

عنوان مقاله:

An analysis of the mechanics of intelligent structures and their role against earthquakes

محل انتشار:

دومین کنفرانس بین المللی علوم، مهندسی و نقش تکنولوژی در کسب و کارهای نوین (سال: 1401)

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خلاصه مقاله:

An intelligent structure has the ability to sense changing environmental or system conditions, detect any problems in critical situations, store and process measured data, command appropriate action to improve system performance, and maintain the integrity, safety, and operation of the structure. One of the most challenging issues in earthquake engineering is structural damage determination, monitoring and resistance in earthquake conditions. In this regard, the need for design and construction of smart systems with structural form, combinational and behavioral adaption capability with environmental conditions in recent decades has been increased. These structures own natural or acquired capability in responding exteroceptives and capability of form, combination and behavior adaption with environmental conditions. One of the most vital and basic infrastructures playing an important role in earthquake crisis management is the bridges. Destruction and damage of the bridges can make rescue operations encounter critical problems. Thus, taking smart systems into account in the structure of these bridges is essential in order to decrease earthquake impact and increase reliability of the bridges. In this regard, this research is centralized on different possible methods of designing the smart structure of vital bridges in Iran against earthquake effects. Five main methods have been chosen by asking experts in the related fields and to evaluate and select a proper way to design smart bridges. Five indices of casualty and vulnerability reduction, possibility of localization of sensor technology, performance costs, performance speed and maintenance were considered and using pairwise comparison method final weight of indices. Finally methods have been determined and we came up with the result that active structures .method is the optimal method in smart bridges

کلمات کلیدی:

.Smart structure, Bridges, Scenario, Earthquake, AHP

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