

## **Modeling and Dynamics Analysis for Intelligent Skid-Steering Vehicle Based on Trucksim-Simulink**

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**Abstract :** Aiming at the verification of control algorithms for skid-steering vehicles, a vehicle simulation model of 6×6 electric skid-steering unmanned vehicle was established based on Trucksim and Simulink. The original transmission and steering mechanism of Trucksim are removed, and the electric skid-steering model and a closed-loop controller for the vehicle speed and yaw rate are built in Simulink. The simulation results are compared with the ones got by theoretical formulas. The results show that the predicted tire mechanics and vehicle kinematics of Trucksim-Simulink simulation model are closed to the theoretical results. Therefore, it can be used as an effective approach to study the dynamic performance and control algorithm of skid-steering vehicle. In this paper, a method of motion control based on feed forward control is also designed. The simulation results show that the feed forward control strategy can make the vehicle follow the target yaw rate more quickly and accurately, which makes the vehicle have more maneuverability.

**Keywords :** skid-steering, Trucksim-Simulink, feedforward control, dynamics

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