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ABSTRACTS

UDC 061.43:629.5 **Keywords:** III International Fishery Forum, Exhibition of the fishing industry, seafood and technology. Pella OJSC, participation, vessels, models

Pella Shipyard at the III International Fishery Forum and Exhibition of the Fish Industry, Seafood and Technologies // Morskoy Vestnik. 2019. № 3(71). P.1

On the participation of Pella OJSC in these forums, where ship designs and models were presented. A certificate of the shipyard, indicators of its work for 2019 are also provided. Fig.5.

UDC 629.5.01 **Keywords:** river cruise, river and mixed navigation cruise passenger ship, design, fleet renewal, experience, conversion, economics, efficiency

A.G. Egorov. Principles of designing river cruise ships using donor vessels // Morskoy Vestnik. 2019. № 3(71). P.9

The problem of the need to update the fleet of domestic river cruise passenger ships is outlined. The main update options are proposed. The procedure for the conversion of passenger ships is described taking into account innovative solutions implemented on modern European, American and domestic ships. T.3. Fig.5. Bibliography 15 titles.

UDC 6219.551 **Keywords:** Severnoye Design Bureau, floating parking lot, rack vessel, modularity design

Life on water – the proposals of the Severnoye Design Bureau // Morskoy Vestnik. 2019. № 3(71). P.17

About the new direction of the design office – the design of floating hotels, parking lots, floating public space as an art object, the possibility of applying the principle of modularity. These projects can attract business, due to their advantages in conditions of shortage of land in cities. Fig. 2.

UDC 629.556 **Keywords:** river tanker, Lenaneft, northern delivery, LNG, river transport, independent tanks, type C tanks

A.Yu. Baranov, L.V. Ivanov. Analysis of the design features of cargo storage systems for the modernization of the project of a river tanker of the river-sea class // Morskoy Vestnik. 2019. № 3(71). P.18

Modifications of a river tanker of the river-sea class for the implementation of oncoming transport of diesel fuel and LNG are considered. The optimal cargo storage system is selected. The change in tanker capacity after modernization is estimated. T.2. Fig.8. Bibliography 14 titles.

UDC 629.576 **Keywords:** hovercraft, ekranoplan, conceptual design, numerical simulation

A.V. Fevral'skikh. Automation capabilities for the conceptual design of high-speed vessels with aerodynamic support // Morskoy Vestnik. 2019. № 3(71). P.22

The possibilities of applying various approaches to the modeling of new concepts of ships with aerodynamic support are analyzed. On the example of studying the de-

signed layout of the ekranoplan according to the criteria of longitudinal static stability, the approbation of automation capabilities of the numerical modeling of screen aerodynamics is carried out. Fig.5. Bibliography 15 titles.

UDC 629.5.081 **Keywords:** designer, ship design, management of design documentation, management system, design schedule, mobile assistant manager

A.S. Soloviev, I.V. Shcherbakov, V.A. Vlasov. Management of design work in shipbuilding using the Meridian automated design support system // Morskoy Vestnik. 2019. № 3(71). P.27

The development of design documentation for shipbuilding is characterized by a significant amount and complexity of the design work performed, as well as stringent requirements for adhering to the schedule for issuing documents. Given the number of project documents being developed, as well as the complex and lengthy life cycles of documents already developed, the designer is usually faced with the difficult task of planning and organizing their own work, taking into account the schedule for submitting documents, available resources, the need for approval of documents, requirements for amendments, and coordination of activities their contracting contractors. An example of solving the problem of controlling the progress of design work using the Meridian automated design support system is given. Fig. 9.

UDC 621.039.629.5 **Keywords:** Almaz Cmdb, «Molniya» missile boat, small missile ship, small anti-submarine ship, design, construction

A.V. Shlyakhtenko, A.L. Ivchenko. «Molniya» – 40 years // Morskoy Vestnik. 2019. № 3(71). P.32

On the creation of a new class of warships – missile boats, pr. 1241-1 «Molniya» and pr. 1241-2 «Molniya-2» and other modifications of the ship based on pr. 1241 «Molniya», which have been successfully serving in all fleets for 40 years Russia and the fleets of a number of foreign states. Particular attention is paid to their armament and the conduct of interdepartmental and state tests, as well as to the participation of the Sredne-Nevisky and Khabarovsk shipyards in their construction. Fig. 15

UDC 629.5 **Keywords:** G.N. Chernyshev, general designer, biography

R.A. Shmakov. On the occasion of the 100th birthday of G.N. Chernyshev – General Designer of SPMD B Malachite JSC // Morskoy Vestnik. 2019. № 3(71). P.41

Essay on the outstanding chief (general) designer, who worked at the St. Petersburg Marine Design Bureau «Malachite» from 1948 to 1997. According to his designs, more than 60 nuclear submarines of the 2nd and 3rd generations were designed and built, which kept parity with foreign nuclear submarines in the Cold War years and continue to serve now. Fig.4.

UDC 539.3 **Keywords:** deep-sea porthole, crimp washer, parameters, choice

V.P. Lyanzberg, N.M. Vikhrov, A.A. Shurenko. To

the question of choosing the parameters of the crimp washer of high pressure windows // Morskoy Vestnik. 2019. № 3(71). P.47

The influence of the structural and technological parameters of the crimp washer on the value of its axial displacement and the nature of the transmitted forces on the side surface of the glass of the window is examined in detail. It is shown that for any combination of the selected parameters, it is necessary to ensure, above all, axisymmetric transfer of the load to the side surface of the glass. Fig.1. Bibliography 4 titles.

UDC 658.562 **Keywords:** economic security, economic security of an enterprise, efficiency of an economic security system

A.A. Burykin, M.I. Kramorenko. Evaluation of the effectiveness of the economic security system of enterprises performing the state defense order // Morskoy Vestnik. 2019. № 3(71). P.48

The problem of assessing the effectiveness of the economic security system of enterprises that fulfill the state defense order is formulated and solved. An algorithm is proposed for its calculation and total costs for the formation, implementation and operation of the economic security system. Bibliography 20 titles.

UDC 004.9 **Keywords:** finance, strategic management, strategy, potential, productivity, methodology, modeling

A.O. Kulakova, D.V. Osipova. Implementation of a three-dimensional geographic information system at an enterprise using the example of Admiralty Shipyards JSC // Morskoy Vestnik. № 3(71). P.51

An innovative project for the creation and implementation of a three-dimensional geographic information system is considered. The main technical characteristics of the system, the stages of pilot operation are described, the effectiveness of the innovation project is evaluated, and potential scenarios of the development of the system are evaluated. T.2. Bibliography 2 titles.

UDC 621.833: 629.5.083 **Keywords:** ship, vessel, service life, extension, survey

O.A. Nesterets. The experience of 51 CDTISR JSC in extending the full service life of ships and vessels of the Navy // Morskoy Vestnik. 2019. № 3(71). P.55

The 51 CDTISR experience in extending the service life of ships and vessels of the Navy, examining hulls and cable products, and developing on the basis of the accumulated experience of GOST on the procedure for extending the life of ships is analyzed in detail. Bibliography 6 titles.

UDC 621.436: 621.438 **Keywords:** surface ship, power plant, PP survivability, damaging effects, redundancy, vulnerability, conditional survivability law

E.G. Puchkov. Survival assessment of power plants of surface ships // Morskoy vestnik. 2019. № 3(71). P.59

Attention is focused on the appropriateness of assessing the survivability of ships in general and their power plants (PP) in particular, at the earlier stages of

research design, when it is possible to make technical decisions, including ensuring high survivability indicators. Approaches to survivability assessment and analytical dependencies are presented, using which a wide range of studies can be performed to assess the impact of the topology of the placement of PP elements inside the ship's hull on the survivability of PP.T.2. Fig.2. Bibliography 6 titles.

UDC 623.8.02.08 **Keywords:** demagnetization system, magnetic field, silicon carbide

V.V. Fogel, E.A. Gustyakova. Reducing power losses in powerful converting devices of compensation systems for ship magnetic fields // Morskoy Vestnik. 2019. № 3(71). P.63

The possibilities of increasing the efficiency of power converters for compensation systems for ship magnetic fields are considered. A promising solution to reduce dynamic power losses is presented, as well as a numerical calculation is performed showing the advantage of the selected solution. Fig. 2. Bibliography 1 title.

UDC 629.45.018.2 **Keywords:** spatial articulated mechanisms with rotary joints, spatial articulated Bennett four-link, test bench, circuit design model, technical proposal, design, construction

M.A. Alexandrov, N.A. Gribenyuk. A model of a device for testing products for resistance to rolling and long-term inclinations based on a spatial articulated mechanism // Morskoy Vestnik. 2019. № 3(71). P.67

A device is proposed for testing steel structures and electrical products installed on ships for resistance to rolling and long-term inclinations based on Bennett's spatial articulated mechanism. A schematic structural model of such a device has been designed, capable of reproducing the complex oscillatory motion of its output link in space, similar in nature to the sinusoidal motion of the ship rolling on the waves. Fig.11. Bibliography 6 titles.

UDC 621.436: 621.438 **Keywords:** gas turbine engine, main power plant, towing curves, aggregate power, Navy ships

V.V. Baranovsky, K.A. Yefremov. General problems of the development and creation of promising ship gas turbine engines of the Navy's multi-purpose surface ships // Morskoy Vestnik. 2019. № 3(71). P.72

Substantiating materials are given for the development and use of promising ship gas turbine engines as a part of various units of multi-purpose ships in order to ensure their speed and maneuverability.T.2. Fig.7. Bibliography 5 titles.

UDC 774.63 **Keywords:** condenser, turbine, turbo-generator, tube bundle, steam, condensation, section, ovality, swirl, steam speed, heat transfer

O.O. Lebedev. Development of a tube bundle of a condenser of steam turbines of rational design // Morskoy Vestnik. 2019. № 3(71). P.80

The possibility of improving the mass-dimensional, thermal and acoustic characteristics of capacitors when forming a tube bundle in a certain way with a change in the ovality and swirl angle of the heat-exchange tubes is shown. The proposed design of a tube bundle of steam turbine condensers has a number of advantages compared to traditional solutions of condenser designs.T.1. Fig.6. Bibliography 4 titles.

UDC 061.43: 621.643 **Keywords:** Armalit JSC, valve manufacturing, innovations, electric drive control unit

The participants of IMDS-2019 for the first time stood up for the control panel the latest ship pipe fittings // Morskoy Vestnik. 2019. № 3(71). P.83

Introduces the exposure of Armalit JSC at IMDS-

2019, presented at the enterprise's booth of two butterfly valves with electric actuators. When they were created, a number of innovative developments were introduced. Particular attention is paid to their benefits. Fig.4.

UDC 62–51 **Keywords:** control and management system for crewless vessels (BES), on-board system, control center, interaction

V.M. Ambrosovsky, D.V. Kazunin, A.P. Orlov. The control system of autonomous and remotely controlled ships // Morskoy Vestnik. 2019. № 3(71). P.87

The issues of creating control and management systems for crewless vessels, primarily the information interaction of airborne monitoring and control systems for crewless vessels with the control center of these vessels, were considered. The information structures of the on-board systems monitoring and control systems and the control center are analyzed. Fig.6. Bibliography 2 titles.

UDC 681.5.015.26 **Keywords:** PID-regulator, automated tuning, servo drive, Simulink

A.N. Popad'in. Automated tuning of PID regulator to control servo drive using the software package MATLAB Simulink // Morskoy Vestnik. 2019. № 3(71). P.93

The problem of synthesis of control law for servo drive for forming dynamically changing load on the actuator was considered. Mathematical model of a servo drive implemented in the programming environment Simulink was considered. Method of automated tuning of PID regulator parameters is proposed. The quality of the transition process during the formation of the load was analyzed. Fig.11. Bibliography 6 titles.

UDC 627.71 **Keywords:** multiparameter and microstructural probes, sound velocity profile, vertical profiling system

V.S. Kozhevnikov, Alexander Syachin. Innovative technologies of underwater measurements // Morskoy Vestnik. 2019. № 3(71). P.99

Possibilities of obtaining on-line information on the speed of propagation of sound waves in an aqueous medium using multiparameter and microstructural probes from the world's leading manufacturer Sea & Sun Technology GmbH are described. Fig.3. Bibliography 2 titles.

UDC 621.311: 629 **Keywords:** consumables, ship systems, performance monitoring, the need for implementation, technical readiness

R.V. Dolbilin, Yu.I. Stekol'nikov. Justification of the need for built-in performance monitoring of consumable elements of ship systems // Morskoy Vestnik. 2019. № 3(71). P.100

A variant of the approach is proposed to justify the need for built-in performance monitoring of consumable elements (RE) of ship systems, based on the capabilities of discrete mathematics models. A computational experiment shows the sensitivity of the justification result from the operational characteristics of the RE and the instrument errors of the control system, which allows us to judge the conditions for the need to implement these systems. Fig.3. Bibliography 2 titles.

UDC: 629.12.001.2 **Keywords:** accident at sea, human factor, weight of operator error

M.V. Gomzyakov. Accident at sea: weight and price of the human factor // Morskoy Vestnik. 2019. № 3(71). P.102

The technique of determining the weight of operator errors during the operation of a marine vessel is considered. In the course of the analysis of the accident rate of marine vessels of the Far Eastern region, incidents occurred due to the influence of the human factor. The actions of the crews that caused the accident are clas-

sified by the functions and levels of responsibility of the STCW-78 Convention. The average daily downtime of an emergency transport and fishing vessel was determined.T.2. Fig.3. Bibliography 7 titles.

UDC 681.324 **Keywords:** learning process, new technology, intelligent technologies, knowledge integration, computer mathematics

V.V. Grigor'ev-Golubev, Yu.I. Nechaev, K.V. Rozhdestvensky. Intelligent technologies in the system of training foreign specialists in the field of shipbuilding // Morskoy Vestnik. 2019. № 3(71). P.107

The problem of using modern intelligent technologies and high-performance computing to create new equipment and technologies is discussed. The main focus is on the integration of knowledge based on a course in modern computer mathematics. The theoretical basis of this course is used in the system of intellectual support of the learning process. The presentation of the theoretical foundations of lecture courses is accompanied by examples of practical applications in the problems of modeling and visualizing the evolutionary dynamics of non-stationary systems.T.1. Fig. 6. Bibliography 13 titles.

UDC 322:355.233:614.8 **Keywords:** Sovcomflot, crew, retraining

M.S. Kovalsky. Typical requirements for the training of crews of ships subject to the MGT code in accordance with the requirements of the International Convention STCW-78/95 (Parts A-V/3) // Morskoy Vestnik. 2019. № 3(71). P.112

The experience of the Sovcomflot training center for the training of crews was provided, which forms the basis of the work program «Advanced training of crews of ships covered by the MGT Code», designed to conduct classes for officers and rank-and-file personnel who are entrusted with the maintenance and the use of NGV fuel and fuel systems on ships covered by the MGT Code. The main topics of the training of crew members of modern ships using gas engine fuel are briefly described, which allow you to get the maximum possible effect from training due to the possibility of using the acquired theoretical knowledge and practical skills on the training equipment of the center. Fig.1. Bibliography 11 titles.

UDC 9.93/94 **Keywords:** design bureau of the Navy PC, mine-torpedo department, ingoline torpedo, magnetic contactors

B.A. Barbanel, V.N. Polovinkin, S.V. Fedulov. The study and use of German novelties of mine-torpedo weapons in the interests of the domestic fleet (1945–1946) // Morskoy Vestnik. 2019. № 3(71). P.115

It is dedicated to German achievements in the field of mine-torpedo armament in the 40s, primarily in the creation of an Ingoline torpedo, the activities of the USSR leadership and the Navy command aimed at studying and using the German experience in creating new types of equipment and weapons in the interests of the fleet. The leading role was given to the Design Bureau of the Navy PC in Berlin, including its Mine and Torpedo Department. Bibliography 15 titles.

UDC 678.02:629.5 **Keywords:** Arctic, environmental safety, icebreakers, tankers, platforms, construction materials, NRC «Kurchatov Institute» – CRISM «Prometey»

A.S. Oryshchenko. Modern materials for the Arctic // Morskoy Vestnik. 2019. № 3 (71). P.122

On the development by the Institute of Arc-class steels, materials with high corrosion and specific strength, which allows them to be used to create power equipment, deep-sea equipment, icebreakers, tankers, oil and gas platforms operating in severe Arctic conditions. Fig.5.