ABSTRACT - MECHANICAL AND ELECTRICAL SCIENCE

AURELIA CHIOIBAŞ
Naval Academy, Constanta, Romania
MATERIALS AND BLANKS USED ON DEEP-DRAWING PROCESSING
Abstract: Cold plastic deformation processing provide complicated parts, high precision, a reduced consumption obtained materials. Materials subjected to such processing may be ferrous and non-ferrous. They are characterized by a high plasticity conferred by chemical composition and structure. Increasing the carbon content or of alloying elements decreases plasticity steels. Maintaining the close limits of chemical elements resulting from the elaboration or killing steel leads to increased plasticity them. In the category of non-ferrous materials, Al and Cu alloys are designed especially these processing methods. The blanks used must be characterized by a very good surface quality and dimensional accuracy.
Keywords:deep-drawing, the blank, state of hardening.

PETRU CHIONCEL, CRISTIAN CHIONCEL, MARIUS BABESCU
„Eftimie Murgu" University Resita/„Eftimie Murgu" University Resita/Polytechnic University Timisoara
OPTIMIZATION METHODS FOR REGENERATIVE CONVERSION SYSTEMS: SOLAR PHOTOVOLTAIC AND WIND
Abstract - The paper proposes optimization methods for the obtained power in photovoltaic and wind energy conversion systems. Both cases, aims obtaining the maximum output power, from the solar radiation respective wind, in the locations of conversion, namely the solar photovoltaic plants and wind parks. The obtained power and the energy production will be optimized based on the mathematical models for solar photovoltaic and wind systems, obtained from experimental characteristics.
Keywords: mathematical model, optimization, photovoltaic module PV, wind turbine

VERGIL CHIŢAC, MIHAIL PRICOP, VALENTIN ONCICA, IONUŢ-CRISTIAN SCURTU
Naval Academy, Constanta, Romania
HYDRODYNAMIC ANALYSIS REGARDING THE BALLAST-FREE CONCEPT
Abstract: The ballast free concept is a real future possibility in ship design and environmental protection. Measurements from other sources reveal a speed decreasing with an amazing percent. Using new software from The Department of Naval Architecture, Shipping and Port Management this paper will simulate in Ansys FLUENT (CFD component)and AutoPower a classic ship versus the new ballast free concept. this paper, a part of the results and conclusions are presented.
Keywords: Hydrodynamic, ballast, ship.

ALEXANDRU COTORCEA, FLORIN NICOLAE, MARIAN-VALENTIN RISTEA-KOMORNICKI
Naval Academy, Constanta, Romania
DETERMINATION OF THERMAL NEED FOR NAVAL MACHINERY AND EQUIPMENT DEPARTMENT
Abstract: The main goal of this paper is to determine the thermal need of the Naval Machinery and Equipment Department in order to ensure thermal comfort parameters of the building. The results will be used in further analyses of a project focus upon renewable energy sources based system – "Green Department" Project.
Keywords: thermal, heat demand, renewable

DUMITRU DASCĂLU
Naval Academy, Constanta, Romania
THE INFLUENTS OF ANTIFRICTIN ALLOYS OVER FRICTION COEFFICIENT AND MICROHARDNESS IN CASE OF SURFACES OBTAINED BY FINPLAST
*Abstract: This paper presents the effect of **finplast** technology over friction coefficient and hardness, by experimental determinations. FINPLAST it's the name of the new experimental finishing technology of antifriction surfaces of sledding bearings (propose by author for upgrading performance of the sliding bearings) by cold plastic deformations. Its studying antifriction alloys AlSn10 and CuPb5 (obtained using warm sintering). The most important of **finplast** parameters: cold plastic deformation force, the number of passes, the dry or with lubrication during cold plastic deformations.*
Keyworks: sliding bearings, technology, microhardness, friction coefficient.

DUMITRU DELEANU
Department of Mathematical Sciences, Maritime University of Constanta
HOW DOES THE ASYMMETRY COEFFICIENTS DISTINGUISH BETWEEN THE ORDERED OR CHAOTIC ORBITS OF A DYNAMICAL SYSTEM?
Abstract: The "Asymmetry coefficients" due to Waz et al have been proved by them in the case of the damped driven pendulum to distinguish between regular and chaotic orbits of a dynamical system. The test is equally applicable to data generated from maps, ordinary differential equations and to the experimental data and have some useful advantages when is compared with other tests for chaos. Because we have thought that other numerical studies are necessary for a better understanding of the behavior of these indicators we applied them to other dynamical system, well-studied in the literature by means of accepted tools. In this paper we investigate the performance of the "Asymmetry coefficients" when applied to a coupled-single species population map and to the motion of a square prism in cross-flow and show that the test is straightforward to implement and performs extremely well.
Keywords: indicator of chaos, dynamical system, ordered and chaotic orbits

FLORENŢIU DELIU, PAUL BURLACU
Naval Academy, Constanta, Romania

USE OF RENEWABLE ENERGY SOURCES

Abstract. The issue paper is to present renewable energy sources, insisting mainly on wind and solar energy. These two sources are analyzed in the context of Romania in particular and the EU in general. It is noted that wind energy was used in navigation since about 5000 years ago as existing wind sailing canvases. A turbine with horizontal axis is usually coupled with photovoltaic systems. Photovoltaic energy knows a growth rate increased. At the end of the paper are presented possible structure of a wind and photovoltaic systems.
Keywords: renewable energy, photovoltaic energy, solar energy, wind energy.

TRAIAN FLOREA, TRAIAN VASILE FLOREA, DANIEL MARASESCU
Naval Academy, Constanta, Romania/ A.P.M Agigea, Constanta, Romania/ Naval Academy, Constanta, Romania

ANALITYCAL METHOD FOR CALCULATING STIRLING ENGINES REGENERATOR

Abstract: The performances of the Sterling engine are affected by the convection coefficient and the "X" factor and not only by the variation of the gas quantity from the cylinder with the medium pressure variation. The convection factor indicates that a sensibility study concerning the characteristic parameters is mandatory.
Keywords: Sterling, cycle, engine, convection

CORNELIU MOROIANU
Naval Academy, Constanta, Romania

THE FUEL IGNITION AND COMBUSTION BY PLASMA IN THE MARINE POWER PLANTS

Abstract: The continuous damage of the used fuel quality, of its dispersion due to the increasing viscosity, make necessary the volume expansion and the rise of the e electric spark power used at ignition. A similar situation appears to the transition of the generator operation from the marine Diesel heavy fuel to the residues of water-fuel mixture. So, it feels like using an ignition system with high specific energy and power able to perform the starting and burning of the fuels mentioned above. Such a system is that which uses a low temperature plasma jet. Its use involves obtaining a high temperature area round about the jet, with a high discharge power, extending the possibility of obtaining a constant burning of different concentration (density) mixtures. Besides the action of the temperature of the air-fuel mixture, the plasma jet raises the rate of oxidation reaction as a result of appearance of lot number of active centers such as loaded molecules, atoms, ions, free radicals.
Keywords: fuel, viscosity, burning, plasma jet.

MARIAN RISTEA, IONEL POPA
Naval Academy, Constanta, Romania

CALCULATION OF THE FLOW AROUND A PANAMAX TANKER

Abstract: The present study is devoted to the computation of a PANAMAX tanker in head wave with free heave and pitch motion. A RANS solver using finite-volume discretization and free-surface capturing approach is employed for the computation. The expected results refers to the drag force variation for a certain trim.
Keywords: tanker, hull, drag, force

OCTAVIAN TĂRĂBUŢĂ, CĂTĂLIN-PAUL CLINCI
Naval Academy, Constanta, Romania

UNDERWATER REMOTELY OPERATED VEHICLE DESIGNED FOR SEARCH IN MARITIME AND RIVER AREAS

ALECU TOMA
Naval Academy, Constanta, Romania

THE INFLUENCE OF THE INITIAL CONDITIONS ON THE EVOLUTION OF PRESSURE WAVES

Abstract: In this paper it will be analyzed the influence of initial conditions on the evolution of the pressure wave using the linear and homogeneous wave equation (hyperbolic type) and MathCAD software.