

ACTIVE SUSPENSION INERTIA REGULATION METHOD BASED ON VEHICLE-FRONT TERRAIN, AND CONTROL SYSTEM

ABSTRACT

Disclosed in the present invention are an inertial regulation method of active suspensions based on terrain ahead of a vehicle and a control system thereof. According to the scanned terrain ahead of the vehicle, a center of mass trajectory and attitude history are calculated when the vehicle passes through the terrain ahead of the vehicle with passive suspensions. After smoothing the trajectory, the active suspension is controlled to make the vehicle drives according to the smoothed trajectory. During this period, a smoothness coefficient is adjusted to make each suspension stroke be limited within a limit stroke, and according to the supporting force and stroke of each active suspension calculated from a dynamics model, the impedance control based on force-displacement is carried out on an actuator of the suspension. The present invention can significantly improve the driving comfort and handling stability of the vehicle driving on an uneven road surface.

Figure 1