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MODELLING OF THE SYSTEM BRIDGE SUPERSTRUCTURE – MOTOR VEHICLE FOR THE COMPUTER SIMULATION

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Rezumat. *Lucrarea prezintă metoda modelării dinamice: modelarea inerţială, elastică şi disipativă a motorului unui vehicul. Sistematizarea modelării este realizată cu scopul de a afla comportarea dinamică a ansamblului format de suprastructura punte şi motorul autovehiculului. Această modelare permite exprimarea echilibrului dinamic între două subsisteme principale: vehiculul în mişcare şi suprastructura punte.*

Abstract. *The work presents the methodology of dynamic modelling: the inertial, elastic and dissipative modelling of motor vehicles. Modelling systematization is performed in order to find out the dynamic behaviour of the ensemble formed by the bridge superstructure and a motor vehicle. This modelling allows to express the dynamic balance formed by two major subsystems: the vehicle in movement and the bridge superstructure.*

Keywords: Elastic coefficients, Composite materials, Elastic properties, Industrial domains

1. The dynamic modelling of the motor vehicle on wheels.

In special literature one can find extremely detailed analyses referring to the dynamic modelling of motor cars on wheels [1, 2, 3, 6, 7]. In fig. 1. [1] an idealized dynamic model of a motor vehicle which is composed of a suspensive mass, a frame and the body (considered as rigid structures); unsuspensive masses composed of wheels, bridges and the mechanisms connected with them is presented. The model also includes springs and dampers, interposed between the suspensive mass and unsuspensive masses and springs that represent auto tires mounted in model between the unsuspensive masses and the carriage body.

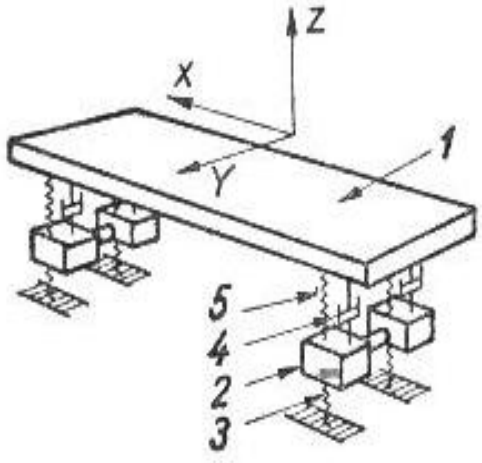

Fig. 1. The dynamic model for the motor vehicle [1]: 1 suspensive mass, 2 unsuspensive mass, 3 spring – (pneumatic) tyre, 4 spring - suspension, 5 damping - suspension.

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