

Title: Proportional-integral sliding mode control of a hydraulically actuated active suspension system: force tracking and disturbance rejection control on non-linear quarter car model

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Abstract:

This paper deals with a robust strategy for controlling a hydraulically actuated active suspension system for a quarter car model. The system consists of an inner loop for force tracking control of the hydraulic actuator and an outer loop controller to reject the effects of road induced disturbances. The Proportional Integral Sliding Mode Control (PISMC) scheme is proposed for the outer loop and the Proportional Integral (PI) control is utilised for the inner loop. The performance of the proposed controller is compared to the LQR controller and the passive suspension system through computer simulations.