

عنوان مقاله:

Calculating Optimum Parameters of Tuned Mass Damper via Grey Wolf Optimization Method for Seismic Application

محل انتشار:

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خلاصه مقاله:

In this article, optimum mass damper is applied to decrease dynamic response in multi-story which is exposed to earthquake stimulation. Grey wolf algorithm which is meta-heuristic algorithm is a suitable method to optimize and to correct the parameters of passive mass damper. To this purpose, a Matlab program is developed which does numerical optimization and decreasing stimulation time. Optimization criterion is applied as the sum of proportion values in maximum displacement and transfer function of the first floor in controlled structure to uncontrolled structure. The impact of nonlinear material is ignored and material behavior is assumed in elastic limit. The goal of providing this procedure is optimizing mass damper parameters which are optimized in comparison to other mass damper by different methods and have better performances and more energy is dissipated. To guarantee good performance of this approach, some numerical examples are implemented to verify the effectiveness and feasibility of the presented approach. The comparison of the results to other previous works present preference for this method, because it causes the maximum of story related location being less

کلمات کلیدی:

Tuned Mass Damper, Grey Wolf Algorithm, Optimization, Control, State Space

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