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

Chaofeng Li[1]

1 Northeastern University

Potential competing interests: No potential competing interests to declare.

This manuscript conducts research in simulation of a control system for a half-car suspension system by designing an LQR controller. The author proposes a mathematical model for a 4-DOF half-car ASS employing an LQR controller. And then, the MATLAB/Simulink software is used to run the simulation. The results of the simulation demonstrate that this study has improved its modeling and control capabilities. However, the reviewer believes that there are still many areas that require modification; major revisions are as follows:

1. Should the manuscript uniformly adopt half-vehicle or Half-Car?
2. Abbreviations are only indicated in parentheses when they first appear, and all subsequent full names use abbreviations.
3. The literature review should be more comprehensive.
4. Check the correctness of the listed units in Tables 1 and 2. In addition, the units in the manuscript should use the International System of Units.
5. In Section 2.1, provide a detailed derivation process for the mathematical model of the ASS.
6. Number the illustration above the title of Section 2.2.
7. Some of the headings need modification. For instance, there is no need for a title in Section 3.1. Moreover, please refine the headings in Section 4.
8. Where is the PID controller used?
9. In Section 3.1, represent the data for the best value of K in a table.
10. Please explain why the construction of the quadratic form is in the form of equation (10). Is the value of Q arbitrary or chosen based on experience?
11. Equation (12) does not include the vehicle speed v.
12. When describing figures and tables, strive to use the corresponding numbering for clarity.
13. Why use a sinusoidal form as the road input?
14. No need to repeatedly stress the utilization of the MATLAB/Simulink software for simulation.
15. Please analyze and discuss the phenomenon in Figure 5.
16. The citation format has numerous errors. Please review the format of the references.
17. The manuscript format requires significant modifications, such as font styles, font sizes in equations and figures,

upright and italic fonts, and the positioning of reference citation numbers.