ABSTRACT&REFERENCES

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ACCOMPANIMENT AS A SPECIAL TYPE OF PIANO ART: STYLE AND TEXTURE SPECIFIC

p. 6-9

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The article analyzes the texture and stylistic features of accompaniment as a type of the piano art. A comparative analysis of the professional qualities and importance of the accompanist and concertmaster makes it possible to identify the peculiarities of their activities, which should be taken into. The main focus of this research is determination of the contemporary approach to the accompaniment and its application in the ensemble (with an instrumentalist or vocalist). The author substantiates the concept of accompaniment and reveals the stylistic and texture specificity of the accompaniment in the performing process

Keywords: *accompaniment, concertmaster, style, texture, piano accompaniment, ensemble, intonation image, artistry, professional skills, musical expressiveness*

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FEATURES OF FORMATION OF STRUCTURE AND PROPERTIES OF Zr-1Nb ALLOY WHEN MANUFACTURING FUEL ELEMENT SHELL TUBES

p. 10-15

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Structure and properties of cast and hot-worked Zr-1Nb alloy and pilot batches of fuel element shell tubes for water-moderated water-cooled reactors (WWER 1000) of nuclear power plants manufactured from this alloy have been studied. It is shown that satisfactory processing ductility of hot-worked rolled tubes is formed during high-temperature extrusion at a high reduction rate. Presence of special grain boundaries in martensitic structures of Zr-1Nb alloy with a hexagonal close-packed lattice has been established for the first time in the theory of lattices of coinciding nodes. The fuel element shell tubes manufactured according to the developed technology are equal to foreign counterparts in terms of their basic quality characteristics

Keywords: *zirconium alloy, ingot, tubes, fuel element shell, microstructure, special grain boundaries, properties*

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ANALYSIS OF THE INFLUENCE THE LIQUID CARGO OSCILLATIONS IN A SEMI-TRAILER TANK ON THE WHEELED TRACTOR MOTION INDICATORS

p. 16-19

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A large amount of transport work of a wheeled tractor accounts for the transportation of liquid cargoes by tractor tanks. These tanks are different from road and rail tank containers with no internal partitions that would quench fluid fluctuations. The constant tendency to increase such freight transportation causes the appearance of negative factors affecting the driver's health and economic performance of the tractor. In the study of the influence of dynamic load on fuel efficiency, a mathematical model was used, which is capable of simulating engine operation at partial load and speed modes

Keywords: *wheeled tractor, semi-trailer tanker, liquid cargo, oscillations, mathematical model, engine, fuel economy*

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APPLICATION OF THE UMAC ALGORITHM ON CRYPTO-CODE STRUCTURES IN BLOCKCHAIN TECHNOLOGIES

p. 20-23

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A computational experiment is conducted on the possibility of using McElice crypto-code constructions with elliptic codes based on the UMAC algorithm to ensure the implementation of the basic rules of blockchain technology for the transfer of confidential information. The results of the calculations are analyzed, the conclusion is made on the practicality of the practical implementation of a quick hashing algorithm to increase the security level of the blockchain technology block chains

Keywords: *blockchain technology, UMAC algorithm, hash-function, crypto-code construction, computational experiment, elliptic codes*

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DEVELOPMENT OF COOLING SYSTEMS USING THE NIGHT-RADIATION EFFECT

p. 24-33

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The analysis of the possibilities to use the effect of night radiation (ENR) for additional heat removal from the elements of the cooling system is carried out. The energy prospects of ENR technology for autonomous cooling systems are shown mainly in rural and peasant farms remote from electric energy sources. To increase the energy efficiency of autonomous cooling systems, it is proposed to use absorption water-ammonia refrigeration machines (WARM) and vapor compression refrigeration machines. It is proposed to use the thermal energy of solar radiation for the WARM operation.
Keywords: *milk cooling, night radiation effect, cooling, vapor compression and absorption water-ammonia refrigeration machines, solar collector*

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ENERGY-EFFICIENT CONTROL MODE OF OPERATION OF DOMESTIC ABSORPTION REFRIGERATING DEVICE

p. 34-41

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The current environmental situation is forcing developers of household refrigeration equipment to reconsider their attitude to absorption refrigeration device (ARD), which can be considered as one of the alternative options for switching to environmentally friendly refrigerants. At the same time, ARDs have increased energy consumption in comparison with similar compression models. It is shown that the main element ensuring the effective ARD operation is a reflux condenser. Modeling has shown that to ensure complete purification of the ammonia vapor stream under severe conditions of ARD operation, the thickness of the thermal insulation of the reflux condenser lifting section in the form of fiberglass fabric should be 3...4 mm thick.

Keywords: *absorption refrigeration device, reflux condenser, energy saving, control modes*

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MODIFICATIONS OF NIEDERREITER CRYPTO-CODE CONSTRUCTION

p. 42-47

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Studies of the Niederreiter crypto-code construction at MES have revealed the main reason for the impossibility of practical implementation of decoding algorithms with non-binary codes in the classical scheme. It has been established that fixing a subset of plaintexts is required, for which the error localization procedure cannot be performed with masking selected private matrices X, P, and D. The modified algorithm is developed by shortening the source data and fixing the allowable positional plaintext transformation vectors based on equilibrium coding

Keywords: *Niederreiter modified crypto-code construction, modified shortened elliptic codes, equilibrium coding, informational secrecy*

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ANALYSIS OF ALUMINUM SCRAP PROCESSING TECHNOLOGY

p. 47-54

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The analysis of aluminum scrap processing technologies is presented taking into account the economic and environmental components. Acid-alkaline methods sulfate and soda methods, as well as electric arc remelting of aluminum slag in a single-phase AC electric arc furnace are considered. A significant number of problems are noted regarding the mechanical and electro physical characteristics of manufactured products. The solution of these issues, taking into account the increasing requirements of the consumer, is possible only when performing special studies in terms of improving technology and developing devices and devices for new technological processes

Keywords: *aluminum, secondary aluminum, raw materials, slag, foams, dross, melt, electro thermal device, melting furnace*

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OPTIMIZATION OF THE FLOCCULATION PROCESS OF INDUSTRIAL WASTE WATER TREATMENT

p. 55-59

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The influence of the concentration of the solid phase and the flow rate of the flocculant on the change in the sedimentation rate of the solid phase and the strength of the floccules is studied. A technique is proposed for optimizing the parameters of aggregation and increasing the strength of floccules after hydromechanical influences, taking into account the concentration of the solid phase and the flocculant flow. It is found that the optimal conditions for aggregation can be achieved by minimizing the hydromechanical effects on floccules, as well as creating the best conditions for flocculation. Among the ways to optimize the process, the ways of influencing these factors due to the technological features of the introduction of the process are analyzed, such as concentration adjustment, transport rate of flocculed sludge, mixing time
Keywords: *flocculation, aggregation, strength of aggregates, deposition rate, optimization, hydromechanical destruction of floccules*

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