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Simulation of disturbance rejection control of half-car active suspension system using active disturbance rejection control with decoupling transformation (Conference Paper) (Open Access)

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Abstract

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In recent years, Active Disturbance Rejection Control (ADRC) has become a popular control alternative due to its easy applicability and robustness to varying processes. In this article, ADRC with input decoupling transformation (ADRC-IDT) is proposed to improve ride comfort of a vehicle with an active suspension system using half-car model. The ride performance of the ADRC-IDT is evaluated and compared with decentralized ADRC control as well as the passive system. Simulation results show that both ADRC and ADRC-IDT manage to appreciably reduce body accelerations and able to cope well with varying conditions typically encountered in an active suspension system. Also, it is sufficient to control only the body motions with both active controllers to improve ride comfort while maintaining good road holding and small suspension working space. © Published under licence by IOP Publishing Ltd.

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