

عنوان مقاله:

Performance assessment of fuzzy controller for responses of building structures equipped with semi-active tuned mass damper

محل انتشار:

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خلاصه مقاله:

In this paper, fuzzy controller has been designed to control the applied voltage of semi-active Magneto Rheological (MR) damper working parallel with tuned mass damper to reduce the structural responses of buildings under earthquake excitations. The main advantage of the fuzzy controller is that it is not based on the mathematical model of the system. According to the high complexity of the behavior of the structure and MR damper system, fuzzy controller can be used to calculate the appropriate voltage, easily. In order to enhance the performance of the fuzzy controller, fuzzy rules should be based on the proper understanding of the operator toward the structural behavior. In this study fuzzy controller is designed based on the groundhook algorithm, according to the displacement and velocity responses of the structure. The responses of a building structure with ten degrees of freedom equipped with semi-active tuned mass damper are compared with those of the passive tuned mass damper and the uncontrolled structure. The results show an appropriate performance of the fuzzy controller in reducing the seismic responses of the structure

کلمات کلیدی:

Semiactive Tuned Mass Damper, fuzzy controller, MR Damper, Groundhook Algorithm

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