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SECȚIUNEA I

NAVIGAȚIE ŞI TRANSPORT MARITIM

HARMONIZED PROCEDURES REGARDING THE WATERSIDE EQUIPMENTS, THE TAKING-OVER OF THE WASTAGE GENERATED BY SHIPS AND OF THE CARGO RESIDUES

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The Maritime University in Constanta

Abstract:

Through the enactment of the Order no.322 of 3 March 2006, Romania proposes itself to obtain the reduction of the unloading of the wastage generated by ships and of the cargo residues in the national navigable waters, especially the illegal unloading from the ships which use the Romanian harbours, through the improvement of the availability and use of the waterside equipments for the taking-over of the wastage generated by ships and of the cargo residues, in order to improve the protection of the maritime environment.This normative act, although a true transposition of the Council Directive 2000/59/EC of 27 November 2000, allows anyway to the national authorities to adopt in the future proper adequate measures to become viable.

Keywords: *waterside equipments, wastage generated by ships, cargo residues.*

LEGAL PROVISIONS REGARDING THE MINIMUM LEVEL OF TRAINING AND EDUCATION OF ROMANIAN SEAFARERS

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Abstract:

The main provisions regarding the level of training and education of Romanian seafarers are provided by the STCW Convention which Romania became a party of by Law no.107/1992 and the STCW Code which Romania adopted by Government Edict no.122/2000. The implementation of these international bills within the Romanian legislation was performed by Order no.1127/2004 currently terminated by Order no.1627/2006. The latter is in its turn an implementation procedure of the Directive 2001/25/EC of the European Parliament and of the Council of 4 April 2001 regarding the level of training and education of Romanian seafarers as amended.

Keywords: *certificate of competence, seafarers, training and education*

THE LEGAL FRAMEWORK REGARDING TRAINING STANDARDS, COMPETENCE, CONFIRMATION AND ISSUE OF ENDORSEMENT DOCUMENTS OF SEAFARERS ON BOARD SHIPS SAILING UNDER THE ROMANIAN FLAG ON INLAND WATERWAYS

Univ. Assistant Ph.D. candidate Oana Adascalitei

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Abstract:

The legal framework regarding training standards, competence confirmation and issue of endorsement documents of seafarers on board ships sailing under the Romanian flag on inland waterways is currently set by Order 318/2006. An implementation of the community legislation is achieved by means of this new regulation.On the one hand, training standards, competence confirmation and issue of endorsement documents of seafarers on board ships sailing under the Romanian flag on inland waterways are at the same time set; on the other hand, endorsement documents for seafarer sailing on inland waterways are set alongside the proper procedures to obtain those, seniority conditions and possibility to get an equivalent for them.

Keywords: navigation, inland waterways, endorsement documents

GEOPOLITICS OF THE BLACK SEA - A SECURE PLACE

Constantin Anechitoaie, Ph. D

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ABSTRACT:

The work is meant to analyse and define the concept of Geopolitics and briefly present the main contributions of Romanian geopolitics. These bring into sight the importance of Romanian space where two legacies from different directions meet, i.e. that of Peter the Great who said that „ I am not looking for land, but for water", and that of Friederich Liszt, the author who used to indicate the direction of expansion for Germany by following the Danube's course.

Our country geographical position as riveran to the Black Sea, and as Eastern border for the European Union, integrated on the navigable trans-European axis of Danube– Main – Rhine has a first rank importance regarding the development of maritime and inlandwaters transport and international trade at the same time, starting with 1st January 2007

If costs for inlandwaters and maritime transport are characterised as low, the transport on the river Danube has yet another advantage, that of political and juridical safety and a common interest of all Danubian countries. Today all Danubian states are members of the European Union and can guarantee a common interest in lightening the traffic on the Straits of Bosphorous and the Dardanelles, by redirecting the ships in the Black Sea to the North Sea.

Keywords: *Romania; Black Sea; Danube; geopolitics; axes.*

THE INFLUENCE OF THE DANUBE WATERS ON THE NAVIGATION DEVELOPMENT IN THE ROMANIAN SEASIDE OF THE BLACK SEA

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ABSTRACT

This work paper traits some few elements about the main factors which influence the development of the navigation and ships maneuvering on the Sulina channel, but on the Black Sea as well in the proximity of the Danube Delta.

Keywords: *navigation, ship maneuvering, upstream navigation, downstream navigation, channel axel, barge convoys.*

THE MAJOR NAVAL ACCIDENTS OCCURRED IN THE MARITIME ROMANIAN ZONE BETWEEN 1982-1995

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Constanta Maritime University

ABSTRACT

The meteorological, technical conditions and human error are the main factors generating the naval accidents. The most representative marine accidents occurred in the proximity of the Romanian coasts between 1982-1995 – CONTINENTAL CARRIER, PARIS and YOU XIU, and the others – confirm that.

Keywords: *bad meteorological conditions , human error, plentiful rainfall, low visibility*

THE ROLE PLAYED BY THE PORT OF CONSTANTA IN THE DEVELOPMENT OF CONTAINERIZED TRAFFIC

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ABSTRACT

The traffic increase in the Port of Constanta is partly due to the national economic growth, but also to the container traffic, in April 2004 a modern terminal was going to be put into operation. The best performance in 2006 was achieved by the container traffic which exceeded 1 million twenty-foot equivalent units, recording a considerable growth of 35% as compared to 2005. The evident tendency of cargo containerization shown in the shipping traffic registry gives the port of Constanta the status of a hub for the transport of containers on the Black Sea basin. According to this, the total volume of transit recorded in the port of Constanta in 2006, met an increase of 53.36% as compared to the previous year, these achievements exceeding the optimistic anticipation from the beginning of the year.

On the basis of analyzing the current situation and the tendencies, it is estimated that in the years to come, the traffic of containers in the port of Constanta will have an ascending evolution, by 2010 reaching a volume of 13.53 tons, over 1.5 million handled TEUs respectively, and by 2020 the volume will exceed 20 million tons (2.25 million TEUs). The method for estimating the container traffic between 2007-2020, had in view the future prognosis of the macroeconomic indicators as well as the major tendencies in the world containerized traffic.

Keywords: *container, traffic, tendencies, port*

PRIORITIES IN INVESTING IN THE PORT OF CONSTANTA, ON THE BACKGROUND OF THE ADHERENCE TO THE EUROPEAN UNION

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ABSTRACT

The Constanta port facilities required after 2010, the target year for the development plan in short time, mean new investment priorities such as: finalizing the infrastructure works and berthing constructions, for the development of specialized berths on piers III S and IV S (grains terminal, steel terminal, timber terminal, etc.), a road bridge at the access entrance of the Danube-Black Sea Channel and the development of the railway capacity in the river-maritime domain.

The paper analyses the main objectives of investments in Constanta port, taking into account the present conditions, the estimated traffic in this area, evolutions and trends. The new grains terminal will introduce great productivity and efficiency operating technologies. The development of the railway capacity in the river-maritime domain and the road bridge at the access to the Danube-Black Sea Channel will provide the inter modality in river-maritime area of the port of Constanta.

Keywords: *invesment, priority, terminal, port*

A MARKET-BASED TRANSPORT SECTOR

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ABSTRACT

Competition in a market free from barriers to entry is appropriate for the provision of many kinds of transport services. Where the size of the market is large in comparison to the minimum efficient scale of operation of a mode of transport, several suppliers can operate concurrently at an efficient scale (for example, in trucking and rural bus operations). Where the optimal scale is larger, competition "in the market" can still be effective if there are good modal substitutes (often the case for railways) or international competitors (usually the case for air transport and shipping services and often also the case for airports and seaports). In the case of landlocked countries the effective competition may be between alternative corridors to the sea, with ports in different countries.

In such cases, the withdrawal of protective practices, such as cargo reservation for national carriers or administrative market sharing, while painful in the short run, will often be the best basis on which the advantages of competition can be obtained (as shown by the experience of shipping deregulation in Chile). More generally, free entry may be preferable to the alternative of ineffective or corrupt regulation if indigenous administrative skills are scarce, as is the case in many developing countries. In contrast, some transport infrastructure cannot be efficiently duplicated and free entry cannot, therefore, be relied upon to prevent a private monopolist charging unduly high prices.

Private sector operation is essential for a competitive market. The absence of a genuine arms-length relationship tends to undermine the development of a real competitive market. The key to effective competition is the ability to fail, without which discipline is weak. Private ownership tightens the budget constraint and strengthens this threat.

Keywords: *Private Operation, Market-based Transport*

PRICE ELASTICITY OF DEMAND IN TRANSPORTATION

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ABSTRACT

The demand for a particular good or service depends on a variety of factors. Key influences include the tastes of consumers, the levels of consumer income, the price and quality of the product in question and the prices of other goods, especially goods that are close substitutes. In order to obtain useful estimates of the price sensitivity of demand for a product, researchers must carefully control for all the factors affecting the demand.

As a general rule, when other influences on demand remain unchanged, a higher price for a product results in a lower quantity demanded. However, the price responsiveness of demand varies from one good to another and from one market to another. The own-price elasticity of demand measures the responsiveness, or sensitivity, of the demand for a good to changes in its price when other influences on demand are held constant. It is defined as the percentage change in quantity demanded resulting from a given percentage change in price.

For example, if a 1% increase in price results in a 1.2% decrease in quantity demanded, the own-price elasticity of demand is 1.2. In this case, since the percentage fall in demand is greater than the percentage rise in price, total spending on the good will decline, and the demand for it is said to be "elastic". If, on the other hand, a 1% price rise causes a smaller percentage decline in the quantity demanded, the own-price elasticity will be less than one, and demand is said to be "inelastic".

Keywords: *Price Elasticity, Demand, Transport*

INTERMODAL TRANSPORT IN EUROPEAN UNION

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ABSTRACT

For the past two decades, intermodal freight transport has become an important part of freight transport sector in both Europe and USA. In general, it has been considered as an option for improving utilisation of non-road transport modes on one side and constraining the negative impacts of transport sector on the environment on the other.

This paper presents an overview of a part of the research and policy related activities dealing with intermodal freight transport. In particular, the activities undertaken in Europe by EU (European Union) as well as the research carried out by the research community world-wide have been under focus. The paper considers the very general background of intermodal freight transport and offers insights into some recent research, policy, and real-life attainments. In addition, it attempts to set up a prospective research agenda for eventual co-operation between Europe and USA.

Keywords: *Price Elasticity, Demand, Transport*

LIABILITY OF THE PLAYERS ENGAGED IN THE TRANSPORT OF HYDROCARBONS AT SEA
(I)

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ABSTRACT:

Of the multitude of unsolved aspets in the law and practice of damages resulted from maritime pollution, the work proposes to analyse the issue of liability of players involved in the transport of hydrocarbons at sea, cargo owners, transporters and maritime operators. In particular, we are trying to answer if and to what extend it is necessary to adopt a compensation system to redress the damage of martime pollution with hydrocarbons, starting from the consistent alterations operated in the legal frames of United States and Canada.

Keywords: *hidrocarbons; transport; pollution; damages; compensation.*

LIABILITY OF THE PLAYERS ENGAGED IN THE TRANSPORT OF HYDROCARBONS AT SEA (II)

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ABSTRACT :

Of the multitude of unsolved aspects in the law and practice of damages resulted from maritime pollution, the work proposes to analyse the issue of the liability of players involved in the transport of hydrocarbons at sea, of cargo owners, transporters and maritime operators. In particular we are trying to answer if and to what extend it is necessary to adopt a compensation system to restore the damage of martime pollution with hydrocarbons, starting from the consistent alterations operated in the legal frames of United States and Canada.

Keywords: *hidrocarbons; transport; pollution; damages; compensation.*

LIABILITY OF THE PLAYERS ENGAGED IN THE TRANSPORT OF HYDROCARBONS AT SEA (III)

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Constantin Anechitoae, PhD.
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ABSTRACT :

Of the multitude of unsolved aspects in the law and practice of damages resulted from maritime pollution, the work proposes to analyze the issue of the liability of players involved in the transport of hydrocarbons at sea, of cargo owners, carriers and maritime operators. In particular we are trying to answer if and to what extend it is necessary to adopt a compensation system to redress the damage of maritime pollution with hydrocarbons, starting from the consistent alterations operated in the legal frames of United States and Canada.

Keywords: *hidrocarbons; transport; pollution; damages; compensation.*

REINFORCEMENT OF THE EUROPEAN UNION MARITIME BORDERS

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ABSTRACT:

The article is meant to analyse operational measures set up at the European level to protect refugees, to fight against illegal immigration bound for the countries of European Union, to intensify control and reinforce the surveillance at its external maritime borders. These measures are part of a document issued by the Commission on 5th October 2006. It proposes to maximise the reaction of institutions, to set up a network of coastguard patrols and a European surveillance system, having a command centre and a specialised supporting branch, to train an expert team able to achieve the first assessment of each intercepted person and to use efficiently the alloted funds. The effects of measures taken on the international law of the sea , on the procedures to be followed when pursuing, intercepting and control the ships carrying or suspected of carrying illegal immigrants are also analysed.

Keywords: *sea; borders; immigration; surveillance; patrols.*

SEAFARERS' RIGHTS AT THE CROSSROADS BETWEEN HUMAN RIGHTS AND MARITIME LAW

Niculae Neagu, Ph.D

CONSTANTA „OVIDIUS" UNIVERSITY

ABSTRACT :

The analysis is an approach meant to highlight on the necessity to clear up the relationships between the state flag, the shipowner, the crew on board maritime vessels and other maritime players in order to protect the rights and interests of seafarers. In this respect the International Organisaiton of labour and the International Maritime Organisaiton should ratify and or adopt new and more restrictive international settlements, to rule out the convenience flag phenomenon and to adopt an international social maritime pact more engaging that would involve all maritime players, intermediate crew recruting societies including.

Keywords: *seafarers; work ; conditions; rights; guarantees.*

STRUCTURE AND PURPOSE OF THE MERCHANT VESSEL, AS A TOTAL INSTITUTION

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ABSTRACT

The sociological notion of „Total Institution" as developed by Erwin Goffman could be a usefull tool for studying the merchant vessel under a sociological point of view. The aim of this paper is to analize if the concept of „Total Institution" can be applied to the merchant vessel..

Keywords: *Total Institution, sociology, merchant vessel, crew, live and work*,

THE PYRENEES BOTTLENECK. A CHANCE FOR SHORT SEA SHIPPING?

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ABSTRACT

On the one hand, around 45% of European Union foreign trade is still carried by road and is consequently conditioned by traffic congestion or high fuel consumption, implying disadvantages related to pollution and safety, while on the other hand, 40% is carried by short sea shipping. Short Sea Shipping in European waters has been considered by national and European governments as one of the most feasible ways to alleviate the congestion that gets worse every day on the roads and highways across Europe. This paper poses criteria providing recommendations for the best alternative means of transport for carrying cargo across the Pyrenees.

Keywords: *freight flows, seatrade, short sea shipping.*

SECȚIUNEA II

INGINERIE MECANICĂ

CORROSION RESISTENCE OF SUPERFICIAL LAYER

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ABSTRACT

Superficial processing using electrical discharge in impulses it's a simple method and less expensive, if we compare this one with another methods used in Surfaces Engineering domain.
The experimental results show us the superficial layers, deposed with electrical discharge in impulses, influence against corrosion in sea water.
Also is presented the rate of corrosion for samples processed with Al and Ni electrode and a sample of OL 37 carbon steel. This proofs will be imersated in sea water for 285 days.

Keywords: *deposition, layer, discharge, corrosion, sea water.*

METHODS RELATED TO THE OPERATION SAFETY INCREASE OF THE INSTALLATIONS AND EQUIPMENTS

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ABSTRACT

The significant development of the economic and human activities known by the contemporary world and expressed through the spectacular evolution of all the industrial branches had as a result the appearance of a new concept called “confidence level” that can be arrogated to certain equipment.

Keywords: *reliability, equipments,maintainability.*

METHODS RELATED TO THE OPERATION SAFETY INCREASE OF THE INSTALLATIONS AND EQUIPMENTS PART II

Paul BOCANETE, Liviu-Constantin STAN

Department of Mechanical Engineering,
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ABSTRACT

The significant development of the economic and human activities known by the contemporary world and expressed through the spectacular evolution of all the industrial branches had as a result the appearance of a new concept called "confidence level" that can be arrogated to certain equipment.

Keywords: *reliability, equipments,maintainability.*

MARITIME CRYOGENICS APPLICATIONS BASED ON THERMODYNAMIC PROCESSES

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ABSTRACT

This paper represents an overview about cryogenics applications in the maritime field and onboard commercial vessels. Basics thermodynamics in general and cryogenic refrigeration in particular are theoretical knowledge's which become compulsory when we are dealing with complex processes like liquefaction, re-liquefaction and boil-off. The paper aim is to familiarize the students/crew members onboard Gas Carriers with the basic concepts of refrigeration cycles and cryogenics.

Keywords: *Cryogenics, Thermodynamic process, Refrigeration, Gas carriers, Re-liquefaction, Boil-off*

Tsunami Hydraulics

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Universitatea Andrei Saguna Constanta

ABSTRACT

This study given a simple physic and hydraulics explication behind earthquake, called Tsunami. This explication based to energy conservation equation and wave properties have bind used to understand this phenomenon. As we calculated, the Energy E, Velocity v and wave length λ of tsunami are decreased but the amplitude of tsunami wave A is increased when it reaches the land, respectively. The changing of wave height when it close to the shore makes tsunami difficult to be detected at early stage. From our first calculation of radiation earthquake energy using Gutenberg-Richer formula the huge « explosion » energy undersea at 00 :58 :50 (UTC) or 160 km from North Sumatra as the Tsunami by 26 December 2004, is approximated to 1 gigatons of TNT equivalent to 80000 « Little Boy » Hiroshima atomic bomb, where it is initial area for Tsunami wave to propagate.

Keywords: *Hydraulics , Tsunami, Energy.*

Danube Croasing Pipeline Rehabilitation

Lector Univ.Dr.ing.Timur Chis

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ABSTRACT

This study present the rehabilitation philosophy proposed by author for the Rehabilitation Danube Crossing Pipeline.

This porject is dedicated to rehabilitation imported oil pipeline system crossing Danube by the complex of 10 pipelines of 12 ¾ inch diameter. This complex is part to oil pipeline designed totransporting crude oil imported to Romania by Constanta Harbor to the different refineries throughout the country.

The system was installed in 1969. After installation the system was not submitted to any special inspection and corrosion cracking study. As a consequence, risk of pollution Danube River is now very high.

Keywords: *Rehabilitation, Offshore pipeline, Danube croasing.*

LIQUEFIED GAS TRANSFER IN NAVAL TRANSPORT – MATHEMATICAL MODELS

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Doina MUNTEANU
CERONAV Galati

ABSTRACT

The naval transport of gases in liquid phase has developed in the last decades. At the same time, the techniques for gas transfer were developed.

The paper analyses the problem of liquefied gas transfer from the shore to the specialized ships, LPG and LNG. The authors propose two mathematical models for the ideal transfer by free fall and the real transfer under pressure.

These models can be used to realize the loading plan and to simulate loading operations in naval transport of liquefied gas.

Keywords: *LPG,LNG, naval transport.*

PISTON DESIGN - PISTON TYPES

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ABSTRACT

The energy bound in the fuel is converted very rapidly into heat in the engine cylinder. This conversion is associated with a considerable increase in temperature and pressure. The piston, which is the movable wall of the combustion chamber, has the task of converting this released energy into mechanical work. The piston material must resist rapidly changing operating stress, sometimes at high temperatures. The piston is acted upon by sizeable forces, the magnitude and direction of which are determined by the combustion sequence and the crankshaft drive. The sequence of movement in the cylinder alternates between high sliding speeds and standstills, and this is not good for the formation of a stress-bearing lubricant film, given the sometimes high temperatures on pistons and cylinders. The seal between piston and cylinder is achieved under these less than advantageous conditions. The piston rings must remain operational for very long running times, and one must consider that mean sliding speeds of 10 to 12 m/s are normal.

The stress on the piston varies depending on the piston's mechanical loads, which alternate rapidly in cyclic fashion, and on the much more slowly changing thermal stress. Pulsating stress or alternating stress can occur in the loaded cross sections depending on position. When the fatigue limit of the material is exceeded, then fractures occur.

The stress level is affected by the design, by load introduction or function-related cross sectional shapes, etc. The permissible material stress is determined by notch factors and the lower fatigue strength at higher temperatures.

Keywords: *piston, cylinder, mechanical, shapes –crowns*.

ELECTRONIC CYLINDER LUBRICATION SYSTEM OF THE INTELLIGENT ENGINE

Ing. Elena Gogu

Doctorand Universitatea Maritima Constanta

ABSTRACT

The cylinder lube oil consumption represents a large expenditure for an engine operating with the nominal guiding feed rate and, especially for the large bore engines, even a 0.1 g/bhph reduction in the cylinder oil dosage represents a significant yearly saving for the owner.

Keywords: *intelligent engine, electronic cylinder lubricator*

THE OPERATIONAL RELIABILITY DETERMINATION, USING WEIBULL DISTRIBUTION FOR THE AXIAL SLIDING RINGS SEALS (MECHANICAL SEALS)

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Prof. Ph. D. Zidaru Nicolae - *„Merchant Maritime University" of Constanta*

ABSTRACT: Considering that operating time distribution for mechanical seals is of Weibull type, as in considered for all machine elements running in dynamic conditions, and taking into account that this is the operating mode when cavitation is occurred for axial rings, we attempt to determine the operating reliability for this type of distribution.

Keywords: *Keywords: reliability, Weibull distribution, failure times*

A POINT OF VIEW ON COGENERATION SYSTEMS

Feiza MEMET

Constanta Maritime University

ABSTRACT

A cogeneration system has to cover certain electrical and thermal loads reliably. The cogeneration plant has two final products: electric and thermal energy. After presenting some general aspects of a cogeneration plant, the paper deals with an approach that provides costs for the cogeneration products.

Keywords: *cogeneration, exergy, energy, cost.*

ADVANTAGES OF USING MULTI–PHASE THERMAL PUMP IN REFRIGERATION SYSTEM

Feiza MEMET

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ABSTRACT

This paper focus on the using of multi-phase thermal pump in order to bring an improvement to this sector. Multi-phase thermal pump is one of the non-traditional pump not very well known.

Is discussed also the environmental aspect, by proposing R134a as a potential refrigerant for this system, in addition to the financial aspect (this system is also cheap and simple).

Keywords: *multi-phase pump, refrigerant vapor, R134a*

SOME CONSIDERATIONS ON BIOMASS AND ENERGY

Feiza MEMET

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ABSTRACT

Developing countries and countries around the world must meet their energy needs economically, in time and without polluting the environment, in order to sustain their development. Scarcity of the primary energy sources should draw attention more on renewable energy sources, such as biomass.

Biomass is a fuel abundant in developing countries. This paper underlines the benefits of using biomass and derived fuel to displace fossil fuels. Are presented schemes of combined cycle power plants which use energy form biomass.

Keywords: *biomass, fuel, efficiency.*

NUMERICAL SIMULATION OF THE INJECTION MOLDING

Alexandra NIȚĂ

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ABSTRACT

This paper presents a comparative numerical simulation of an injection molding process for a mold with two cavities. Polymer injection in moulds with complicated shapes is common in todays industrial problems. A challenge is to optimize the mould design which leads to the most homogeneous filling The part is made from Acrylonitrile Styrene Acrylate Plastic from three different producers: Centrex 833, Luran S 797 S, Dialac TW 20B. Having this comparative numerical simulation we can determine the optimal conditions for injection process parameters. The numerical simulation was performed using finite element Moldflow Plastics Insight software, designed for injection molding.

Keywords: *numerical simulation, polymer injection molding, finite element, MoldFlow*

SOLID EDGE A COMPLETE SOLUTION FOR MOLD DESIGN

Alexandra NIȚĂ

Constanta Maritime University

ABSTRACT

Solid Edge Mold Tooling software from UGS is an integrated add on package to Solid Edge Classic that establishes a powerful step by step process workflow for the design and manufacture of plastic injection molds. Solid Edge Mold Tooling offers dramatic time saving potential by removing much of the repetition prevalent in mold tooling design and freeing up your time for more important tasks. With accurate core and cavity creation, an extensive choice of industry standard mold bases, automated generation of all required components and associative electrode design, Solid Edge Mold Tooling completes your mold designs faster and at lower cost.

Keywords: *Solid Edge, mold*, *plastic injection.*

FUEL CELL TECHNOLOGY -A REAL GREEN ENERGY

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ABSTRACT

A fuel cell is a device that converts the energy, without combustion, from a fuel (methane, propane, hydrogen) and oxygen into electricity, water and heat. The process consists of two electrodes, one on the left (anode catalyst), one on the right (cathode catalyst) and an electrolyte in the middle. Picture hydrogen coming in from the left, electricity coming out of the top and water coming out of the right. The hydrogen enters on the left and passes over the fuel electrode (anode catalyst). The anode catalyst assists to split the hydrogen atoms into a proton and an electron which take different routes to the cathode catalyst. The proton passes through the electrolyte. The electrons create a separate current, moving up and over the electrolyte, (they cannot penetrate the electrolyte) that can be utilized before they return to be reunited with the hydrogen proton at the cathode catalyst. Oxygen (from air) passes over the cathode catalyst and joins with the hydrogen to form a molecule of water. The above describes a typical PEMFC (proton exchange membrane fuel cell).

Keywords: *Fuel cell, hydrogen, electricity, green energy*

ENHANCED CYCLOIDAL PROPULSION AND MANEUVERING SYSTEMS

ASS. PROF.Iordan NOVAC Ph. D.
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ABSTRACT:

The vertical axis cycloidal or VOITH SCHNEIDER Propeller (VSP) has by no means reached the limits of it's development. A new generation of VSP with enhanced hydrodynamics and improved construction is ready for introduction into the workboat market. With the latest computational fluid dynamic methods (CFD) continuously the hydrodynamic is improved. New blade profiles with higher efficiency have been developed. Additionally to the propeller the hull-design of ships with VSP is subject of continuous research and improvement. A new guard and nozzle plate has been developed for VSP propelled tug boats. An new propeller generation with higher maximum input powers are under development. A further good example of enhanced cycloidal propulsion is the VOITH CYCLOIDAL Rudder (VCR). This modified VSP, with only 2 blades, is the latest propulsion and maneuvering device to be adopted for ocean-going vessels at higher speeds. It has two operating modes: a **passive** one, in which the VCR acts as a conventional rudder for cruising speed and an **active** one, in which it works in the same way as a VSP to ensure a high degree of maneuverability at slow speeds.

Keywords: *Cycloidal proppeller (VSP), cycloidal rudder (VCR), optimality***.**

ACTUAL LEGAL ASPECTS REGARDING THE METHODS TO DEAL WITH THREATS, RISKS AND CRISES

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ABSTRACT

In the paper are presented interesting aspects regarding the management of crises, the emergency management and the risk management. In Romania, Law 481 / 2004 refers to Civil Protection and it contains the guidelines of the emergency management. The Law is completed with international directives and treaties of the organizations where Romania is included: NATO and EU. There is presented the NATO concept regarding the crises management, aspects regarding the organization, the objectives and the training methods. The EU concept regarding the risk management includes the SEVESO II directive. Recently, on 2nd February 2007, the European Commission issued a proposal of a directive which will state the minimum penalties for a series of serious acts of pollution: prison, fines of more than 750000 euros, shutdown of the polluting companies. In the paper are also presented ideas regarding the risk management and the management of change. To conclude, it is encouraged the prevention of the crises which lead to the elimination of some crises and to decreased consequences for most of the others. Multidisciplinary and interdisciplinary studies are required to support the decisions before, during and after the crises. Advanced technologies are important instruments to employ in these studies.

Keywords: *management of risks/crises , national law, NATO concept, EU concept, compulsory studies*

VR GUI

Emil M. Oanţă

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ABSTRACT

The paper presents some of the main problems regarding the graphical user interface, problems which arise when a virtual reality software is conceived and implemented. There are presented some of the general solutions, tests regarding the functionalities, some of the main concepts and the solutions which were implemented in test applications. To be more relevant, there are presented images of the concepts and of the solutions. Some of the solutions were designed within the LASCOT[1] framework, an ITEA[2] project, where the author[3] had several responsibilities[4] regarding the design of 3D graphical system in some extremely restrictive conditions: cross-platform application, database for the data consistency, remote multiple access, friendly user interface, etc.

Keywords: ***V**irtual **R**eality, **G**raphical **U**ser **I**nterface, metaphors, concepts, several solutions*

[1] http://lascot.vub.ac.be/vubteam.html; LASCOT - **LA**rge **S**cale **CO**llaborative decision support **T**echnology
[2] http://www.iteaconnect.org/index.html; ITEA - **I**nformation **T**echnology for **E**uropean **A**dvancement
[3] http://eoanta.fortunecity.com/20050629Research-VUB-1.gif
[4] http://eoanta.fortunecity.com/20050629Research-VUB-2.gif

Temperature Distribution Inside the Cilinder Walls (analitic method)

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The Maritime University of Constantza, Constantza 8700, Romania
The Ovidius University of Constantza, Constantza 8700, Romania

Abstract: Due to the cyclic character of the functioning of an engine it is very important to determine temperature distribution inside the cylinder walls as well as on the two faces of the cylinder. To be able to predict any deterioration of the material due to thermal stresses

Keywords: *temperature distribution,temperature oscillations, amplitude of gas temperature.*

The study of compression engine cycle behavior in terms of variations of admission pressure drop coefficient

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ABSTRACT:The present method based an irreversible thermodynamics, (at finite time) the engine cycle behavior is analyzed for a given geometry and gasdynamics, function of variations pressure drop coefficient.

Keywords: *irreversible thermodynamics, pressure dissipation, power and efficiency factors.*

SIMPLIFIED MODEL FOR NITRIC OXIDE FORMATION

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Asisst.Ph.candidate Eng. Liviu-Constantin STAN

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ABSTRACT

The paper presents a simplified model for nitric oxide formation, derived by systematic reduction of multi-step chemistry mechanism. This reduction is based on the partial equilibrium assumption of the considered elementary reactions using the extended Zeldovich mechanism describing the thermal nitrous oxide formation, This model is very useful in calculations of real turbulent flame, when the complex kinetic mechanisms use is impractical, due to the complexity of the interacting processes (turbulence, radiation, heat transfer, etc.) which must be considered to obtain realistic results.

Keywords: *NO, nityrogen, dissociation, ,formation, kinetic, echilibrum, formation, thermal*

STIFFNESS CHARACTERISTICS AND THERMAL DEFORMATIONS OF THE FRAME OF HIGH POWER MARINE ENGINE – PART I

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ABSTRACT

In the subject-matter literature detail data on stiffness of the crankshaft foundation connected with the frame of marine main engine are still lacking. Thermal deformation models of the engine's casing, proposed by engine producers, are excessively simplified. However the parameters are crucial for the shaft-line alignment analysis as well as for the analysis of interactions between the shaft-line and engine crankshaft, especially in the case of high power engines. This paper presents a determination method of the marine engine body characteristics as well as results of example computations performed for a Sulzer 7 RTA 84 C engine installed on a ~3000 TEU container ship. It has been demonstrated that the producer's assumption about parallel displacement of the crankshaft axis in thermal working conditions is too rough. The thermal deformation of the engine is of hogging character, which results in significant change of the moment load exerted on the crankshaft and shaft line. The stiffness parameters recommended by the producers for the shaft-line alignment are estimated correctly, however they represent only engine's body flexibility,without taking into account ship's hull flexibility.

Keywords: *marine main engine, main bearing, static and dynamic stiffness characteristics of bearing,thermal deformation, temperature distribution*

STIFFNESS CHARACTERISTICS AND THERMAL DEFORMATIONS OF THE FRAME OF HIGH POWER MARINE ENGINE - Part II

Liviu-Constantin STAN, Nicolae BUZBUCHI

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ABSTRACT

In the subject-matter literature detail data on stiffness of the crankshaft foundation connected with the frame of marine main engine are still lacking. Thermal deformation models of the engine's casing, proposed by engine producers, are excessively simplified. However the parameters are crucial for the shaft-line alignment analysis as well as for the analysis of interactions between the shaft-line and engine crankshaft, especially in the case of high power engines. This paper presents a determination method of the marine engine body characteristics as well as results of example computations performed for a Sulzer 7 RTA 84 C engine installed on a ~3000 TEU container ship. It has been demonstrated that the producer's assumption about parallel displacement of the crankshaft axis in thermal working conditions is too rough. The thermal deformation of the engine is of hogging character, which results in significant change of the moment load exerted on the crankshaft and shaft line. The stiffness parameters recommended by the producers for the shaft-line alignment are estimated correctly, however they represent only engine's body flexibility,without taking into account ship's hull flexibility.

Keywords: *marine main engine, main bearing, static and dynamic stiffness characteristics of bearing,thermal deformation, temperature distribution*

USEFULNESS ASSESSMENT OF STANDARD MEASURING INSTRUMENTS INSTALLED ON SEA-GOING SHIPS TO PERFORM ENERGY MEASUREMENTS

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ABSTRACT

The presented work is a contribution to discussion on usefulness of application of measurement instrumentation used on sea-going ships for energy measurement and scientific research purposes. Contemporary sea-going ships are equipped as a rule with up-to-date measurement instrumentation usually based on electronic data processing and computer technique. These authors have made many times use of such instruments in their research work. This way it was not necessary to install any special instruments, that significantly reduced measurement cost. In such cases to obtain a sufficient accuracy of measurements constitutes a crucial problem. In this paper was presented an analysis of measurement errors of some operational parameters of ship and its main propulsion system, elaborated within the frame of the KBN research project no. 9 T12D 033 17. Results of the analysis confirm usefulness of the standard measurement instrumentation installed on ships, and its sufficient accuracy.

Keywords: *ship, standard measurament instrumetation, accuracy of measurements.*

WHY DON'T WE USE OPTIMAL DESIGN FOR SLIDING RADIAL BEARINGS (I) (Dry and boundary friction)

ZIDARU Nicolae, Ph.D, eng. professor, *UMC*
AXINTE Tiberiu, Ph. D.eng., *SC IRV SA CONSTANTA*

Abstract

Calculation of sliding radial bearings usually follows in three steps: journal diameter calculation, bearing pressure checking, thermal calculation. If the second and third steps are inadequate, the designer changes the material for bearing, the value of length to diameter ratio or the cooling conditions. This methodology supposes to recalculate the bearing, after the initial calculation is ended.
Optimal design suppose to establish, initially, a set of restrictions, permitting to avoid the arbitrary material selection and arbitrary recalculations.

Keywords: radial bearing, journal calculation, clearances and fits, lubrication, heat transfer .

WHY DON'T WE USE OPTIMAL DESIGN FOR SLIDING RADIAL BEARINGS (II)
(Radial sliding bearings with hydrodinamic lubrication)

ZIDARU Nicolae, Ph.D, eng. professor, *UMC*
AXINTE Tiberiu, Ph. D.eng., *SC IRV SA CONSTANTA*

Abstract

Calculation of sliding radial bearings usually follows in three steps: journal diameter calculation, bearing pressure checking, thermal calculation. If the second ant third steps are inadequate, the designer changes the material for bearing, the value of length to diameter ratio or the cooling conditions. This methodology supposes to recalculate the bearing, after the initial calculation is ended.
Optimal design suppose to establish, initially, a set of restrictions, permitting to avoid the arbitrary material selection and arbitrary recalculations.

Keywords: radial bearing, journal calculation, clearances and fits, lubrication, heat transfer .

SOME COMMENTS ON STANDARD CALCULATION OF COMPRESION HELICAL SPRINGS AND A PROPOSAL OF OPTIMAL DESIGN

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AXINTE Tiberiu, Ph. D.eng., *SC IRV SA CONSTANTA*

Abstract

STAS 7067 provide the formulas for compression helical springs, but not indicate how it is used. For this, for some parameters determination, it is necessary to remake the calculation. Based on principal restrictions imposed and by a lot of approximation, the optimum design propose on improved method, in order to avoid recalculations and values of some parameters just calculated.

Keywords: helical spring, basic stress, deflection, spring index, restriction of design.

SECȚIUNEA III

INGINERIE ELECTRICĂ

THE STABILITY OF THE HALL MICROSENSORS

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Abstract:

In a system of measuring in which the Hall device is used as input transducer, its stability is essential for transfer constant of system.

In this work is analyzed the variation effect of the charge carriers density on the stability of magnetic sensors realized on the semiconductors Hall plates.

In the same time it is emphasized the way in which the adequate choice of the material and geometry of the device allow an increase in it stability.

Keywords: *supply-current-related sensitivity, magnetic sensor, surface charge density, sheet resistance, oxide layer, offset -equivalent magnetic induction.*

A MODEL FOR THE SIMULATION OF THE WAYS IN A TRANSPORTATION PETRI NETWORK AND AN ALGORITM FOR DETERMINING THE MINIMUM VALUE TRACK

Vasilica Bordea, Nicolae Bordea

„Mircea Cel Bătrân" Naval Academy, Universitatea Maritimă Constanța

ABSTRACT

In a transportation Petri network whose transitions are given values, such as costs, duration, etc. the paths between the input and output positions in the net can be configured as a succession of positions. An algorithm based on a square matrix whose order is equal to the cardinal of the P set of positions, determines the paths in TPN together with the values of these paths. The matrix elements are the indices of the transitions between the related positions, as well as their initially given values.A relational method of transition reduction in TPN defines the possible position succession, and in the column corresponding to the net output is selected the minimum value of the path.

Keywords: *Petri network, path in the network, algorithm*

THE NOISE OF MOS STRUCTURE MAGNETIC MICROSENSORS

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ABSTRACT

The paper presents the results of research work regarding the analysis and optimization of magnetic microsensors realized in MOS integrated circuits technology. On the basis of adequate models these have been established the noise main characteristics for MOS-Hall plates and for double-drain MOSFET magnetotransistors.By using the numerical simulation the values of the signal-to-noise ratio and the detection limits for the two analysed structured are compared and it is also emphasized the way in which choosing the geometry and the material features allows getting high-performance sensors.

Keywords: *MOS-Hall plate, double-drain magnetotransistor, thermal noise, shot noise, signal-to-noise ratio, detection limit*

DRIVING DC MOTORS

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ABSTRACT

Driving DC motors with integrated circuits seems at first to be rather simple. Yet by analyzing the actual application it is possible to see if there exist conditions causing stresses to the IC during operation which in the end can cause failure.
With proper design and analysis in critical applications it is possible to avoid conditions which lead to IC damage.

Keywords: *current flow, external control loop, DC motor, dynamically during,. the motorís rotational velocity.*

THE OPTIMAL ALLOCATION OF RESERVES IN NAVAL EQUIPMENTS

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Irina Caruntu [2)]

[1)] *University "Politehnica" Bucharest, 1-3, Iuliu Maniu, Blvd, Bucharest, România*
[2)]*Healt Care House Constantza, 55-57, Mamaia, Blvd, Constantza*

ABSTRACT

This paper deals with the problems of establishing the optimum number of reserves blocks for serial reliable structure system, with imposed restrictions.

It is proposed an algorithm that provides a faster convergence and the best solution. A reserved allocation is done not to the less reliable block but to the one that determines by allocation the biggest rise of system reliability.

Keywords: *function of reliability, block of maximum sensitivity, maximum sensitivity criterion, reliable systems, minimum reliability criterion*

NEW METHODS OF TEACHING MARINE OFFICIERS

Mariana Jurian [1)], Irina Căruntu [2)]

[1)] *University of Pitesti, 1, Târgu din Vale Street,Piteşti*
[2)]*Healt Care House Constantza, 55-57, Mamaia Street, Constantza*

ABSTRACT

The paper presents some practical aspects related to the implementation of the new technologies in the training process of future engineers, merchant marine officers.
There are distinguished the positive effects in the education process resulted from using videotapes, simulation programs or other computer aided techniques as well as cable programs used to broadcast the lessons within the distance learning system.

Keywords: *training process, technical marine education, simulation programs,virtual laboratories.*

THE SEMICONDUCTOR MATERIALS CHARACTERISTICS

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ABSTRACT

The HALL devices may be used as magnetic sensors, or as tools for exploring the properties of the applied materials.
In this paperwork are presented specific methods and adequate experimental devices that on the basis of the Hall effect allow the determination of the relevant semiconductors material characteristics, at the same time to avoid errors due to parasitic effects.
It is also emphasised the influence of the constructive imperfection of the measuring devices on the accuracy of the results.

Keywords: *Hall coefficient, average Hall mobility, galvanomagnetic measurements, sheet resistance, physical magnetoresistance*

TIME - FREQUENCY ANALYSIS METHODS OF SEA CLUTTER

Ph.D. CODRUTA PRICOP

Department of Naval Electrotechnics,Electronics and Computer Science, Maritime University Constanța, Constanța, 8700, Romania

ABSTRACT

The main objective of this paper will be to provide a brief introduction to promising potential application of the time-dependent spectrograms, Gabor expansions, wavelet techniques, Wigner-Ville distribution, short-time Fourier transform, fractal analysis, the model-based joint time frequency analysis methods and parametric model-based joint time frequency analysis methods for sea clutter identification. The time frequency spectrum is a powerful tool for understanding the nature of signals whose power spectra change with time and Gabor expansions, wavelet techniques, Wigner-Ville distribution, short-time Fourier transform provide maps in time- frequency phase plane, that could be used to extract the sea clutter signal's information.

Keywords: wavelet transform, fractal analysis, Wigner-Ville distribution, short-time Fourier transform, sea clutter.

ALL ELECTRIC SHIP

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ABSTRACT

Over the last decade much work has been carried out regarding the economic and technical viability of the military All Electric Ship. Now that the Electric Ship is now becoming a reality this paper examines the established, emerging and potential technologies that help to shape the economic viability of the All or Part Electric Ship into the 21 st century.

This paper considers this by examining various aspects of operational (Power Generation, Power Distribution, Power Utilization, Propulsion and Defence Systems) and functional (Rotating and Linear Machines, Power Conversation, Energy Storage and Protection Technology) systems in order to gain a technological snapshot of the various electrical technologies from re-build and new-build perspectives, such as:

• DC versus AC generation and distribution: with respect to power quality and system robustness.
• Alternative Distribution Architectures: with respect to optimization of power flow and survivability.
• Variable and High Frequency power technology, specifically looking at mass and volume per unit MW.
• High Speed Electric Machines versus Low Speed Direct Drive, with respect to mass per unt volume.
• Effects of Defence Systems on the Distribution System for example pulse weapon technology and electrically based landing gear for aircraft.

Keywords: *marine electric propulsion, direct drive*

SECȚIUNEA IV

ŞTIINȚE MATEMATICE
ŞI
FIZICĂ

FENG'S SPECTRAL THEORY FOR NONLINEAR OPERATORS

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ABSTRACT

Applying (p, k)-epi mapping theory, we investigate throughly the spectra of nonlinear operators, which is closed, bounded, upper semicontinuous, and contains all the eigenvalues, as in the linear case, introduced by Feng [6]. We give a relation between the spectrum and bifurcation points and we will compare the Feng spectrum $\sigma_F(F)$ with the spectrum introduced by Furi, Martelli, and Vignoli [8] as well as with other spectra like the one defined for Lipschitz continuous operators.
Classification : 47J10

Keywords: *Spectra of nonlinear operators, eigenvalue, measure of noncompactness, (p.k)-epi mapping theory.*

GENERAL CONSIDERATIONS ABOUT THE REFORM IN THE SOCIAL AREA. A MACROSISTEMIC APPROACH IN HEALTH CARE SYSTEM

Lecturer Claudiu CICEA PhD.
Senior Lecturer Marian NASTASE PhD.
Lecturer Cosmin Stefan MARINESCU PhD.

Academy of Economic Study, Bucharest

ABSTRACT

Reform of health care systems in the member states of the Council of Europe has been a virtually continuous process which seeks to reconcile the often contradictory aims of maximizing quality, efficiency and equality of access as well as guaranteeing the viability of the system, against a background of limited government resources and rapid demographic and technological change.

Keywords: *health care system, optimization, economic indicators, European Union*

MATHOT VERSUS EULER ABOUT CONCURRENCY AND CYCLIC QUADRILATERAL

Gabriela Constantinescu, Cătălin Zîrnă

Constanța, Ovidius Highschool

ABSTRACT

This paper presents some remarkable facts occur in a cyclic quadrilateral. First, we study the proprieties of the multitudes, insisting on the concurrences of these lines. Second, we define the Euler point and then study some proprieties of this point. The central issue of this paper is the theorem which establishes that ***Mathot*** **point** and **Euler point** are the same point. Finally we conclude that this point is a very "busy" point, because it is the point of intersection of a lot of important lines in a cyclic quadrilateral.

Keywords: *maltitude, Mathot point, Euler point*

ABOUT FREE RESPONSE OF A FIXED/FIXED STRING

Dumitru DELEANU

Universitatea Maritima din Constanta

ABSTRACT

We deal in this paper with the next problem: Find the free vibration of a fixed/fixed homogeneous string having a constant tension T and mass per unit length ρ. The string is released from the rest with an initial linear deformation of amplitude A, at the middle.

Keywords: *wave equation, free vibration, particular formula*

NUMERICAL ANALYSIS OF WAVE EQUATION

Dumitru DELEANU

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ABSTRACT

The hyperbolic partial differential equation not very complicated for which their solutions don't present discontinuities we can use numerical schemes with finite differences. The selection between explicit or implicit schemes depends, in essence, on problem type: only with initial conditions or with initial and boundary conditions.

In the present paper we'll apply a scheme with central differences to solve the well-known wave equation.

Keywords: *wave equation, free vibration, numerical simulation*

THE SHORTEST SPANNING TREE (SST) OF GRAPH

ENG. Ph. D. GABRIELA – SIMONA DUMITRESCU

"Traian" Hight School- Constanta

ABSTRACT

The shortest spanning tree (SST) of a graph has applications in cases where roads (gas pipelines, electric power lines, etc.) are to be used to connect n points together in such a way so as to minimize the total length of road that has to be constructed. If the n points to be connected are on a Euclidian plane, they can be represented as vertices of a complete graph G with arc costs being the straight line distances between the corresponding end points. The SST of G is then (provided no road junctions outside the given n points are allowed) the required minimum-cost road network. If junctions outside the given n points are allowed , then an even shorter road network may be possible, and finding it is a problem known as Steiner's problem.

Keywords: *spanning tree, graph, Kruskal, Prim.*

THE TRAVELLING SALESMAN PROBLEM

ENG. Ph.D. GABRIELA – SIMONA DUMITRESCU

"Traian" Hight School- Constanta

ABSTRACT

In this article will be dealing with two questions [5]:

Problem 1. Given a general graph G, find a Hamiltonian circuit of G, (or alternatively all circuits), if one or more such circuits exist.

Problem 2. Given a complete graph G whose arcs have arbitrary costs C = [c_{ij}] associated with them, find that Hamiltonian circuit, (or path), with the least total cost. The problem of finding the least cost Hamiltonian circuit is known in the literature as the traveling salesman problem [1, 2, 7]. It should be noted that if G is not complete, it can be considered as a complete graph with infinities inserted as the costs of the non-existent arcs.

Solutions to the travelling salesman problem and its variants have a large number of practical applications in many diverse fields. For example, consider the problem where a vehicle leaves a central depot to deliver goods to a given number of customers and return back to the depot. The cost of the trip is proportional to the total distance traveled by the vehicle so that, given the distance matrix between customers, the least cost trip is the solution to the corresponding travelling salesman problem. Similar types of problem occur in collecting mail from mail boxes, scheduling school buses through a number of stops, etc. The problem generalizes quite readily to one where more than one vehicle performs the deliveries, (or collections), although this problem can also be reformulated into a larger size single travelling salesman problem [6]. Other applications include the scheduling of operations on machines [4], the design of electricity supply networks [3], the operation of sequential machines [8] etc.

Keywords: *Traveling, salesman, graph, Hamiltonian, circuit, cost*.

GROUPS WHICH ARE NOT THE ADDITIVE GROUPS OF SPECIAL NEARRINGS [1]

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ABSTRACT

In this paper, we establish some conditions for groups such that they cannot be the additive groups of some special nearrings (nearrings with identity, zero-symmetric nearrings, affine nearrings). We use results in paper written by S. Feigelstock, J. R. Clay, T. H. H. Boykett and C. Nöbauer, C. J. Maxon, J. J. Malone, C. J. Maxton, R. R. Laxton, R. Lockhart, D. Doi on the same topics. We use also the results on nearrings on finite groups obtained by SONATA group at the Linz University.

Keywords: *nearrings, cyclic groups.*

[1] This paper was partially supported by the grant : CEx05-D11-11/04.10.2005, IV

ON RADICALS IN GAMMA-RINGS [2]

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ABSTRACT

In this paper, we define some radicals for gamma-rings: prime radical, nilradical, strongly nilpotent radical, Levitzki radical, Jacobson radical. We give also the relations among them. Generally the proofs will be given elsewhere.

Keywords: *nearrings, cyclic groups.*

[2] This paper was partially supported by the grant : CEx05-D11-11/04.10.2005, IV

WAYBILLS ON THE INTERNATIONAL BACKGROUND

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ABSTRACT

There are two basic ways of commercially operating a vessel: 1)Charter contract and 2)Carriage of goods by sea contract. What is typical in a charter contract is that the ship owner places the vessel at the disposal of the charterer who is entitled to use the vessel within the agreed terms. Together with this alternative there is another one by virtue of which the ship-owner undertakes against payment of freight to carry goods by sea from one port to another. This corresponds to the "carriage of goods by sea contract." Whilst in the charter-party the owner's main obligation is to place the vessel at the disposal of another person, in the contract of carriage of goods by sea, the carrier's main obligation is precisely the "carriage of the goods". The carriage of goods by sea contract has always been a subject of international concern, undoubtedly because in it there are two interests which oppose to a certain extent : Ship owner's and Shipper's interests. Whilst the first aspire to have a non-inflexible system concerning liability matters, Shippers demand a more strict liability regime for the carrier, in such a way of holding him liable for the full loss or damage suffered as a result of the carriage.

Keywords: *Waybill, Bill of Lading, Ship Owner, Shipper, Carrier, Consignee.*

APPLICATIONS OF COMPLEMENTARITY THEORY TO ECONOMICS

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Professor Ioan-Mircea Popovici, Ph.D,
Constanta Maritime University

Abstract Considering the new relations between Nonlinear Analysis and Complementarity Theory, put in evidence in this paper, we define several open research subjects profitable to both domain.

Keywords: *Nonlinear Analysis: Nonlinear Complementarity Problems*

THE BUTTERFLY THEOREM

Cristina Vacarescu

Decebal High School

ABSTRACT

Geometry is not a spectator sport. One does not learn geometry, one learns to do geometry. This geometry problem, which is the subject of this paper, dates back to at least 1815, when it appeared as question 1029 in *The Gentleman's Diary*. The theorem gets its name from the shape of the resulting figure. A picture is worth a thousand words. Yes, and the veracity of the dictum is given by the multiple proofs I found. One of the solvers was W.G. Horner whose name is associated with Horner's Method of approximating zeros of polynomials. This theorem gained a lot of interest in the past, in particular, in the last quarter of the 20th century for an Einstein-like treatment, too. It is interesting to look at it from the point of view of real projective geometry. A variety of proofs can even be found in this paper and some are nice demonstrations that I have not found in any reference. Such a proof is appropriate for theorems in plane Euclidean geometry whenever a circle plays an essential role. This circle will be taken as the unit circle in the Gaussian plane.

In R.A. Johnson's treatise of 1929, a proof by Mackay from the 1884 proceedings of the Edinburgh Math Society is given to the more general theorems. Then in 1943, it showed up in the elementary problem section of *The American Mathematical Monthly* as E 571, in 1965, M.S. Klamkin conjectured that the property could be extended to ellipses and in 1969 he proved it, together with Chakerian and Sallee. Eves in the revised edition of *A Survey of Geometry* gave a proof using poles and harmonic divisions from projective geometry. He stated that the problem "is a real stickler if one is limited to the use of only high school geometry". Later in the book he extended the theorem to all proper conics. The demonstrations I prepared, as well as a few general aspects, could serve as a basis for discussing whether any of these solutions clarifies the essence of the problem, if not all of them.

Keywords: *theorem, proof, treatise, butterfly, generalitation*

Theorem 1

SYNTACTIC AND SEMANTIC FEATURES OF THE GENITIVE ATTRIBUTE AND ITS USAGE IN MARITIME ENGLISH CORRESPONDENCE

PREP. UNIV. IOANA RALUCA VIŞAN

Constanța Maritime University, Foreign Languages Department

ABSTRACT

English has two modifications that are traditionally referred to as genitive ones. One, provides the possessive connective **'*s*** and precedes the head noun and the other one is syntactically marked by the preposition ***of*** and follows the head noun. The's genitive is regarded as pre-nominal genitive, while the ***of*** construction stands for the post-nominal genitive. Semantically, there are four types of genitives in English: the thematic genitive, the partitive genitive, the explicative genitive and the genitive of quality. In Commercial Maritime Correspondence, the most frequently used types of genitives, are the thematic genitives and the explicative genitive.

Keywords: *syntax of the genitive phrase, typology of the genitive attributes, usage of the genitive attribute in Maritime English Correspondence*