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ABSTRACT

NAVAL AND MANAGEMENT SCIENCE

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EXTRACTION AND CHARACTERIZATION OF CHITOSAN FROM LOCAL MARINE RESOURCES

Abstract*: This paper presents the chemical extraction of two marine polysaccharides (chitin and chitosan) from one of the crustacean species of Romanian Black Sea waters. The characterization of these polysaccharides were studied through optical microscopy and FT-IR/ATR spectroscopy. The spectra samples were compared with those of chitin and chitosan standards and results showed the presence of chitin and chitosan in the studied samples.*
Keywords*: chitin, chitosan, crustacean species, chemical extraction, FT-IR/ATR*

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COMMUNICATION PROBLEMS IN A MIXED CREW ENVIRONMENT

Abstract: *Shipping has become a highly international and multicultural industry due to a globalised labour market of seafarers. About two thirds of the world`s merchant fleets, are manned by a mixed crew, which may include two to three different nationalities. The common language used on board ship is English. So the crewmembers must have a good command of this language. 80% of all maritime accidents are, according to incident reports, caused by human error i.e. negligence, fatigue, incompetence or communication breakdown. Another factor that may affect the safety of crew and cargo is the cultural differences within the mixed nationality crews which, if not appeased in time, may lead to very serious conflicts. This paper proposes to analyse some characteristics of the Asian culture and traditions and suggest some ways of improving the professional relationship among multinational crew members by making them aware of their shipmates identities. A questionnaire, which we intend to use as a research tool, will be provided and explained.*
Keywords*: mixed nationality crews cultural differences human element communication*

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MODELLING OF HYDRO-METEOROLOGICAL PARAMETERS USING SPOS SOFTWARE IN ORDER TO OPTIMIZE NAVIGATIONAL ROUTES

Abstract: *The purpose of this paper is to analyze the advantages of adjusting the navigational routes not only based on geographical hazards but also according to hydro-meteorological parameters with the purpose of creating a route with maximum efficiency. The Ship Performance Optimization System (SPOS) used by vessels is one of the best onboard weather routing systems. In a competitive market such as the one today, it is essential to use such software so that the ship's route can be optimized, taking into account sea conditions such as waves, current and swell, wind and other weather elements. Other benefits include a decreased risk of environmental pollution caused by ships unprepared for certain adverse weather conditions.*
Keywords: *Hydro-meteorological parameters, SPOS, Ship Performance, meteorology, route optimization, meteorological software*

ANDREI BAUTU, ELENA BAUTU
Mircea cel Batran" Naval Academy, Romania // "Ovidius" University, Romania

QUALITY CONTROL IN LOGISTICS ACTIVITIES THROUGH INTERNET OF THINGS TECHNOLOGY

Abstract: *Modern companies depend on their logistics in order to maintain their purchases-inventory-sales chain to the desired level of performance (i.e. profitability). Many past situations demonstrate that errors, inefficiencies and disruptions in this chain can cause companies to miss opportunities, loose profitability, and even go bankrupt. An important factor to high quality logistics is the quality and availability of information about key processes. Internet of Things (IoT) technology allows companies to gather real-time information on processes, people and equipment, and to integrate it in their own informational systems. This paper*

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discusses the use of IoT technology to monitor logistics activities in order to provide support data for performance assessments.
Keywords: *Internet of Things, Logistics, Performance*

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PRACTICAL ASPECTS ON AUTOMATIC GENERATION OF UNIVERSITY TIMETABLES – A CASE STUDY
Abstract: *The problem of automatic generation of university timetables have been widely discussed in the literature, with many proposed general solutions, from simple heuristics to advanced hybrid algorithms. These algorithms perform well on various test cases, but when they are applied to an instance of the problem specific to an organization, one has to define or adapt the constraints to the particularities of that organization. This adaptation is required for various reasons like algorithm runtime or timetable acceptance from the university staff. In this paper, we present a case study on generating the timetable of the "Mircea cel Bătrân" Naval Academy.*
Keywords: *timetable, genetic algorithm, constraints satisfaction problem*

NELU CÎRNEANU
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SOME FEATURES REGARDING THE DESIGN OF THE TRAINING PROGRAMS OF MILITARY TEACHING STAFF
Abstract: *The adjustment of military education and continuous training system to the real needs of the Romanian Armed Forces by providing quality vocational training programs recognized at national level or at the level of the Ministry of National Defense, requires creating a proficiency and motivated teaching staff for professional development in the domain of military education, by integrating it into a coherent system of continuously training psycho-pedagogy and methodical.*
The writing presents the aims and objectives of the three training programs (Trainer, Master trainer and Evaluator of professional competences) which can be set up into the Romanian Armed Forces education and training system.
Keywords: *education and training, evaluator of professional competences, trainer, military training system, master instructor, occupational standards.*

GONÇALO CASTANHEIRA ROSA, MARIO MONTEIRO MARQUES, VICTOR LOBO
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UNMANNED AERIAL VEHICLES IN THE NAVY: ITS BENEFITS
Abstract*: Military investment in UAV research, systems, and applied technologies is increasing, and potential uses for UAVs in civil and military operations are in development. These developments, along with growing scientific interest in UAVs, are fueling commercial interest in the unmanned market. The growing enthusiasm for UAVs is not unfounded. The vehicles offer a unique range of features, most notably ultra-long endurance and high-risk mission acceptance, which cannot be reasonably performed by manned aircraft. Coupled with advances in automation and sensor technologies, and the potential for costs savings, it is understandable that interest in and demand for UAVs is on the rise.*
Organizations like the Navy have all the benefits to accompany the technological evolution that every day surprises and surpasses us. An introduction or technological evolution that this kind of organizations has already begun to implement is the autonomous vehicles as a mean to an end.
This paper describes and lists the advantages of the introduction of Unmanned Aerial Vehicles in an organization like the navy and also the missions that such robots can perform and optimize.
Keywords: *UAV, Navy, missions, benefits.*

GHEORGHE ICHIMOAEI, OCTAVIAN TĂRĂBUŢĂ, CĂTĂLIN-PAUL CLINCI, AUREL GHERGHINA
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THE INTERACTION BETWEEN EXPLOSIVE DETONATION, MARINE MINE WALL AND WATER
Abstract: *In this paper we made a theoretical study on the transfer of the shock wave generated by the detonation of an explosive charge in to the water and we established a procedure which in necessary in order to evaluate the effects produced on underwater objects and ships hulls.*
Keywords: *detonation, marine mine, shock wave, detonation products.*

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MARITIME SPATIAL PLANNING IN THE INTEREST OF PROTECTION

Abstract: *The providing of activities in the sea areas is associated with ensuring security environment and safety. Much of the safety activities are serving security purposes. The vice versa is also possible and the activities could be complementary. Therefore, this requires examining the system of safety as composed of two complementary components.*

Keywords*: maritime spatial planning, maritime security and safety, environmental protection*

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AN APPROACH TO WAVE ENERGY CONVERTER APPLICATIONS ON TURKEY AND THEIR ELECTRICITY GENERATION CAPACITY

Abstract: *Increasing the amount of research on renewable wave energy in Turkey has been getting crucial recently to reduce its energy dependence on exhaustible natural energy resources. The purpose of this study is to determine the electrical energy potential obtainable from the wave energy converters in Turkey. Firstly, different type of wave energy conversion systems have been investigated and as a result of the review, the Oscillating Water Column (OWC) is considered to be most effective energy converter due to a suitable power generation system. The scope of the study is to evaluate and compare the wave energy potential between different regions of Turkey by using available wind and wave data. Five different coastal regions selected along the coastline of Black and Mediterranean Sea and Iğneada is considered to be most effective region because of their highest wavelength. In addition, OWC is modeled as a system using the pressed air in a column and it is mathematically described as a difference in pressure and expressed by the Bernoulli equation. General equations of motion of a system subject to forced oscillation are derived, and then, the components of the damping coefficient are investigated by using the optimization theory. After that, the theory developed in the previous part has been applied to Iğneada Region in Black Sea. It is finally shown that how much electricity needs to be met by using OWC system.*

Keywords: *Wave energy; Renewable energy; Wave energy converters; Turkey; Black Sea; Iğneada; Analysis of energy generation*

SERGIU LUPU, ANDREI POCORA, ROMEO BOȘNEAGU, COSMIN KATONA
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MARITIME TRAFFIC IN THE ROMANIAN HARBOURS

Abstract*: This paper aims to address the issues of shipping in Constanta port in the light of new economic developments and its active role in achieving world trade. The paper is an analysis of the traffic of ships that entered/left/moved in recent years in Constanta. While ships, river vessels and companies are developing very quickly thanks to modern technology, administration and port services are marked by the inertia in terms of technological and organizational updating. Indeed, the creation and development of port facilities should take into account the transported cargo but, in order to have a beneficial success, a strategy to maintain a balance in the commercial market must be developed. Due to the free zone status, international trade has grown rapidly at the intersection of intermodal transport, the statistics showing that the volume of goods transported by sea increased almost 5 times in the last 40 years and for the next 20 years it requires a doubling.*

Keywords*: maritime transport, ship traffic, cargo,*

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THE HUMAN FACTOR INFLUENCE ON THE RELATIONSHIP RISK – SAFETY IN THE MARITIME INDUSTRY

Abstract: *It is a fact that organizations learn from the failures than successes. Maritime accident investigation reports reveal some information and lessons useful for practice. They may be required to substantiate the source of a set of measures useful for successfully managing and developing a safety management on a realistic basis. In present paper the authors reveal that the accident risk analysis by reliability theory. From this perspective, the authors propose a research and accident investigation methodology which establishes the genesis and the mechanism that caused the accident and the seriousness of the consequences.*

Key words*: human factor, maritime casualties, risk, safety.*

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THE TIME FACTOR IN MARITIME TRANSPORT AND PORT LOGISTICS ACTIVITIES

Abstract: *Execution of the carriage contract requires compliance to all the conditions in it, by all those involved in the transport. Main obligations incumbent upon the vessel, and obviously, to other transporters, who must provide transportation according to deadlines and safety. Contract compliance is certifying transport participants about their seriousness and an appropriate market quotation. Therefore, present work pragmatically sets schematics reference time associated to implementation of the carriage contract. Also, are demonstrated relationships established between maritime transport "players" and sequence of activities related to the operation of the vessel in port. The authors propose a set of concepts and terms whose utility is established to solve practical problems in this area of activity.*
Key words*: maritime transport, contract of carriage, reference time.*

FILIP NISTOR, CATALIN POPA, IMRE RECZEY
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INDICATORS APPLIED TO HIGHLIGHT THE VALORIZATION OF HUMAN CAPITAL IN SHIPPING

Abstract: *In recent years, the shipping companies reconsidered their position regarding the importance of human capital because of the new trend in shipbuilding in conjunction with the enforcement of tighter regulations in shipping. Increasing profit of shipping companies was the result of valorization of human capital on board ships through acquirement of new skills and knowledge in accordance with technologies implemented on the new ships by training and development. Thus, identification of indicators that can be used to highlight the valorization of human capital in shipping is helpful. Measurement of indicators presented in this article can assist decision makers in identifying the best courses of action to improve human capital in shipping.*
Keywords: *human resources, indicators, valorization, shipping, human capital*

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SIMULATION BASED EMERGENCY RESPONSE TRAINING

Abstract: *Advanced simulators are rapidly becoming educational and research necessities at maritime school, a tool that has come to replace time onboard ship, bring stakeholders together on research projects, and evaluating emergency situations. This particular paper suggests some possibilities simulation offers when maritime accidents and/or incidents have already occurred. Although proper simulation training provides an accessible introduction to background theories through the realistic operations of the simulator, at the same time it can provide a means of introducing students to applications regarding current crises. This paper will demonstrate how simulators (ship handling, communication, cargo handling, terminal, vessel traffic service and engine room) can, together with the Potential Incident Simulation Control and Evaluation System (PISCES II), form valuable tools for education, training and real situation response when major pollution at sea is a threat or already exists. In this particular case the very realistic scenario of an oil spill is created.*
Keywords: *Marine Simulators, accidents, operational pollution, cargo handling, integration, backtracking*

CATALIN POPA, FILIP NISTOR, IMRE RECZEY, DAVID QUANSAH
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THE SEAFARERS' HUMAN CAPITAL VARIABLES AND THE CREW PROFILE DYNAMIC ADJUSTMENT

Abstract: *The human capital is one of the most relevant functional dimensions of the maritime transportation business, considering the seaborne particularities in the crossing countries, cultures and heterogeneous environment as onboard the maritime vessels. The nowadays great competitiveness in this area of transportation services has encouraged many companies to pursue new ways to maintain a competitive advantage, valuing its human capital. Thus, in spite of the propensity for standardisation in field of human resources profile, the seafaring crews' management is still facing lots of issues in operational tasks' fulfilment onboard to maritime ships, due to individual misalignment within the collective framework of the on-board teams. As is presented in the article, the individual profile of a seafarer has to be precisely defined to be efficiently integrated in the crew, but not only in professional matters, but also into a comprehensive manner, in order to support a proper adjustment of the individual seafarer behaviour to the group profile requirement, onboard to maritime vessels. STCW provisions are very welcomed in establishing common standards for professional variable of the seafarers' individual profile, but is still missing to approach the organizational*

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dimensions, apart to the leadership skills or risk behaviour. As shown in the article below, for a recruitment agent and further, for the ship Master is important to find the suitable employee, not only in terms of professional knowledge, skills and abilities, but also in cultural or psycho-sociological individual dimensions, as to adjust the individual to the group profile, accordingly and effectively.
***Keywords**: Maritime transport, shipping, crew management, maritime human resources, HR profile*

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SEAKEEPING ANALYSIS OF SEMISUBMERSIBLES IN IRREGULAR WAVES

***Abstract:** Advancement in computer simulated fluid flow and development of hardware resources lead to better simulation in seakeeping analysis. Based on response in regular waves defined by RAO values presented for a three column semisubmersible, the present work will define seakeeping parameters for semisubmersible with two degrees of freedom: heave and pitch. All work will present actual response for different irregular waves.The presented work is valuable for emerging offshore energy converters and oil and gas energy systems and is based on ANSYS CFX simulations for wave response.*
***Key words**: Semisubmersible; wave response; irregular waves, Ansys CFX.*

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COMPARISON BETWEEN FORMULAS OF MAXIMUM SHIP SQUAT

***Abstract:** Ship squat is a combined effect of ship's draft and trim increase due to ship motion in limited navigation conditions. Over time, researchers conducted tests on models and ships to find a mathematical formula that can define squat. Various forms of calculating squat can be found in the literature. Among those most commonly used are of Barrass, Millward, Eryuzlu or ICORELS. This paper presents a comparison between the squat formulas to see the differences between them and which one provides the most satisfactory results. In this respect a cargo ship at different speeds was considered as a model for maximum squat calculations in canal navigation conditions.*
***Keywords:** ship squat, formula, channel configuration, cargo ship.*

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THE SPECIFICITY OF COURT JUDGMENTS IN CASES APPEALED TO THE HCCJ WITH MILITARY FROM THE NAVY

***Abstract**: This study focuses on a brief analysis on those court cases in the jurisdictional phase, dealt with by the administrative court, within the High Court of Cassation and Justice of Romania (HCCJ). Obviously, as already made evident by the topic of our paper, we have dealt with those cases involving military personnel – petty officers, warrant officers, officers of various ranks and positions – from the Romanian Navy. In the few pages at our disposal, we focused on the reasons for the actions in the respective courts, on the procedural framework, on the arguments used in appeals, on the motivation for maintaining a court decision, on the modification or cancellation of the judicial decisions appealed to the HCCJ.*
***Keywords**: restructuring units/ military positions, military discharge, put at disposal, attributing costs/ damages.*

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DETERMINATION OF RELEVANT FEATURES OF A SCALE MODEL FOR A 55 000 DWT BULK CARRIER NECESSARY TO STUDY THE SHIP MANEUVERABILITY

***Abstract**: The study method of a ship behavior based on practical tests on scale models is widely used both leading scientists and engineers, architects and researchers in the naval field. In this paper we propose to determine the parameters of a ship handling characteristics relevant to study the 55,000 dwt bulk carrier using a scale model. Scientific background for practical experimentation of this techniques necessary to built a scale model ship consists in applying the principles of similarity or "similitude". The scale model achieved by applying the laws of similarity must allow, through approximations available in certain circumstances, finding relevant parameters needed to simplify and solve the Navier-Stokes equations. These parameters are necessary for modeling the interaction between hull of the real ship and the fluid motion.*
***Keywords: s**hip**,** similarity, similitude, modeling, manoeuvri*

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