

# ANALYSIS PROCESSES INDEPENDENT GENERATOR WITH CONTACTLESS CASCADE THREE-PHASE MODULATED BY EXCITER CIRCUIT IN ONE STAR AND COMBINED CONNECTION MODULATOR PHASE DURING WORK UNIT INDUCTION MOTOR

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*The method of mathematical experiment performed studies of electromagnetic and electromechanical processes that occur in autonomous power supply system on the basis of asynchronized generator with three phase modulated energizer. The analysis of processes in terms robotoprydatnosti supply system during its work on the unit induction motors. Established regularities of electromagnetic and elektromehanichnyh processes depending on the parameters of the control switch.*

***Asynchronous generator contactless modulated exciter, switch, induction motor, electromagnetic processes electromechanical processes.***

Analysis of the literature shows that autonomous power generation sector is significant and electricity consumption. Therefore, attention to autonomous systems of power is not only justified, but also legitimate. A characteristic feature of autonomous power sources are variable rotor speed generator, which greatly complicates the problem of constant frequency voltage under conditions of variable speed engine. In this context, deserves attention idea of developing autonomous power supply systems (APSS) based asynchronous generators with contactless cascade modulated energizer (CCME) [4]. Significant theoretical results and experience in this area gives reason to believe that such power systems are promising to or characterized by a high level of reliability in the stabilization and high frequency voltage generator under conditions of variable speed rotation engine.

Electromagnetic and electromechanical processes occurring in such systems of power belonging to particularly difficult in terms of defining the nature of coordinates and their functional relationships, and therefore are not yet fully understood. Studies concerning the study of regularities of electromagnetic and

electromechanical processes and their impact on the functioning APSS based ASG contactless three-phase, three-phase modulated cascading energizer (scheme generator in one star and modulator compounds with potential combined phase modulator branches rotor machines) while working on the generator junction induction motors and are the subject of this article.

The aim - is to analyze electromagnetic and electromechanical processes autonomous power supply system on the basis of asynchronized generator with three-phase, three-phase modulated energizer contactless cascade connection of a combined phase modulator circuit generator in one star while the system power supply unit for asynchronous motors.

Results. Thus, given that the objective of the study is to analyze protseiv APSS based ASG contactless cascade of three phase modulated energizer scheme modulator compounds with combined phase modulator rotor machines. The system also includes three power consumers (induction motors): AD1, AD2, AD3. The keys K1, K2, K3 are designed to enable the unlocking and asynchronous motors.

Structural elements APSS in a state of mutual communication. Therefore, any disturbance in one of them inevitably affect the processes according to all the others. If this mode serves as a source of such perturbations on and unlocking induction motors, which leads to a change of the generator rotor speed. Obviously, the voltage and current phase modulator branches rotor machines must also respond to these disturbances.

Information about the nature of electrical currents and voltages in the winding of the generator rotor is fundamentally important. As a result of the switch to generator rotor winding formed three-phase system voltage frequency slip.

Character rotor current curves in Fig. 6 indicates that contactless excitation system based on cascaded modulator enables to get current generator excitation frequency sliding, which, in turn, provides a constant rotational speed of the magnetic field generator stator winding respect, and hence the constant frequency voltage generator, regardless of speed generator rotor.

## **Conclusions**

1. Analysis of electromagnetic and electromechanical processes that occur in

autonomous power supply system on the basis of asynchronized generator with three-phase, three-phase modulated energizer contactless cascade scheme generator in a star with a combined potential connection branches rotor windings phase modulator machine during its work on the unit induction motors, shows that this system is fundamentally power is robotprydatnoyu.

2. Unlike the power modulator scheme with joint compound phase modulator branches rotor machines, stability of modulator APSS scheme combined with the potential connection phase modulator branches rotor machines depends little on such an important parameter as system control switch insertion current.

3. A high level of sustainability of the scheme APSS modulator compounds combined with potentialnym phase modulator branches rotor machines than their common connection due modulator perfect scheme for which the combined connection is not possible short circuits, whose presence leads to the emergence of multiple (for big order) relative to nominal current in the switch and rotor machines modulator, which, in turn, means emergency mode, ie robotoneprydatnist such a system power supply. Therefore, on the basis of the results of this analysis and electromagnetic flow elektrmehanichnyh process, the logical conclusion is the high level of reliability of APSS based on ASG CCME scheme of potential modulator compounds combined phase modulator branches rotor machine and the practical robotoneprydatnist the same system with joint compound phase modulator branches rotor machines.