ABSTRACT
MECHANICAL AND ELECTRICAL   SCIENCE

BEAZIT ALI, ANASTASE PRUIU, LEVENT ALI
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DETERMINATION OF THE CHARACTERISTICS OF WINGS USING THE SIMILARITY THEORY

Abstract: This scientific work presents the way in which the small, and very small span wings can be obtained   starting from the great span wings and using the two scales of the similarity theory. Basing on two scales model it can transcribe from model at nature the

coefficients c_x, c_y and lengthening λ of GOTTINGEN- 612 profile.

BEAZIT ALI, LEVENT ALI (pg.46-49)
Naval Academy, Constanta, Romania / Military Technical Academy, Bucharest, Romania
THEORETICAL AND EXPERIMENTAL REASEARCHES UPON THE CAVITATION PHENOMENON OF THE AXIAL PUMPS

Abstract: This working research presents an original approach of the cavitation processes taking into consideration similar phenomena which are producing in nature. This new vision about cavitation phenomenon offers us other ways to study it, among these the similarity theory .In the working research are presented also the methods which can make possible the removing or the slowing down of cavitation process which starts during the navy propeller and carrying wings function.

By analysis the theoretic and experimental phenomenon it establish the implicit function which describes this phenomenon. By application the Π theorem for this implicit function it finds the criterion equation of phenomenon.

Depending on operating condition various cavitation patterns can be observed on a body surface as travelling bubbles, attached sheet cavitation, shear cavitation or vortex cavitation. Leading edge attached partial cavitation is commonly encountered on rotor blades or on hydrofoil. It corresponds to the case for which a vapor cavity is attached in the vecinity of the leading edge and extends over a fraction of the foil surface. It generally takes places at incidence angles for which a leading edge pressure peak occurs and reduced below the liquid vapor pressure. At the early phases of development, leading edge partial cavitation is steady.

Keywords: The bubble's implosion, incompressible liquid, the bubble surface, the Π theorem.

LEVENT ALI, ANASTASE PRUIU, BEAZIT ALI (pg.50-51)
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HYBRID FUELS – AN ALTERNATIVE FOR THE NEW GLOBAL EMISSIONS LEGISLATION?

Abstract: Global emission legislation is reducing allowable sulfur levels in marine fuels, SOx regulation 14 of MARPOL is stating limits for sulfur emissions, inside ECA area will be 0,1% starting 01.01.2015. One of the outcomes of this legislation is increased use of distillate fuel in marine applications. Additionally, industry analysts predict a global increase in demand of distillates across all sectors, but oil companies have developed a new grade of marine fuel.

AURELIA CHIOIBAȘ (pg.52-57)
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THE SOFTER COSMOS USING IN DRAWING PROCESS SIMULATION

Abstract: This work presents the conditions by simulation of drawing small cylindrical pieces as well as the markers result in trace of deforming sheet.

Keywords: drawing, Lankford coefficient, strain hardening exponent, band sheet A3k - Sidex

DUMITRU I. DASCĂLU, DORIN ANDREI D. DASCĂLU (pg.58-63)
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THE INFLUENTS OF ANTYFRICTON COMPOSITE LAYER OBTAIND BY FINPLAST OVER FRICTION COEFFICIENT AND MICROHARDNESS

Abstract: FINPLAST it's the name of new experimental technology, propose by author for upgrading performance of the sliding bearings. As a result of finishing the antifriction layer [4] by FINPLAST, result a very small superficial composite layer. This top composite layer it's obtained by pressing and impregnated in antifriction layer of a strong particles results after cutting. For obtained this small superficial composite layer us a new processing ,,FINPLAST". This paper presents the influents of FINPLAST parameters (cold plastic deformation force, the number of passes, the existence or not existence of lubrication during cold plastic deformations, and antifriction materials) based on experimental determinations over hardness and friction coefficient. It's presenting the value of the most important trybological parameters.

Keywords: sliding bearings, small superficial composite layer, finplast technology, micro hardness, friction coefficient.

GABRIELA DRAGHICI, GABRIELA BRINDUSA CAZACU (pg.64-66)
Ovidius University of Constanta, Romania
DEVELOPMENT OF PORT OPERATIONAL AREAS. PORT DESIGN ELEMENTS

Abstract: In this paper considers the harbor as an organization that develops economically permanent. In step with port development must develop or maintain and port operations area. In the operative surface is studied design of a wharf.

Keywords: wharf area operative port development

TRAIAN FLOREA, LIGIA-ADRIANA SPORIȘ, TRAIAN VASILE FLOREA (pg.67-68)
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THE STUDY OF THE IRREVERSIBILITY OF THE OPERATIONAL PROCESS FOR THE EXTERNAL COMBUSTION ENGINES WITH HEAT REGENERATORS AND THE INCREASE OF POWER AND OUTPUT FOR THE INTERNAL COMBUSTION ENGINES, USING THE EXPERIMENTAL AND GRAPHO-ANALYTICAL METHODS

Abstract: This paper deals with the study of the irreversibility of Stirling external combustion engine and it"s extension to internal combustion engine.
Key words: Stirling engine, irreversibility, sensitivity, ideal/theoretical cycle.

TRAIAN FLOREA, TRAIAN VASILE FLOREA, LIGIA-ADRIANA SPORIȘ (pg.69-76)
Naval Academy, Constanta, Romania / A.P.M. Agigea, Constanta / Naval Academy, Constanta, Romania
DETERMINATION OF THE COEFFICIENT OF REGENERATIVE LOSSES IN STIRLING ENGINES

Abstract: In this paper, we intend : (1) to present a method for the calculus of the coefficient of regenerative losses in Sterling engines and (2) to use this coefficient for the determination of the efficiency and the power output of Sterling engines.
Key words: Sterling engine, regenerative loss, correction coefficient.

CORNELIU MOROIANU (pg.77-78)
Naval Academy, Constanta, Romania
THE COMBUSTION PARAMETER OF THE MARINE HEAVY LIQUID FUELS, SIMPLE, AND WATER EMULSIFIED FUEL

Abstract : To determine the parameters necessary for making a comparation between the naval residual heavy fuels burning, simple and with water in emulsion, used in marine power systems, we conceived a computer program to establish the composition of combustion gases and combustion point on the diagram, in which the combustion processes can be interpreted and cams to the conclusions regarding to the fire control. The ARDIAG program determines the amount of CO and CO_2 from flue gases, the combustion point on the diagram, for liquid heavy fuel simple and with water in emulsion.
Keywords: naval heavy fuels, emulsion, gas burning, burning.

CORNELIU MOROIANU, VICTOR GHIA (pg.79-80)
Naval Academy, Constanta, Romania
COMBUSTION GRAPHOLOGY USED TO IMPROVE EMULSIONS OF WATER-IN-HEAVY FUEL OIL

Abstract: This work is trying to establish new criterions for improving the emulsions of water-in-heavy fuel oil by using the combustion graphology for testing the burning of droplets of th above mentioned emulsions.
Keywords: emulsions of water-in-heavy fuel oil, combustion, graphology.

GHEORGHE SAMOILESCU, SERGIU NICOLAE, FLORENTIU DELIU, LAURA CIZER (pg.81-85)
Naval Academy, Constanta, Romania / National Institute for Research and Development in Electric Engineering / Naval Academy, Constanta, Romania / Naval Academy, Constanta, Romania
APPLIED RESEARCH IN HARNESSING HYDROPOWER TO OBTAIN ELECTRICAL ENERGY

Abstract: This paper was presented at the „Thing -Hydro.com International Conference", November, 2014,Resita.
Energy has ever been a hot issue for humanity. In the context of climate changes and environmental pollution by energy production or its conversion from fossil sources, one challenge is to get green, clean energy at an affordable price.

ALEXANDRU SOTIR, JEAN CHILO (pg.86-89)
Naval Academy, Constanta, Romania / Polytechnic University, Grenoble, France
THE ELECTROMAGNETIC INTERFERENCE IN CASE OF ON BOARD NAVY SHIPS COMPUTERS` - A NEW APPROACH

Abstract: The electromagnetic interference in case of onboard navy ships computers'- A New Approach presents a dynamic-statistical modeling applied to computer's ship that works in condition of complex electromagnetic disturbances - a new modality to analyze and predict the effects of electromagnetic disturbances upon the electronic computers. On a navy ship, like a complex electromagnetic system, the electronic microcomputers are submitted to a large ensemble of disturbances, transmitted by field and by conduction. Due to the complexity of this phenomenon and the dynamic-random character of the interferences processes, the traditional methods, such a tests and measurements, becomes insufficiently. The proposed method, named Box-Jenkins Methodology, a dynamic-statistical modeling based on time series/dynamic series is applied to computer's ship that works in condition of complex electromagnetic disturbances. It offers, beside the tests and measurements methods, a dynamic-statistical modeling possibility of the complex electromagnetic interference and the prediction on a short time horizon of the computers' stability and safety.

ALEXANDRU SOTIR, ALINA BALAGIU (pg.90-95)
Naval Academy, Constanta, Romania
CALCULUS OF THE FEEDBACK ELECTROMAGNETIC FIELD OF A WALL FROM A SHIP

Abstract: Calculus of the feedback electromagnetic field of a wall from a ship refers to a calculus method of the electromagnetic field reflected by a metallic structure/wall from a ship. The motivation behind this research consists in the fact that, according to EMC, a special interest concerning the protection of the electronic equipment and human body on board is given to the determination of the secondary radiation created by the plane metallic structures of a navy ship. This radiation is due to the reflection of electromagnetic waves of the radio and radar antennas. For this purpose we propose a method based on the calculus of the plan-parallel shield, using Helmholtz propagation equation. The results of the modeling are useful to identify the adequate protection solutions for on board personnel and equipment against the secondary radiation, but they can be used for other real situations where such an issue appears.