

HRISTO Pavel Evgenevich. **AN ENERGY CONSUMPTION OPTIMIZATION OF CENTRIFUGAL MACHINE IN DYNAMIC MODES IN THE LIMITED AREA OF VARIABLES CHANGES.....2**

*An exact decision over of optimization task on the criterion of energy minimum is brought, by a consumable centrifugal machine in the dynamic modes, arising up under the action of inertia pressure in an onecontour hydraulic network, in the limited area of serve and rotation speed change. It is shown that in the limited area of serve change and rotation speed of centrifugal machine driving wheel the mathematical model of controlled object can be simplified by approximation of curvilinear working descriptions the lines of level. On the simplified model the optimal law of control is found by a machine as an exact decision of corresponding variation task and law of alternative control. At identical border terms on two variants of control the analysis of decision is conducted on the basis of concrete example, when as a prototype the serial centrifugal machine 2D2000-21a is examined. The estimation of pressure static losses size influence is done on character of the investigated processes. Requirements are formulated to the electric drive of centrifugal machine under the found law of optimal control by rotation speed of driving wheel.*

**Keywords:** optimal control, criterion of optimality, energy-savings, variation task, centrifugal machine, onecontour hydraulic network, inertia pressure, limited area, controlled electromechanic.

NEFEDOV Yuriy Ivanovich. **HYDRAULIC SHOCK ELECTRIC STATION WITH CLOSED CIRCLE OF WORK WITHOUT ENERGY CONSUMPTION FROM EXTERNAL SOURCE.....17**

*The article describes electric station, in which electricity generates by the use of hydraulic shock in hydraulics system (ESHS). Real prototype electric stations not by widely adopted through low power and of necessity of use for work of these large bodies of water. Designing ESHS make possible to generate electric power, useful for industry and enough to supply small enterprises and residential buildings. Increase in power managed to get abandoning the traditional method of the energy converting of the incident flux of water into electricity. For electricity high water pressure after hydraulic blow is used directly. Work of ESHS is performed by the same water stream, circulating in a closed hydraulic system. This process make possible to refuse from using of open bodies of water.*

**Keywords:** hydraulic shock, valve, hydraulic accumulator, hydrogenerator, hedroturbine.

SOTNIK Olga. **DISCOVERING ENERGY LOSSES IN NETWORK OF RURAL SETTLEMENTS UNDER VOLTAGE REJECTION.....22**

*In applications of technical measures to maintain the level of voltage, such as adjusting the number of turns on the high side of the distribution transformer, chavaing transformoton parameters change that causes a change in the formation of additional power losses in these networks.*

**Key word:** rural electric networks, deviation of voltage power distribution transformer, loss es of electricity.

**Power engineering**

SHEVCHENKO Valentina Vladimirovna, GORYUSHKIN Nikita Igorevich, LISAN Igor Yaroslavovich. **A COMPARISON OF THE ASYNCHRONOUS MOTOR CHARACTERISTICS WITH SQUIRREL CAGE BY REPLACING THE MATERIAL OF THE ROTOR WINDING AND SUGGESTIONS FOR IMPROVEMENT.....27**

*Have been analyzes the questions of the changes the geometry toothed zone asynchronous motor rotor, that must be done when changing the material of the rotor winding. It is noted that the use of the asynchronous generator with wound cast copper rotor winding instead of cast aluminum winding, is not a problem. But for motors with rotor copper windings should conduct additional studies to ensure acceptable starting characteristics and conservation of energy indicators. It was found that the deepening of rotor slot by 15 % will lead to increased influence of crowding out current and will provide for the asynchronous motor with a copper rotor winding same starting characteristics, which have been the engine with aluminum one. The results were obtained under the condition of conservation cross-sectional area of the groove, i.e. copper consumption and cost.*

**Keywords:** asynchronous motor, rotor, the shape groove of the rotor winding, copper winding, aluminum winding.

KANEVETS George Evdokimovich, ALTUKHOVA Olga Vasilievna. **THE PRINCIPLES OF CREATION SYNTHESIZER OF THE ALGORITHMS AND PROGRAMS OF THE OPTIMIZATION OF THE PLATE HEAT EXCHANGERS.....35**

*The basic principles synthesizers of the algorithms and software optimization of the plate heat exchangers, representing the universal instruments for carrying out research computing experiments, and for use the design optimization in the practice are described. The basic steps for creating such systems of synthesis are shown.*

**Keywords:** the optimization, the plate heat exchangers, the system of synthesis, research computing.

VYSHNEVSKIY Dmitriy Leonidovich. **OPTIMIZING THE LAWS REGULATING THE VOLTAGE INDUCTION GENERATOR.....40**

*This article gives an optimization of the law regulating the voltage of the asynchronous generator by determining the tuning parameters of the digital controller based on the mathematical model of the asynchronous generator complex. The application of this law in the design of autonomous asynchronous generator systems will solve the problem of voltage regulation of asynchronous generator.*

**Keywords:** induction generator, mathematical model, law regulating the voltage, determination of the controller parameters.

Alternative energy sources

MAKHOTILO Konstantin Vladimirovich, KOSATIY Dmytro Mikhaylovich. **EXPERIMENTAL EVALUATION OF THE IMPACT OF CLOUDINESS ON PHOTOVOLTAIC SYSTEM POWER FLUCTUATIONS.....**

*Historical data on research photovoltaic system operation in Kharkiv are analyzed and the impact of cloudiness on the photovoltaic system performance is researched. The estimates of the impact of clouds on the daily power generation and power fluctuations of photovoltaic system are obtained.*

**Keywords:** photovoltaic system, cloudiness, power fluctuations

**Scientific and technical progress and efficiency of production**

KRAVCHENKO Oleg Viktorovich, AVRAMENKO Andrey Nikolaevich, GLINKO Aleksey Igorevich. **SCIENTIFIC BASIS OF PRACTICAL APPLICATIONS OF ULTRASOUND IN TECHNOLOGY PREFLAME ACTIVATION OF ARTIFICIAL COMPOSITE LIQUID FUELS.....**

*Experimental studies and computer modeling of ultrasonic treatment on the water. It is shown that the flow velocity fields, intensity and dispersion characteristics of "ultrasonic" fountain can control the frequency and power of the piezoelectric transducer, as well as the design of the radiator. It is shown that this process can be effectively used in the preparation of devices and combustion of liquid fuels in power plants.*

**Keywords:** liquid fuel, dispersing, ultrasound.



**ООО НАУЧНО-ТЕХНИЧЕСКИЙ ЦЕНТР  
«ЭНЕРГЕТИЧЕСКИЕ ТЕХНОЛОГИИ»**

(ЛИЦЕНЗИЯ НКРЭ АБ № 220781, ЛИЦЕНЗИЯ МИНИСТЕРСТВА  
СТРОИТЕЛЬСТВА, АРХИТЕКТУРЫ И ЖИЛИЩНО-  
КОММУНАЛЬНОГО ХОЗЯЙСТВА УКРАИНЫ АБ № 313494)

Оказание комплекса услуг в сфере энергетики

- проведение энергетического аудита;
- разработка и сопровождение энергосберегающих программ;
- внедрение энергосберегающих технологий;
- разработка и обоснование удельных норм расхода энергетических ресурсов;
- составление и согласование энергетического паспорта предприятия;
- поставка электрической энергии по нерегулируемому тарифу;
- проектирование и установка «под ключ» автоматизированных систем контроля учета электрической энергии;
- установка счетчиков дифференцированного (почасового) учета потребления электроэнергии;
- внедрение энергоменеджмента на предприятии и обучение специалистов.

**ПРИГЛАШАЕМ К СОТРУДНИЧЕСТВУ!**

**Мы реально сэкономим Ваши деньги!**

Наш адрес:

ул. Мироносицкая, 60, Харьков, Украина, 61002,

тел. (057) 703-23-18, тел./факс +38 (057) 7149-451,

E-mail: [energotex\\_2004@mail.ru](mailto:energotex_2004@mail.ru)