

## Motion cases analysis of the mobile platform with four-wheel drive under slippage conditions

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*Abstract:* The cases of motion of the prototype of mobile platform equipped with four drive modules are considered. The prototype has been developed by the author's construction assumptions that allows to realize the motion of the platform in a various configurations of wheel drives, including control of the active forces and the direction of their settings while driving. The model of the platform's dynamics has been proposed in previous works of the authors. In the proposed model the relations between active and friction forces in longitudinal and transverse directions have been considered. The solution of the initial problems in relation to selected cases of platform motion have been obtained numerically using the Runge-Kutta method of the fourth order. The results presented in the work have been chosen to represent the behavior of the platform during its motion when the wheels slip and in the circumstances to refrain the platform from falling into the skid. On the basis of the model and calculation program it is possible to create the calculation models for other cases by introducing the other elements of the real object and the interaction of its elements with the ground to the mathematical description and numerical procedure.

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