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SECTION I - NAVIGATION AND MARITIME TRANSPORT

MINIMIZING THE HEAT FLOW LOST BY A BALLAST TANK USING INSULATION

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ABSTRACT

The main purpose of treating ballast water in naval transport is killing the organisms and microorganisms. One of the treating methods is based on heating ballast water at a specified temperature. After heating the ballast water we should keep it at that level for a shorter or longer period of time, depending on organism nature.

This paper presents the heat flow lost by a ballast tank and analyses the methods for minimizing it. We chose an insulating material and three ways of applying it.

Keywords: *heating ballast water, flow lost.*

A LEGAL ANALYSIS OF CIVIL LIABILITY FOR OIL POLLUTION DAMAGE

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ABSTRACT

A long series of maritime disasters that have caused major damage by oil pollution at sea have been the catalyst for developing a new international legislation. Stemming from the compromise between the interests of the shipping industry and the oil interests, the new statutory liability regime imposed on shipowners, introduces a series of legal innovations and serves as a model for developing legislation concerning liability in other areas. But the international system is divided between four international conventions and the regime adopted by the U.S. unilaterally by OPA Act1990. UE., an ardent critic of the civil liability regime for oil pollution doesn't develop its own compensatory schemebut actively sustains the reforming of the international system and it designs initiatives related to maritime safety. The paper aims to examine the elements of the international civil liability regime for oil pollution damage. The conclusion is that despite the fact that it was designed for success the image is of a fragmented system, unable to provide adequate compensation and undermined by a number of key deficiencies: maintaining the limitation of liability, narrow definition of damage which excludes the environmental damages and the principle of channeling the liability exclusively to the shipowner or his insurer.

Keywords: *oil pollution damage; limitation of liability; channeling the liability; the 1992 Civil Liability Convention; the 1992 Fund Convention; the 2003 Supplementary Fund Protocol; STOPIA and TOPIA*

CORRELATION BETWEEN SAFETY OF NAVIGATION AND PARAMETRIC ROLL OF SHIPS IN WAVES

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ABSTRACT

The present paper addresses the problems raised by the parametric rolling phenomenon on board vessels. The problems involving ships stability loss due to parametric rolling concerned the maritime community and researchers from early decades but more attention was paid at the time when this phenomenon was sighted in the late of 1990s on board a containership. Being a part of ship stability, the assessment of the parametric rolling is part of the safety of ships and safety of navigation. The necessity of paying more attention to this phenomenon and the possibility to be included into future stability criteria is of paramount importance.

Keywords: *parametric rolling, ship stability, stability criteria, righting moments, metacentric height, lever arm curves, capsize, safety, navigation.*

LIPARA AND MYLAE.
THE FIRST NAVAL BATTLES IN THE WAR FOR SICILY (260 B.C.)

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ABSTRACT

In 261 B.C., the Roman Senate took the decision to build a powerful fleet of 20 triremes and 100 quinqueremes to be able to stand the Carthaginian one. The ambitious Roman project was finalized in 260 B.C., when the ships were launched at sea and equipped with crews trained on land. The new ships engaged immediately in two little confrontations, at Lipara and near the coast of Italy. The first one ended with the Carthaginian victory while the second was won by the Romans. The two confrontations were followed by an important naval battle at Mylae that ended with the Roman victory, due to the new fight technique that involved the use of a plank to link the ships together at sea.

Keywords: *Rome, Carthage, Gaius Duilius, corvus, Lipara, Mylae, quinqueremes*

SAILS AS ADDITIONAL MEANS OF PROPULSION

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ABSTRACT

If at the beginning of the era marked by the introduction of the steam engine and propeller to ships, the propeller was considered as an additional means of propulsion, since 1950, constructive ideas about ships equipped with sails began to appear, this time as an additional means of propulsion.

Keywords: *sails from cloth, rigid sails, the mechanical sail, hybrid sails*

WEATHER INFORMATION AND FORECASTING ON SHIPBOARD

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ABSTRACT

Seafarers have access to a variated documentation that can be used in order to realize an overview of existing meteorological situation and estimate the future trend of the weather conditions.

The first rule in forecasting at sea is that the weather will continue much the same unless you pass close to, or through, a front or a low.

There are, however, other methods of forecasting, of shorter or longer duration that seafarers can use in practice.

Keywords: *forecasting, analysis, weather maps, radiofacsimile, methods.*

A CASE STUDY FOR REFLOATING A SHIP USING HER OWN ENGINE

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ABSTRACT

Over the past decades there has been a continuous increase in the public concern about general risk issues. The consequence of this trend is that whenever a catastrophic accident occurs - and receives media coverage - there is an immediate political and public demand for actions to prevent the same type of catastrophe in the future. Many of the past improvements in safety of marine structure have been triggered by disasters but there is a change in this trend. The maritime society is beginning, albeit slowly, to think and work in terms of safety assessment of individual ships instead of the very generalized prescriptive regulations which have evolved over the past 150 years. In line of these aspects it is clear that rational procedures for evaluating the consequences of accidental loads are highly desirable, not to say necessary. Within a reasonable time span this makes it impossible to draw cause and effect conclusions from statistics alone and attempts of doing so would most likely be highly reactionary with questionable effectiveness.

Keywords: *ship's grounding, refloating, simulation.*

BULK HANDLING QUAY CRANES IN PORTS

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ABSTRACT

The paper analyzes bulk handling quay cranes with single-rope, two-rope and four-rope grabs and methods of grab calculation, including establishing the grab mass, geometry and kinematics and efforts in the grabs elements. A study case with Bocsa quay crane 18 t - 32 m is included, with two of the most defavourable case scenarios in exploitation.

Keywords: *quay crane, grab, port operator, cargo, maritime transport*

A NAVIGATOR'S LIFE ABOARD SHIP. THE EXPERIENCE OF THE FIRST VOYAGES

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ABSTRACT

In the present paper we show a few requests to strictly satisfy the professional discipline aboard ships, as well as the way to voluntarily involve every student to get the most of the training elements concerning his future professional activity.

From the very beginning we have to present the author's experience, gathered aboard "Somes" and "Neptune" ships and eventually we'll read some lines from the personal diary of the student Diana Moldoveanu, who graduated the Naval Academy "Mircea cel Batran" from Constanta, concerning the level of the willingness and personal involvement for learning from the beginning a largest ever experience from all the ship's districts.

We are positively convinced that this paper will be useful for all naval and marine students and is to contribute to increase the willingness level so much needed aboard ship, as well as for the own professional specific training.

Keywords: *Training student, practical activities aboard, watch service, deck service, engines service, psychological adaptation, professional activities relationship, activity discipline, etc.*

ROMANIA-LNG IMPORT TERMINAL PROJECT

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ABSTRACT

Active studies have been made on the offshore LNG receiving terminal by many people around the world. LNG infrastructure consists primarily of tankers, import terminals, and inland storage plants. Many actual LNG receiving terminal projects are under progress and some are under engineering and construction stages. Considering most of the feed gas for LNG is imported via sea, it might be natural that many people in LNG industry would consider offshore LNG facilities as alternatives for the land-based ones. Two major sectors of the offshore LNG facility would be LNG FSRU (Floating Storage and Regasification Unit) and LNG FPSO (Floating Production Storage and Offloading).

Keywords: *LNG, terminal, project, regasification, FSRU, FPSO.*

THE LINKAGE BETWEEN THE BLACK SEA AND THE NORTH SEA BY MEANS OF THE RIVERS DANUBE AND RHINE. A MODERN HISTORICAL PERSPECTIVE

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ABSTRACT

The interest of the European states for the Danube is gradually visible after the Peace of Adrianople (1829), when the river started to have an economic value by the opening of the grain exports and the establishment of steam navigation. This interest led to granting a special status to the Danube by the treaty of Paris (1856), a treaty that settled the European Commission of the Danube. Although the Danube became a European river, its economic potential was insufficiently valorised as long as it was not linked to the fluvial network from Central Europe and further to the North

Sea. This desideratum was only met in 1992, when the works of the Rhine – Maine – Danube canal were completed, by which the linkage between the North Sea and the Black Sea was fulfilled. Until the fall of communism in Europe, all initiatives concerting the linkage of the Danube to the European waterways were determined by certain situations and conflicts in the international system, generated, firstly, by the Nazi regime and, after WWII, by Stalin's blocking the Danube sector controlled by the Communist bloc.

Keywords: *the Danube, the Rhine, Fossa Carolina, the Ludwig Channel, the Rhine – Maine – Danube canal.*

SECTION II - MECHANICAL ENGINEERING AND ENVIRONMENT

HE GENESIS OF THE HYDROGRAPHIC NETWORK IN THE BAZIN CALMATUI FROM TELEORMAN

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ABSTRACT

The river Călmățui in Teleorman is a typical plain river which originates fro Câmpia Iminogului Plain at the height of 160 m and it flows into the lake Suhaia at the altitude of 20 m. This river developped on its own during the Quaternary, by regressive erosion, independent from the river Olt or from the former flowing directions of the river Arges, but it was closely connected to the emergence of Boianului plane and with the establishment of the present course of the Danube river. The hydrographic network of this basin developped gradually and is still evolving because fo the present geomorphological process of compaction and suffusion associated with the pluviofluvial processes.

Key words: *hydrographic network genesis, evolution.*

DYNAMICAL OPERATION REGIMES OF TURBOCHARGED DIESEL ENGINE

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ABSTRACT

The paper presents the mathematical model which simulates the dynamical behavior of turbocharged engines with free rotation supercharged units. Mathematical model is based on knowledge of the characteristics of subsystems, such as engine itself, turbocharger with free rotation, exhaust and intake manifold and the injection system. Transfer functions are established. These functions are used for achieving and adjusting automatic regulators which controls the operations of the turbocharged engine subsystems and full turbocharged engine.

Keywords: *dynamical behavior, turbocharged engine, transfer function, unsteady working conditions*

COMPUTER SIMULATION OF THE FLOW IN A TURBOCOMPRESSOR BELONGING TO A SUPERCHARGED DIESEL ENGINES

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ABSTRACT

The paper presents the mathematical model and numerical example to simulate flow through the turbocharger of supercharged Diesel engine MB 836Db. The computer program which uses the Phoenics software procedures, personal subroutines and functions, permits to simulate the unsteady flow in case of the geometry considered. The paper presents some numerical results, as in 3D graphics.

Keywords: *supercharged Diesel engine, unsteady flow in turbocompressor, Phoenics and Photon software*

APPLICATION OF THE J INTEGRAL IN THE STUDY OF THE CRACK LENGTH AND TEMPERATURE OF A CANNON BARREL

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ABSTRACT

Perhaps the most accurate and elegant method for computing the energy release rate is to calculated the J integral by converting the line integral into a domain integral which can easily be calculated using the known finite element shape functions. The problem illustrates the case of a crack in a cannon barrel, together with the relevant geometry against crack length defined from the bore of the cannon. This crack geometry is the most dangerous integrity case for the cannon barrel. In this research, 155 mm cannon barrel with one crack with lengths of 4 mm, 8 mm and 12 mm on inner surface is firstly structurally analyzed at room temperature, and subsequently coupled thermo-structurally analyzed considering 4 scenarios, where the crack length was deemed to be 4 mm, the temperature of the inner surface was 100^0C, 125^0C, 150^0C, 200^0C. The numeric model presented in this paper, provides consistent and reasonable results for the dependency of stress intensity factor to the crack length and temperature of a cannon barrel using the J integral. The temperature fields inside the cannon barrel (and, generalizing, inside any circular structure with thick walls) tends to ameliorate the stress fields existing on the crack tip and pushing the calculated KI downward and thus improving the crack behavior.

Keywords: *Cannon barrel, Stress Intensity Factor, Crack, J Integral, Coupled Thermal-Structural FEA*

FINDING OPTIMAL HYPERSONIC MISSILE SHAPE BASED ON FINITE ELEMENT ANALYSIS ADVANCED TECHNIQUE

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ABSTRACT

Applied aerodynamics has, historically, involved a very strong mix of theory and experiment. This is partly because experiments can be very costly and computations are rarely sufficiently sophisticated. This will continue to be the case. Computational Fluid Dynamics (CFD) is playing an ever increasing role in aerodynamic design for advanced missiles either for performance improvement of the existing system for new missions or for new concept development for future missions. A cost effective design process is to judiciously combine the wind tunnel tests and CFD studies that exploit the inherent strengths of each of these. Hypersonic missile flight is characterized by a high flight Mach number (usually greater than 5), thin shock layers and high viscous loads. The missile aerodynamic geometry has high impact on different missile systems such as control, propulsion, structure, and warhead. The objective of the current paper is to present a reliable Finite Element Analysis/CFD and Fluid Structure Interaction (FSI) advanced technique for obtaining hypersonic missile aerodynamics and use this technique for finding optimal hypersonic missile shape based on best structural behavior (the lowest von Mises stress will play the role of Objective Variable), and, secondly, based on the best aerodynamic behavior (the highest V∞ fluid velocity will play the role of Objective Variable).
Keywords: *Fluid Solid Interaction, Optimisation, Hypersonic Missile, Shape, Structure, Metal Matrix Composite, CFD, FEA*

ADAPTATION OF THE ADVANCE SYSTEM FOR KS-3M SHEARER ADAPTED FOR 295-842 RYBNIK CONVEYER

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ABSTRACT

The paper presents technical solutions to correlate the function of KS-3M shearer with Rybnik 295/842 conveyer in order to observe Occupational Health and Safety requirements. These machines, alongside of CMA-5H powered support make up a powered face complex used to extract coal in panel 4/seam 3/block VI.

Keywords: *shearer, conveyer, correlation.*

SPECIFIC CLIMATIC INDICATORS IN CĂLMĂȚUI BASIN

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ABSTRACT

The river Călmățui in Teleorman is a typical plain river which originates fro Câmpia Iminogului Plain at the height of 160 m and it flows into the lake Suhaia at the altitude of 20 m. This river developped on its own during the Quaternary, by regressive erosion, independent from the river Olt or from the former flowing directions of the river Arges, but it was closely connected to the emergence of Boianului plane and with the establishment of the present course of the Danube river. The hydrographic network of this basin developped gradually and is still evolving because fo the present geomorphological process of compaction and suffusion associated with the pluviofluvial processes.

Key words: *hydrographic network genesis, evolution.*

VIBRATION CONTROL OF COMPLEX SHIP STRUCTURES

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ABSTRACT

This paper aims to present the vibration characteristics and vibration control of complex ship structures. It is shown that input mobility of a ship structure at engine supports, due to out-of-plane force or bending moment excitations, is governed by the flexural stiffness of the engine supports. The frequency averaged input mobility of the ship structure, due to such excitations, can be represented by those of the corresponding infinite beam. The torsional moment input mobility at the engine support can be estimated from the torsional response of the engine bed section under direct excitation. It is found that the inclusion of ship hull and deck plates in the ship structure model has little effect on the frequency-averaged response of the ship structure. This study also shows that vibration propagation in complex ship structures at low frequencies can be attenuated by imposing irregularities to the ring frame locations in ships. The structural modifications of the local supporting structures such as engine beds in ships can control the vibration responses of ship structures due to machinery excitations at higher frequencies.

Keywords: *Hull structures, vibration response, FEA analysis, wave propagation.*

EVALUATION OF SOLAR FRACTION FOR A PASSIVE SOLAR SYSTEM

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ABSTRACT

In this paper is illustrated a method to calculate the solar fraction for a solar thermal system with specific data. The installation is formed for a solar flat collector, a water storage tank, a heat exchanger, and two water pumps. The results of simulation for solar system are realised for producing hot water for a family. The mathematical model is used and evaluate for the annual variation of the solar fraction. Different parameters and specific data are for Bracanga, a Portuguese city.

Keywords: *Solar fraction, solar system, solar energy, collector area*

ENERGY ANALYSIS BY NUMERICAL SIMULATION FROM A FAMILY HOME

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ABSTRACT

Although methods of using renewable energy are knows all over the world (biomass, solar, wind, geothermal and hydro), so far only a relatively small fraction of the technical and economic potential of renewable energy is being used today. Investments in renewable energy and energy efficiency represent an important solution for environment and for economic crisis that Europe and the world at large are facing today.

This paper presents the evaluation of renewable energy potential use for an independent house. The house uses a system comprising photovoltaic panels and solar panels. When there is surplus of electricity supplied from panels, this extra energy is stored in batteries to be used during not producing periods. We also use a solar thermal collector for thermal energy. The energy required for the home is used for household's appliances, for heating and for domestic hot water. Local real weather data are used in the modelling.

Keywords: *Renewable energy, solar thermal collector, photovoltaic panels, solar energy.*

CALIBRATION OF A SONOTRODE FROM A STAND COMPONENT FOR TEST CAVITATION EROSION THROUGH DIRECT METHOD

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ABSTRACT

This paper presents research done for the calibration of a sonotrode, a sonotrode which is used to test the cavitational erosion of specimens by the direct method, detailed in the standard method.

Keywords: *Sonotrode, cavitation erosion, direct method.*

VARIANTS OF SONOTRODE FOR A VIBRATORY APPARATUS FOR TEST CAVITATION EROSION BY THE INDIRECT METHOD

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ABSTRACT

The purpose of this work is to present the research done for the calibration of a sonotrode for the cavitation erosion testing of specimens through the indirect method.

Keywords: *Sonotrode, cavitation erosion, indirect method.*

MONITORING OF THE SUSTAINABILITY FOR 38MOCRAL09 STEEL SUBJECTED TO THE UNCONVENTIONAL TREATMENT

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ABSTRACT

This material was subjected to the plasma nitro-carburation after thermo-magnetic treatments regimes. The structural and diffractometric aspects of the superficial layers of the steel are studied after the wear tests by friction, using an Amsler type machine, taking two sliding degrees at different contact pressures and testing time.. The tests were done to detect the sustainability to the material, the evolution of the superficial layer through different tests and to establish the influence of these thermo-magnetic treatments.

The magnetic field changes the transformation mechanisms and kinetics. In the end, it can be obtained through the change of the mechanical properties and the change of the structure configuration for this material. The magnetic field modifies the grain size in the material structure. The positive influence of the volume thermo-magnetic treatment on the surface layer treated thermo-chemically was represented by a higher hardness and a good resistance at the wear to the superficial layers.

Keywords: *Durability, thermo-magnetic treatments, thermo-chemical treatment, wear process*

STUDY REGARDING MARINE HEAT PUMP

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ABSTRACT

Most of the energy consumption comes from domestic heating residential buildings. A rate close to 86% of energy requirements of private homes are for heating and domestic hot water preparation, the latter being largely covered gas and diesel. Since the availability of energy sources based on fossil fuels is limited in time, we need alternative. An

important role may be played on future energy sources especially by the heat pumps. Especially taking into account, the fact that, due to the geographical situation of our country, offer overlaps the necessary, aspect conditioned of using solar and marine energy. For this reason, this paper is intended to be a presentation on the use of sea water heat, showing the advantages of temperature gradient by using a heat pump water-water type.

Keywords: *renewable energy, sea water, heat pump.*

ZOOPLANKTON STRUCTURE IN THE CERNAVODA DANUBE RIVER AREA

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ABSTRACT

A few key points situated around the Nuclear Power Plant (NPP) Cernavoda were studied between 1999-2010. 14 expeditions have been made in the research area and more than 500 samples with zooplankton were collected. Analysis of the samples revealed the spatial and temporal dynamics of the taxonomic diversity and numerical abundance.

Keywords: *Nuclear Power Plant, Danube River, zooplankton, cooling system.*

AN EXPERIMENTAL STUDY OF SUNFLOWER HUSKS GASIFICATION IN A FLUIDISED BED

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ABSTRACT

An experimental investigation of a fluidised bed gasifier was carried out using sunflower husks as combustible and air and steam as gasifying agents. The influences of excess air ratio and temperature on the composition of syngas produced are presented. In the present work, gasification temperature was varied from 700 to 850°C in 25°C increments, and was obtained an excess air ratio in the range of 0.18 to 0.41. It has been found that in the syngas obtained by fluidised bed gasification process, the molar fractions of N_2 and CO increase with the increase in excess air ratio, while the molar fractions of CO_2 and CH_4 decrease. The content of H_2 in the syngas increases with excess air ratio initially and then decreases with the increase in excess air ratio. The lower heating value of the syngas produced by sunflower husk was calculated from the concentration of the combustible components (CO, CH_4, and H_2). The lower heating value produced decreases initially and then increases with excess air ratio.

Keywords: *fluidized bed gasifier, air, steam, lower heating value, syngas.*

RESEARCHES ON TECHNOLOGICAL WATER HEAT RECOVERY USING HEAT PUMPS

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ABSTRACT

The paper represents a study on the possibility of recovering low thermal potential heat from the cooling technological water of industrial processes. The analyzed solution consists in the use of a heat pump which would send the recovered heat to a hot water flow. We started from a technological water flow which was taken over by a 350 m^3/h cooling tower and we determined the performances of a heat pump when using various refrigeration agents (R134a, R290, R407C) for a range of values of the temperature of hot water and the temperature of the return of technological water which varies according to the season.

Keywords: *heat recovery, technological water, heat pump.*

MATHEMATHICAL MODELING AND EXPERIMENTAL VALIDATION OF THE PROCESSES FOR A COOLING TOWER WITH FORCED DRAFT IN CONTRA-CURRENT

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ABSTRACT

This paper represents a comparative study about the determination of the functional parameters for a cooling tower with forced draft in contra-current. It has been made a mathematical model, based on heat and mass transfer, model that is conceived to determine the water and air parameters, parameters that will be utilized in exergetic analysis, analysis that contains the exergy calculation from aer and water flowing through cooling tower, also the destroyed exergy. In order to validate the mathematic model it has been done an experimentak study in order to determine the functional parameters for a cooling tower with forced draft in contra curent. Based on the results achieved it was showed that the erors of the mathematical model and the experimental ones are under 5%.

Keywords: *Cooling tower, mathematical model*

COMPUTER SIMULATION OF AN EMERGENCY SITUATION

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ABSTRACT

The paper presents a computer simulation, using POTENTIAL INCIDENT SIMULATOR EVALUATION AND CONTROL SYSTEM (Pisces II) software, especially designed for assessing the consequences of oil pollution on sea water.

Keywords: pollution, hydrocarbon, Black Sea

SECTION III - ELECTRONICS, ELECTRONICAL ENGINEERING AND COMPUTER SCIENCE

OPTIMAL SELECTION OF STATOR TURNS NUMBER AT PERMANENT MAGNET SYNCHRONOUS GENERATOR

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ABSTRACT

The optimization of permanent magnet synchronous generator is a current issue. This paper develops an original method of multi-criteria optimization of stator turns number based on Poynting algorithm [14]. Based on the design theme requirements and initial estimation of electromagnetic stress has been deduced an analytical relationship of the total number of stator windings as a linear function geometric factor. The benefits of this approach is related to the possibility of developing of a global optimization criteria, optimizing the total turns number of stator windings in parallel with specific consumption of active materials, or specific economic cost.

Keywords: *stator turns number, permanent magnet synchronous generator, optimization, thermal flow.*

OPTIMAL SELECTION OF RIGHT SLOT AREA AT PERMANENT MAGNET SYNCHRONOUS GENERATOR

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ABSTRACT

A large class of current approaches is dedicated to permanent magnet synchronous generator optimization. In this paper is proposed an alternative method in the order to compute the optimal right slot area at permanent magnet synchronous generators based on the electrical circuit equivalent scheme method. For this purpose, the optimal area of right slots has been expressed as a function of thermal flows from active and frontal part of stator winding. This approach takes into account both criteria as thermal and economical one, based on the Poynting vector algorithm [14]. This proposed solution is an important one due to the multiple aspects involved in the order to find the desired optimal solution.

Keywords: *right slot area, permanent magnet synchronous generator, optimization, thermal flow.*

DISTRIBUTED COMMUNICATION SYSTEMS MONITORING AND PROACTIVE SECURITY

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ABSTRACT

As more and more services are moving into the cloud, the complex infrastructures that administrators have to handle each day go far beyond the number of physical servers that are used. This large scale architecture has the same security issues as traditional clusters, but risks reach for a whole new level when remote deployment and live migration come into place. This paper investigates the automated solutions that can help maintain a high level of security and quickly respond to service issues in order to minimize downtimes.

Keywords: *monitoring, complex networks, distributed services, security scanning, vulnerability assessment, intrusion detection and prevention, cloud solutions*

APPLICATION OF BAYESIAN ALGORITHMS IN LOCALIZATION AND TRACKING OF MOVING DEVICES IN WSNs

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ABSTRACT

Localization of moving devices (MD) plays an essential role in wireless sensor networks (WSN). Most of WSN applications need the knowledge of the node's location. Localization algorithms with high accuracy and low complexity are very important for WSN. This paper focuses on mobile wireless sensor networks localization techniques based on Bayesian method and target tracking based on Extended Kalman filter and particle filter algorithm (PF). The properties of Extended Kalman Filter (EKF) and particle filter (PF) are described, simulated on MATLAB and analyzed. Then their performance are compared from the aspects of localization accuracy and sample number.

Keywords: *Mobile Wireless Sensor Networks, localization, Extended Kalman Filter, particle filter, tracking*

SECTION IV - MATHEMATICAL SCIENCES AND PHYSICS

STRUCTURAL ANALYSES OF SUPERFICIAL LAYERS OBTAINED BY ELECTRICAL DISCHARGE IMPULSES

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ABSTRACT

The superficial layers obtained using electrical discharge technology in impulses is part of surfaces engineering domain.

In this paper we analyze phase quality using X-ray diffraction on superficial layers after the sparkling process with wolfram, titanium, and aluminum and graphite electrode.

The phase quality analyses through X – ray diffraction for deposition layers with electrical discharge method using wolfram, titanium, aluminum and graphite electrodes on no alloy steel proofs, suppose the obtain and interpretation of diffractions X-ray pattern.

Diffraction analysis was shown the phases, which is part from the proofs structure and a superficial layers obtain through these experiment on no alloy steel proofs.

Keywords: *superficial layers, electrical discharge technology in impulses, X-ray diffraction, analysis of phases*

DETECTING ORDER AND CHAOS IN SOME DYNAMICAL SYSTEMS BY THE 0-1 TEST

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ABSTRACT

The purpose of the paper it was to apply the 0-1 test for distinguishing between regular and chaotic motion in the case of some time series associated with deterministic dynamical systems. To achieve this, we investigated the Tinker bell map and the double pendulum system, two dynamical systems studied by the author in other papers. We founded that the test succeeds in every case to give the correct answer whether the dynamical system is chaotic or non-chaotic.

Keywords: *Deterministic dynamical system, time series, chaos indicator.*

DISTRIBUTION RULES IN SEAPORT ACTIVITIES MODELING

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ABSTRACT

In this paper we demonstrate how to monitor operations with the aid of the queueing theory and how to determine the optimal berth numbers in a port container terminal.

Keywords: *Poisson distribution, optimal berth numbers*

CONVERGENCE RITZ GALERKIN METHOD DISTURBED

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ABSTRACT

Ritz approximated $\{\hat{x}_n\}$ are projections of the element $\hat{x}$ corresponding subspaces $\{H_n\}$ but reported a variable scalar product $[x, y]_{\theta_n}$.

Keywords: *F.E. Browder's projection methods and W.V. Petryshy*

SECTION V - ENGLISH FOR SPECIFIC PURPOSES

EVELOPING A GRAMMAR BOOK FOR SEAFARERS

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ABSTRACT

The problem of developing a grammar book for seafarers arises in connection with preparing teaching/learning materials for Maritime English learners at each and every stage of their training. Should Maritime English teachers leave grammar to general English teachers? What could be the contents of a specialized grammar book? How could we arrange the materials in it? How should it correspond to the general English grammar syllabus? All these questions must be solved in order to avoid mismatches or simplifications in the process of ME training. For ESP teachers the GE grammar topics are obviously the basis in producing a purely ESP grammar material aiming to meet the students' needs. This work presumes a substantial linguistic research in ME texts involving the study in theory and practice of ESP. The paper presents the primary notions on the problem and suggests a sample of the grammar topic "Passive Voice" developed for the students of Maritime English at ESP Department of Kyiv State Maritime Academy.

Keywords: *EGP, ESP, A Grammar Book for Seafarers*

PARTICULARITIES CONCERNING THE STUDY OF MARITIME ENGLISH AS A NECESSITY FOR NOWADAYS APPRENTICES

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ABSTRACT

Maritime English proved to be a very important part of a future navigating officer's training and it will still gain in importance as long as the shipping industry is in progress. It's only up to young seafarers to get acquainted with Maritime English as their lives, other crew members' lives and the ship's integrity might depend on this particular aspect. When students that are not native English go on board merchant vessels for the first time to be Apprentice Deck Officers they find it hard to learn anything from experienced Officers who are speaking to them in English and also these Officers are not always speaking the most correct English. As it is well known, most of maritime accidents happen due to human errors and these occur especially because of bad communication. This is a result of not using standard Maritime English that should be well known by all crew members of a ship, with a special attention drawn towards young Apprentices. Because the concept of a single nationality crew is no longer met in the world shipping industry, proper communication can be achieved only by using Maritime English focusing especially on young Apprentices as they are the mistakes sensitive ones.

Keywords: *maritime English, apprentice, ship, maritime university, communication.*

GENERAL ISSUES IN TEACHING ENGLISH FOR SPECIFIC PURPOSES

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ABSTRACT

The process of teaching/learning English for Specific Purposes depends both on the teacher and on the students. The teacher has to know that his/her role is not just of teaching language, but also of teaching different skills, being also responsible for selecting the materials for the class. However, the students are the partners of the teachers in the process, being also responsible for the learning outcomes.

Keywords: *English for Specific Purposes, learners' needs, assessment, skills.*

"THE STUDENT'S DICTIONARY OF MARITIME TERMS"- RICHER VOCABULARY, SAFER SAILING

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ABSTRACT

The purpose of this paper is to bring forward the idea of creating an online bilingual dictionary of maritime terms and expressions to be used by Romanian nautical students as a means of enriching their mental lexicon and solving their vocabulary problems. The dictionary comprises standardized terms and expressions about navigation, engineering, safety, communication, chartering, etc which are all used in the seafaring world. We consider that this dictionary is an outstanding tool that will enhance the quality of communication and safety in the maritime sector.

Keywords: *maritime software, maritime vocabulary, maritime communication*

METHODS FOR IMPROVING MARITIME ENGLISH TEACHING AND LEARNING: AN EXPERIMENTAL CASE STUDY

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ABSTRACT

English as the official language used in communication at sea is a pre-requisite for quality learning in maritime higher education. The organization of such courses must have in view general English knowledge, specialized structures and the vocabulary necessary to the future officers specialized in navigation, engineering and radio-telegraphy, on military and civilian vessels. Maritime studies in English have the purpose of forming reading, writing, communication, listening and taking notes skills, reinforcing the technical and navigation vocabulary, broadening the students' general ship knowledge. Our experimental data have revealed that, in terms of the approached psycholinguistic methods (contrastive, communicational and in contextual conditions similar to the working conditions of future naval officers), the teaching/learning process of the maritime code in English can be improved.

Keywords: *ESP, skills, mistakes, psycholinguistic, contrastive, communicational, contextual conditions*

A PSYCHOLINGUISTIC APPROACH TO MARITIME VERBAL COMMUNICATION AND MARITIME VOCABULARY

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ABSTRACT

The study of oral maritime communication, especially through the English language, has become a very interesting and useful field of research. The use of correct and effective verbal components of communication by seafarers may be, in many cases, a vital question. A psycholinguistic approach, through its specificity and complexity, can highlight the features of oral communication in this specific activity- seamanship, the factors which can influence it and the ways of improving communication at sea. Communication in the Navy and the Merchant Marine has certain particulars as a result of the complex situations which may arise in military and civilian seamen's activities, both on land and at sea. Day-to-day activities at sea require the compliance with well established rules, and standard orders. The message formulation and transmission through words, signs and signals are under linguistic and psycholinguistic scrutiny.

Keywords: *verbal communication, maritime communication, message, communication components, VHF communication*

THE STCW MANILA AMENDMENTS AND THEIR IMPACT ON MARITIME ENGLISH

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ABSTRACT

The review of the IMO International Convention on Standards of Training, Certification and Watchkeeping (STCW) as amended in 1995/97 reached its climax at the International Diplomatic Conference held in Manila in late June, 2010 when the amendments were adopted. The result of that process, which had been on-going since 2006, will have a significant impact on Maritime Education and Training in general, and explicitly in the context of English for Specific Purposes, as the "new" convention entered into force already at the start of 2012. Although the fundamental principles of the 1995 edition were retained, many regulations have been tightened and new areas included; with the outcome that the new edition reflects the higher standards to be met in the field of Maritime Education and Training (MET) in general, and in Maritime English communication competency, and thus on Maritime English instruction and research, in particular. With regard to Maritime English this paper observes IMO's decision-making process, identifies and comments on the new provisions in the Convention and the existing provisions that have been invested with a stricter and higher degree of commitment, and gives selected examples demonstrating the impact of the revised STCW Convention upon Maritime English course design, material development and instruction.

Key words: *Communication, Maritime English, Competence, revised STCW Convention.*

SECTION VI - TRANSPORT ECONOMICS

THE EVOLUTION OF THE ECONOMICAL FLOWS OF THE TRANSPORT ACTIVITIES IN THE GLOBALIZATION CONTEXT

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ABSTRACT

The transport activity and the commerce activity evolve in tandem. The commercial economic flows determine the flows of the transport activity and backwards. This study presents in a concise manner the evolution stages of these flows.

Keywords: *economic flow, transport activity, evolution.*

THE ROLE OF GLOBAL ECONOMICAL AND REGIONAL POLITICS IN THE TRANS-GLOBALIZATION OF THE TRANSPORT ACTIVITY

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ABSTRACT

Politics has always played an important role in the development of the economy. The development of the transport infrastructure is determined directly by the economical politics of the states and of the great customs alliances.

Keywords: *global transports, regional transports, trans-globalisation*

COMPETIVITY ASPECTS ON ROMANIAN MARITIME TRANSPORTS

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ABSTRACT

In general, the shipping industry, complies mostly to competition rules. The only exceptions are the technical cooperation agreements between line shipping companies that are grouped in consortiums or alliances. Although the maritime industry is perceived, overall, as a competitive market, some components of the industry have a doubtful reputation in respecting the antitrust rules. Anticompetitive agreements were sanctioned by the European commission and competition authorities, especially the pool type arrangements that are so common in irregular maritime transport market. When it comes to Romania, the international orientation of maritime industry in our country necessitates the adaptation to the market economy imposed requirements. Considering the integration in the European Union, Romanian naval industry has to increase "the capacity to resist to the competition pressure and to the market forces which comes from the inside of the European Union" - as it is stipulated in-Accession Partnership with Romania - (2002/92 EC). In order to realize this, Romanian naval construction has to obtain a powerful investment support consisting in technology and equipments in order to increase its efficiency as closer as possible to the naval industry of the countries which are part of the European Union.

Keywords: *Romania, economy, maritime transport*

DEVELOPMENTS OF MARITIME TRANSPORT ECONOMY IN EUROPE

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ABSTRACT

The Maritime transport is the shipment of goods (cargo) and people by sea and other waterways. Port operations are a necessary tool to enable maritime trade between trading partners. To ensure smooth port operations and to avoid congestion in the harbor it is inevitable to permanently upgrade the port's physical infrastructure, invest in human capital, fostering connectivity of the port and upgrade the port operations to prevailing standards. Hence, port operations can be defined as all policies, reforms and regulations that influence the infrastructure and operations of port facilities including shipping services.

Keywords: *Maritime transport, economy*

PRODUCTIVITY AND DURABILITY OF QUAY CRANES CABLES. NEXANS CASE STUDY

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ABSTRACT

Quay cranes are handling equipments used in ports with an important economic role in maritime transport. This paper presents theoretical elements of quay crane productivity and cable calculation along with a case study of improvements in the domain of quay crane cables durability.

Keywords: *quay cranes, productivity, durability, improvements*

INTERNATIONALIZATION IN TECHNOLOGIES AND INNOVATION SECTORS

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ABSTRACT

The level of R&D internationalization and innovation has been increasing in Europe since 1990. Growth in both external and internal activities indicate that the two of them complete each other and satisfy different needs, more than reciprocal substitution. The initiative of Innovation Union recently approached by the Commission, part of the

European Strategy 2020 has consequently as a purpose increasing the attraction in the EU as an R&D location of the innovation investments and it has also as a purpose the promotion of international cooperation for research and innovation. On the EU level, there may be programmes relating partners in the EU with non-EU industrial partners in common R&D innovation projects. These would indirectly stimulate both the internal R&D investment of non-EU companies and the R&D internationalization of the EU companies.

Keywords: *internationalization technologies, innovation sectors, R&D*

NAVAL OPERATIONS, IMPORTANT FACTOR OF THE CHANGES IN EFFICIENCY MANAGEMENT IN SHIPPING

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ABSTRACT

Currently the shipping companies have expanded managerial processes, and they began to be organized departments of logistics, marketing and information. They are based on management principles specific to their organization, but new concepts have emerged about time management and even that of chartering. But in terms of management most problems are with naval operations and crews. In this paper is an analysis of these naval operations. The question arises about what they are, how they influence the costs and efficiency of maritime management company. This information can be used by managers of shipping companies, ship-owners and masters of commercial vessels.

Keywords: *company, ship operation, management, efficiency.*

THE INFLUENCES OF MARKETING PARTICULARITIES IN SHIPPING

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ABSTRACT

Among the most important aspects of the maritime company marketing is the life cycle of a ship. Managers should be aware of aspects of the operational period until the moment of the current and capital repairs, the degree of use of the ship and separately for each installation. These aspects are not easy to be calculate because there appear a series of aspects connected to the shipping zone, the type of the transported goods, the way of exploitation and maintenance performed by the crews, the number of the exploitation days and many more others. The life cycle of the service performed by the ship, in fact the type of the transported goods is very important taking into account the changes on the maritime market, the competition between shipping companies, the development of the international economy and the requests of the customers of the shipping companies. In this paper, there are analysed the two aspects which a ship represents, as ”product” and as a performed ”service” and it is presented a type of analyze for a maritime ship.

Keywords: *maritime, marketing, service, life cycle, ship.*

IMPLEMENTING A SEA POLLUTION PREVENTION AND SAFETY MANAGEMENT SYSTEM IN THE NAVIGATION COMPANIES COMPETITIVNESS FACTORS

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ABSTRACT

The paper presents the main causes of the sea accidents and disasters, which call for the implementation of a sea pollution and safety management system (SMS) in the navigation companies, for certification purposes, in compliance with the International Management Code for the safe vessel operation and pollution prevention (ISM). For this purpose the objectives of the ISM codes are presented and which are to be found in the implemented Management System.

From the main causes of the safety deficiencies in vessel operation, by applying the cause-effect method, it was found necessary to implement a sea pollution and safety management system in the navigation companies able to provide more safety in ship operation, an implementation in the absence of which the international traffic would no longer be possible.

Thus the basic SMS implementation stages have been established taking into account the related international legislation.

Keywords: *sea pollution prevention, ISM code, sea pollution and safety prevention, SMS implementation*

COMPETITIVENESS FACTORS

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ABSTRACT

Porter's theory supports the idea that, despite the globalization of production and trade, the competitive advantage is created in a national framework, nations, through their institutional, natural, cultural, economic characteristics ultimately determining the development of certain economic activities. The factors considered by Porter as determinants for the competitive advantage are grouped in four categories, the linkages between them being important as well.

Keywords: *Competitiveness, microeconomic, macroeconomic*.

BUSINESS CYCLES AND ECONOMIC DISTORTIONS

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ABSTRACT

Business cycles are – as in definition of Burns and Mitchell -a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle; in duration, business cycles vary from more than one year to ten or twelve years; they are not divisible into shorter cycles of similar characteristics with amplitudes approximating their own. On the other hand, Julius Shiskin suggested several rules of thumb to identify a recession, which included two successive quarterly declines in gross domestic product (GDP), a measure of the nation's output. What about the present situation - a real, major and global recession or a different kind of business cycle particularity?

Keywords: *Business cycles, GDP, global crisis, Keynesian economy, global market, Eurozone, mortgage, recession*

CONSUMERS' IDENTITY- THE ROLE OF THE 'SELF' CONCEPT IN THE CONSUMER BEHAVIOR

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ABSTRACT

As Kotler (2008) suggested, the marketplace is the location where goods and services are exchanged, so traders set up the product and buyers browse the merchandise. Consumer attitudes can be influenced by many factors outside the product attributes. Social and cultural environment as well as demographic, psychographic, and geographic conditions can sometimes shape consumer behavior. Consumer attitude, if positive, is an advantage to a marketer. The reaction of buying or refusing a certain product might be influenced by various factors, but marketers have acknowledged the role of personality and how this might influence consumers' behaviors toward a product.

Keywords: *Marketplace, Consumer Behavior, Consumers' Identity*

LEADERSHIP AND CRISIS MANAGEMENT DURING CRISIS SITUATIONS

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ABSTRACT

The business environment is regarded as a dynamic system that is in a continuous change. As a result, there is an imperative need within organizations to have trained people managing the various situations that might occur. Years before this approach was acknowledged, it stated that one effective solution in order to overcome problems is by identifying the

real cause, recognizing which leadership is appropriate and 'encouraging' employees to examine critically the leadership method in concrete situations, in this manner to better fit their 'style' to the situational demands. Nowadays, the research shows that leadership is still recognized as the way of focusing and motivating a group to enable them to achieve their aims.

Keywords: *Crisis, Leadership, Management*

TRANSFORMATIONAL LEADERSHIP AND THE ECONOMIC COMPETITIVENESS IN SHIPPING INDUSTRY TODAY

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ABSTRACT

An important analysis of the parameters of global competitiveness, in shipping industry, shows that there is a series of issues that can be reviewed and interpreted on the basis of new models. One of the models based on which we could analyze economic competitiveness is the transformational leadership in this industry. Attributes of a competitive economy can be found in the selection of methods which determines the performance in a company and in a nation, as in training employers in a framework of cooperation. Through this study we intend to analyze the manner in which the global economic competitiveness in shipping industry is influenced by transformational leadership in this industry. We will try to make a comparison between different ways of analyzing economic competitiveness to what extent the transformational leadership is involved here.

Keywords: *shipping industry, competitiveness, leadership, transformational, training employers.*