

№ 1(86), 2022 SUMMARIES

PRODUCTION OF THE NEW-GRADE ALLOYS WITH HIGH PHYSICO-MECHANICAL PROPERTIES USING MODERN TECHNOLOGIES. **A. Chkheidze, N. Khvadagiani, A. Khvadagiani, M. Iremadze.** "Problems of Mechanics". Tbilisi, 2022, № 1(86), pp. 7-12, (Engl.).

Using modern technologies, by selecting the initial components and determining the optimal process parameters, an alloy with high physico-mechanical properties has been obtained. 2 ill. Bibl.5.Engl.: sum.in Russian.

CALKULATING CONTOURING TOOL BY FINITE DIFFERENCE METHOD. **O. Kikvidze, N. Sakhanberidze.** "Problems of Mechanics". Tbilisi, 2022, № 1(86), pp. 15-23, (Engl.)

The paper dwells on a problem of thermoelasticity for calculating the contour tool with a view to determining the size of the executing diametrical size of its cutting edge, as well as for determining the area of the application of tooling material. The two-dimensional problem is solved by a finite difference method. There have been obtained the results for the temperature field and displacement components. 3 ill. Bibl. 5. Engl.; sum. in Russian

COMPARATIVE ANALYSIS OF THE HYDROGEN AND CONVENTIONAL ENGINES AND THE INFLUENCE OF THE SHAPE OF THE COMBUSTION CHAMBER ON THEIR ENVIRONMENTAL AND EFFICIENCY INDICATORS. **G. Chilashvili.** "Problems of Mechanics". Tbilisi, 2022, № 1(86), pp. 25-35, (Engl.).

In article established the characteristics of the working process of a hydrogen-diesel engine in contrast to conventional diesel engines, as well as the influence of the shape of the combustion chamber on nitric oxide emissions during the combustion process in a hydrogen-diesel engine. It should be noted that the influence of the shape of the combustion chamber on environmental and efficiency indicators of the hydrogen-diesel engine has been studied for the first time. 3 ill. Bibl. 19. Engl.; sum. In Russian.

MAGNETOHYDRODYNAMIC FLOW OF FLUID IN A CIRCULAR PIPE WITH ACCOUNT OF THE VOLUM SOURCES AND SINK MASS. **V. Tsutskiridze, M. Tsutskiridze.** "Problems of Mechanics". Tbilisi, 2022, № 1(86), pp. 37-40, (Engl.).

The steady flow of viscous incompressible weakly conducting fluid in a circular pipe with volume sources sink mass is studied. Bibl. 13. Engl.; sum. In Russian.

ISOLATED SYSTEM WITH TWO MASSES AND ELECTROMAGNETIC VIBRATION MACHINES. **M. Chelidze**. "Problems of Mechanics". Tbilisi, 2022, № 1(86), pp. 41-49, (Engl).

The paper presents a corrected mathematical model of a two-mass isolated system. Dynamic processes of a two-part system with excitation, elastic and dissipative nonlinear forces are obtained through mathematical simulation. Numerical experiments have shown that the oscillation shapes and results obtained by a system reduced to one mass are exactly the same as the oscillation shapes and results of a two-mass system with equal masses, but in the case of different masses they are quite different from each other. 15 ill. Bibl. 5. Engl.; sum. In Russian.

EFFICIENCY OF OPERATION OF ELECTRIC VEHICLES AND PROSPECTS OF THEIR APPLICATION. **V. Abuladze**. "Problems of Mechanics". Tbilisi, 2022, № 1(86), pp. 51-55, (Engl)

Transport is one of the important sectors of the country's economic development, the effective functioning of that is a prerequisite for maximizing the transport interests of the population in terms of freight and passenger traffic. Of particular note is road transport that is the main transport function for countries with a small territory, and the priority development of that is important. Should also be taken into account the negative consequences of increasing the vehicles fleet that causes a negative impact on the environment and is a big problem today.

Our country's vehicles fleet is significantly outdated, mostly includes old cars (46% of them are 11 years old or older) and they makes more than 70% of urban pollution. This negatively affects the health of the country population and the more the degree of environmental pollution increases. Therefore, the replacement of liquid fuels of traditional petroleum origin with electricity as an alternative form of energy has not only economic but also social significance.

The article discusses the importance of using electricity as an alternative form of energy in road transport as an environmentally friendly and inexpensive type of fuel and discusses the efficiency and prospects for the use of electric vehicles, as well as methods for determining the operating costs of electric vehicles. 6. Engl.; sum. in Russ.