№3(68), 2017
SUMMARIES

ON GRASHOF'S THEOREM FOR SPATIAL FIVE-BAR HINGED MECHANISMS WITH TWO DEGREES OF FREEDOM. **N. Davitashvili, A. Sharvashidze. "**Problems of Mechanics". Tbilisi, 2017, № 3 (68), pp. 5-19, (Engl.).

Based on the analysis of existence of cranks in four-bar spatial, spherical and planar mechanisms, is stated the theorem of existence of two cranks in spatial five-bar hinged mechanisms. In accordance with Grashof's theorem it is widespread on four-bar spatial mechanisms as well as on five-bar and four-bar spherical and planar hinged mechanisms. The formulated theorem represents the general and universal. 6 ill. Bibl. 26. Engl.; sum. in Russian.

ON ISSUE OF DYNAMIC ANALYSIS OF MANIPULATORS AND ROBOTS WITH CONSIDERATION OF FRICTION IN KINEMATIC PAIRS. **N. Davitashvili. "**Problems of Mechanics". Tbilisi, 2017, № 3 (68), pp. 21-42, (Engl.).

Are stated some issues of dynamic research of manipulators and robots with consideration of friction in kinematic pairs. Are stated the methods of determination of friction in rotary, spherical, spherical with finger, cylindrical and translational pairs. The obtained results promotes to determination of real laws of motion of manipulators and robots under study, as well as improves the precision of positioning of gripper. 22 ill. Bibl. 14. Engl.; sum. in Russian.

DETERMINATION OF THE SPEED OF ROTATION OF WHEEL SETS WITH A DEPRECIATION DEPENDENCE. **N. Mgebrishvili, I. Garishvili, N. Kutubidze, L. Kurakhchishvili. "**Problems of Mechanics". Tbilisi, 2017, № 3(68), pp. 43-47, (Engl.).

The speeds of rotation of wheel pairs with the dependence of different sizes of wear are considered. Comprehensively carried out theoretical and experimental research revealed the identification of the quality of wear of wheel sets and determined its indicator. Graphic developed a characteristic indicator of the dependence of the speed of rotation of wheel sets on the number of pulses, which makes it possible to accurately determine the quality of wear. A block diagram of the algorithm of the device for determining wear and damage to wheel sets has been developed. Ill. 5, Bibl. 6. Engl.; sum. in Russian.

STRUCTURAL FEATURES OF MECHANICAL SUPPORT FRAME FOR IMPROVEMENT OF SPACE REFLECTOR'S ACCURACY. **Sh. Tserodze, E. Medzmariashvili, M. Nikoladze, A. Chapodze, Z. Isaakian, M. Muchaidze** „Problems of Mechanics". Tbilisi, 2017 № 3(68), pp. 49-58, (Eng.)

The accuracy of space reflector is significantly defined by structure of mechanical support frame [2, 3]. Naturally, during joint behavior of the ring and central shaping structure there are undesirable deformations. In other words, the mechanical ring components are undergoing bending due the impact of force factors. Therefore, for minimization or fully elimination of non-desired force factors is necessary to implement appropriate changes in the structure. Specifically for our case, we have considered a cone ring with V-fold bars combined with flexible triangular shapes cells center (In paper do not considered and for FEM analysis we have built approximate model). 13 ill. Bibl. 9. Engl.; sum. in Russian.

STABILITY OF ADJUSTABLE HYDRAULIC DRIVES OF AGRICULTURAL MACHINERY. **R. Makharoblidze, Z. Makharoblidze. "**Problems of Mechanics". Tbilisi, 2017, № 3(68), pp. 59-65, (Engl.).

Due application of damping rate criteria of transient process (response speed) is derived the condition of stability of adjustable hydraulic drives of agricultural machinery. Is offered the methodology of calculation of optimal parameters of hydraulic drives on proposed criteria on example of working volume of hydraulic motor. Ill. 1, Bibl. 5. Engl.; sum. in Russian.

APPLICATION OF MECHANICALY AND ELECTRICALY IDENTICAL OSCILLATING SYSTEMS IN TRANSPORT MEANS. **T. Morchadze, N. Rusadze. "**Problems of Mechanics". Tbilisi, 2017, № 3 (68), pp. 67-71, (Engl.).

Electromechanical analogical systems in vehicles oscillating theory provide significant results and are low-consumption in comparison to road and laboratory tests. In the paper are considered the theoretical foundations of the first system "power-voltage". The feature of motion in mechanical and electrical oscillating systems is that their description is carried out by same mathematical equations. Therefore the feature of certain system would be distributed on arbitrary other systems, for that are applied the same differential equations of motion. Bibl. 10. Engl.; sum. in Russian.

METHODS OD SOLUTION OF LOGISTIC TASKS AND TYPES OF MODELING. **N. Rusadze, T. Morchadze. "**Problems of Mechanics". Tbilisi, 2017, № 3 (68), pp. 73-75, (Engl.).

In the paper are presented: applied at solution of scientific and practical tasks in field of logistic methods and types of modeling; possibility of carry out comprehensive research of system functioning process; material, abstract, language, mathematical, analytical and simulation models; stages of analytical and simulation models performing, their advantages and disadvantages. Bibl. 4. Engl.; sum. in Russian.

METHODS TO REDUCE THE LOSSES AT CATASTROPHIC EARTHQUAKE. **M. Bediashvili, G. Kipiani. M. Todua. "**Problems of Mechanics". Tbilisi, 2017, №3(68), pp. 77-82, (Engl.).

In developed the improvement of seismic resistance of reinforced concrete framework large panel, large block and cast-in-situ buildings that is taking into account the application of seismic insulation systems. Are stated issues of earthquake problems in Georgia, Azerbaijan and Russia. Is mentioned that by application of seismic insulation systems the seismic impact on building is decreasing approximately up to 1.5 times. Bibl. 22. Engl.; sum. in Russian.