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SUMMARIES

STRUCTURE, CLASSIFICATION AND KINEMATIC ANALYSIS OF FIVE-BAR HINGED MECHANISMS WITH TWO DEGREES OF FREEDOM. **N. Davitashvili, A. Sharvashidze.** "Problems of Mechanics". Tbilisi, 2017, № 2 (67), pp. 5-18, (Engl.).

Is stated the structure, classification and general issues of kinematic analysis of s with two degrees of freedom. Is studied the five-bar spherical hinged RRRRT type mechanism with two degrees of freedom. Are obtained theoretical and real kinematic parameters of mechanism. 11 ill. Bibl. 26. Engl.; sum. in Russian.

THE PROCESS OF SOUND AMPLITUDES DECAY IN THE IMPEDANCE TUBE AND DETERMINATION OF SOUND ABSORPTION COEFFICIENT IN MATERIALS. **M. Chelidze, M. Tedoshvili, J. Javakhishvili, D. Nizharadze.** "Problems of Mechanics". Tbilisi, 2017, № 2 (67), pp. 19-26, (Engl.).

On the base of theoretical and wide experimental investigation were developed the new method of determination sound absorption coefficient in materials. The modern digital technique and software give the ability that the sound absorption coefficient was measured directly with the help of waveforms of damping sound waves in an impedance tube, i.e. by the relation of reflected and incident waves but not by bypass ways as it is done in the present. The presented method ensures more stable measuring beyond laboratory conditions with no precision devices and it is comfortable in a wide consumption. 9 ill. Bibl. 7. Summ. in Russian.

OPTIMIZATION OF AUTOMATIC CONTROL SYSTEMS OF AGRICULTURAL MACHINES WORKING BODIES BY CRITERIA OF AGILITY. **R. Makharoblidze, R. Makharoblidze, Sh. Chalaganidze.** "Problems of Mechanics". Tbilisi, 2017, № 2(67), pp. 27-35, (Engl)

On example of the automatic follow-up system of the tea-plucking machine Sakartvelo is revealing the advantage of the speed-response criterion (the rate of damping of transient process oscillations) to study the stability of automatic systems in comparison with the criteria of Vyshnegradsky, Rause-Gurvitz and various variations of these criteria. The latter make gives the possibility only to reveal is a system stable or unstable, but do not allow to determine how to change the parameters of an unstable system in order to make it stable and fastoperating. 1 ill. Bibl. 7. Engl.; sum. in Russ.

DEVICE FOR DIAGNOSIS OF WHEELS PAIRS AND RAIL WEAR AND DAMAGES. **N. Mgebrishvili, A. Sharvashidze, I. Garishvili, N. Kutubidze.** "Problems of Mechanics". Tbilisi, 2017, № 2 (67), pp. 37-42, (Engl.).

The safety of train traffic and speed largely depend on the condition of the wheel pairs and rail. The actual problem of the train traffic safety, resulting from the wear of wheel pairs and rails, is considered. A new method is proposed, which in constant automatic mode provides control over the integrity of wheel pairs and rails. The block diagram of the algorithm of developed device is considered and the principles of its operation are described. il. 5, Bibl. 6. Engl.; sum. in Russian.

CALCULATION OF HEAT EXCHANGER WITH LAMINAR FLOW IN INITIAL SECTION OF PLANE CHANNEL WITH PENETRATED WALLS. **V. Tsutskiridze.** "Problems of Mechanics". Tbilisi, 2017, № 2 (67), pp. 43-46, (Engl.).

The heat transfer at a constant wall temperature and homogeneous profiles of velocity and temperature in the channel inlet is considered in the article. Are carried out calculations of heat exchange at the condition of a hydrodynamic section of flow. Bibl. 13. Engl.; sum. in Russian.

ENERGY AUDIT DEDICATED TO FISHING VESSELS OPERATING AT THE BALTIC SEA. **P. Rajewski, O. Klyus**. “Problems of Mechanics”. Tbilisi, 2017, № 2 (67), pp. 47-59, (Engl.).

This paper presents a proposal of energy audit developed for the Polish fishing fleet at the Baltic sea. Now days with the high fuel prices and slack freight market, every ship-owner is seeking ways to save money and to keep his enterprise in profit. Apart from the energy recovery systems, fishing vessels have been incorporated latest technologies to reduce energy consumption and to make ships greener. A research team of the Maritime University of Szczecin gathered opinions of the shipowners regarding the effects of the modernizations performed and conducted research which shall constitute the grounds to develop optimal directions for modernization and operation of the fishing vessels. Development of energy efficiency audit programme, dedicated for this specific vessels’ group, will be practical to improve energy efficiency during fishing vessels’ operation. The idea to carry out an audit is to identify solutions, which would reduce energy inputs for vessels’ operation, and present them to fishermen starting from the simplest ones which do not require funding to more complex requiring considerable financial investment, but improving significantly the energy efficiency of vessels as well as the consequent competitiveness. 7 ill. Bibl. 26. Engl.; sum. in Russian.

RESEARCH INVESTIGATION ON TRANSMISSION LOADING OF THE 4x4 TYPE AUTOMOBILE WITH 5-TON CARRYING CAPACITY. **D. Kbilashvili, M. Tevzadze, Z. Chkhartishvili**. “Problems of Mechanics”. Tbilisi, 2017, № 2 (67), pp. 61-66, (Engl.).

For the purpose of studying loading of automobile transmission, the paper dwells on the road-experimental research program on the 4X4-type automobile with 5-ton carrying capacity, which envisages the testing of vehicle on the asphaltic, cobblestone and dirt roads, at different values of tire internal pressure.

In accordance with values of radial rigidities determined under bench-test conditions, there has been established the impact of their changes on torque moment, and conditions of choosing the optimal values of tire rigidity and damping radial axis for the different-type roads. 4 ill. Bibl. 3. Engl.; sum. in Russian.

METHOD OF CALCULATION OF TRACK NUMBER IN MAIN YARDS OF RAILWAY TECHNICAL STATIONS. **G. Telia, A. Sharvashidze, M. Gelashvili, K. Sharvashidze**. “Problems of Mechanics”. Tbilisi, 2017, № 2(67), pp. 67-72, (Engl.).

Among the railway stations due their significance and functional destination are outlined technical (span and marshalling) stations, which in large amounts, process transit and local freight traffic. The value of their idle time and interoperational expectations significantly depends on the capacity of the receiving, marshalling and sending parks of these stations, i.e. on the number of tracks in these parks, the correct calculation of that is of great importance. In this order in the article are considered and analyzed the methodology for calculating these parks, proposed by different scientists and specialists, and are stated original formulas for calculating the number of tracks, as well as are constructed diagrams. 2 ill. Bibl. 4. Engl.; sum. in Russian.

INTERACTION OF INCLUSION. **A. Buksianidze**. “Problems of Mechanics”. Tbilisi, 2017, № 2(67), pp. 73-77, (Engl.).

The three-dimensional problem on interaction of bundle of rigid fibers (bars) in elastic matrix, subjected to heating or cooling is considered. Is considered the case when thermal expansion of material of matrix is more than inclusions, at this in the threads are originated the tensile stresses. Bibl. 5. Engl.; sum. in Russian.

