

## عنوان مقاله:

Optimal Control of Active Suspension System with Parametric Uncertainty

## محل انتشار:

دومین کنفرانس بین المللی پژوهش در علوم و مهندسی (سال: 1395)

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## خلاصه مقاله:

By the advances in the electronic industry and control, vehicle designers tend to engage active suspension system to enhance safety and stability in their products. Among all electromagnetic suspension system with the capability of regenerating energy which is used for decreasing the consumption of energy and increasing passenger comfort and handling has satisfied the car producers in recent years. In thispaper, optimal robust adaptive controller is designed based on Lyapunov theory and linear matrix inequality (LMI) with parametric uncertainty on the basis of a linear quarter-car model. The performance of this controller in the presence of parametric uncertainty and road disturbance has been compared with  $H_{\infty}$ , and Robust Linear Quadratic Regulator (RLQR) andalso have been compared with mixed  $H_{\infty}$ / RLQR controller. The aim of control design is trade-off between ride control and handling by directly controlling the suspension-force. The simulation results show the effectiveness of suggested method in increasing ride comfort and safety. Since one of the basic problems of active suspension system is its high energy consumption, the suggested algorithm for optimizing control signal works successfully

## کلمات کلیدی:

Active Suspension System, Robust Control  $H_{\infty}$ , Robust Linear Quadratic Regulator (RLQR) Mixed  $H_{\infty}$  /RLQRC Controller

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/617492>

