

عنوان مقاله:

Simultaneous increasing of the car passengers comfort and steering by using nonlinear control

محل انتشار:

اولین کنفرانس ملی رویکردهای نوین و کاربردی در مهندسی مکانیک (سال: 1394)

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خلاصه مقاله:

This paper studies the applying of the controller in the suspension system of car. In order to deal with disturbances and uncertainties, the sliding mode control method has been used as a resistant method as well as a controlling method applied on system. This controller with a Quarter model of car uses the mathematical linear combination of an ideal model Sky-hook and an ideal model Ground-hook as a reference model that this reference model causes to simultaneously have both factors of the comfort of car passengers and more proper conductivity. Stimulation of the suspension system of car causes the effect of applied controller on the dynamics of car's cabin and dynamics of its wheel. In this paper, both stable and transient states have been used as the stimulation entering to the system and the effects of both states on dynamics of car's cabin and its wheel have been investigated. The obtained results show that there are states in which there is the equilibrium between the appropriate response of car's cabin and its wheel. This balance causes the shift in emphasis of reference model on the controllers of sky-hook and Ground-hook through changing the advantage of hybrid controller.

کلمات کلیدی:

Semi-active damper, Magneto-Rheological fluid, Hybrid reference model, Stable stimulation, Transient stimulation

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