

VEHICLE ACTIVE SUSPENSION INERTIA REGULATION METHOD BASED ON WHEEL SUPPORTING FORCE, AND CONTROL SYSTEM

ABSTRACT

Disclosed in the present invention is an inertial regulation method and control system of vehicle active suspension based on a supporting force of each wheel, wherein the inertial control method comprises an inner loop control and an outer loop control. The inner loop control is to calculate, according to the dynamics, a theoretical supporting force of each wheel when the vehicle is driving on a virtual slope plane with a 6-dimensional acceleration and a pitch angle measured by an inertial measurement unit; compare the theoretical supporting force with the measured supporting force of each wheel; and control the expansion of each suspension cylinder according to the difference value, so that the supporting force of each wheel changes according to the theoretical supporting force. The outer loop control is to control each suspension cylinder for the same expansion of displacement, so that the average value of all the suspension cylinder strokes tends to a median value. The present invention can significantly improve the driving comfort and handling stability of the vehicle on an uneven road surface.

Figure 1