

Review of: "Simulation of Control System for a Half-Car Suspension System for Passenger Vehicle Application by Designing an LQR Controller"

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Potential competing interests: No potential competing interests to declare.

This paper proposed a mathematical model for a 4-DOF half-car active suspension system employing a LQR controller, and simulated the sine road and random road inputs using MATLAB/Simulink software. The results of the active suspension to the passive suspension are compared. The problems are such that:

1. Lack of novelty. It is recommended to conduct deeper research on modeling and control algorithms. At the same time, some experiments should also be conducted to compare with simulation results, so that the paper is more convincing.
2. The body acceleration should be used as the evaluation indicator instead of velocity and displacement, the relevant standards (ISO 2631-1997) specify the body acceleration as the evaluation indicator.
3. There are also some problems with the differential equations and the control algorithm, such as Equation (1)-(4) and Figure 2, etc. And some parameters are not specified, such as 'h' in Equation (1), etc. And the reason for selecting so many state variables is unclear. There are many errors in the format of the paper, such as some parameter symbols not being unified throughout the entire paper, figures, equations and so on.