The Study of Dynamic Analysis for Steer-by-Wire System

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ABSTRACT

The main purpose of this study is focus on parameters sensitivity for steer-by-wire system（SBW）. This paper is setting up the dynamic model of SBW system, and according the dynamic model to analysis the sensitivity of parameter of this system, and analyzing the stability of the SBW when the vehicle steering. When the change of the tire pressure and temperature or the road surface has jolt irregular, it can make the vehicle steering unstably. The parameter pneumatic trail (tp) has a relationship with above-mentioned conditions. The vehicle speed (v) has a relationship with steering. In this paper, there three parameters: pneumatic trail (tp), friction coefficient of road (μ) and vehicle speed (v) will be studied on sensitivity of slip angle, yaw rate, steering angle and steering angle rate for this system. According the result of sensitivity to simulation for the SBW system when the tp、 μ and v have change.

Keywords : SBW system ; Sensitivity equations

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