converter by maximum values of current and voltage is grounded.

Electromechanical energy conversion

MAZURENKO L.I., LESNIK V.A., DYNNIK L.N., DZHURA A.V. (Kyiv) **Experimental-computed optimization of parameters of capacitive excitation systems and analysis of single-phase asynchronous generators characteristics**. A method of optimization of parameters and characteristics of single-phase asynchronous generators (SAG) at an alternating rotational speed is proposed. A possibility of estimated and experimental statistical characteristics convergence increase at a field asymmetry in a power balance equation of SAG - load structure is considered.

KARLOV A.N., KONDRATENKO I.P., RASCHEPKIN A.P. (Kyiv) **A linear inductive machine with a massive-toothed rotor and a short-circuit winding**. Analysis of electromagnetic processes is made and a method of energy responses computation of an electrical machine with a massive-toothed rotor and a short-circuit winding is elaborated taking into account nonlinear dependence of magnetic conductivity on a magnetic intensity. A satisfactory coincidence of computative and experimental results in the whole range of sliding is obtained.

Information-measuring systems in power engineering

NOVIK A.I., NEBOLYUBOV E.Yu. (Kyiv) **Construction of self-compensated level meters for explosive environments**. Structures of capacitive level meters - indicators with automatic error compensation from dielectric properties of a controlled environment changes, elaborated by the authors, are described. Measures for provision of possibility of level meters use at measurement of explosives levels are adopted in the elaborated level meters.

MAZMANJAN R.O. (Kyiv) **Cubic sp-lines in algorithms of digital processing of information of built-in means of measuring systems** Principles of approach and interpolation of data sequence with cubic sp-lines are considered. An algorithm of data values interpolation for microcontrollers and signal processors of measuring information systems is proposed. An example of cubic sp-lines application for linearization of a static characteristic of a magnetic induction meter with Hall generator is given.