

Studies on steering torque influenced by design parameters of two-wheel vehicles

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ABSTRACT

The main purpose of this research is to investigate the steering torque influenced by design parameters of two-wheel vehicles. Neglecting other influences by drivers themselves, drivers of two-wheel vehicles control motorcycles mainly by means of the steering torque, and neglects the influences by driver while driving along a circular path. In addition, the stabilities of motorcycles are not only influenced by steering torque but also the vehicle design and operating parameters. The studies of stabilities of two-wheel vehicles need to establish the governing equations of mathematical models. By using the Lagrange energy method, the mathematical models can be established. The eigenvalues of the system can be used to identify the stability of this system. The reaction forces for steady-state cornering can also be obtained. Finally, by using the method to obtain the steering torque, it can be used in early design stage to determine the design parameters of two-wheel vehicles.

Keywords : steering torque, Lagrange energy method, eigenvalues, models of motorcycle

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