

## عنوان مقاله:

A Simplified LQR Algorithm for Stable Active Control of Structures

## محل انتشار:

ششمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1390)

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## خلاصه مقاله:

In recent years, active structural response control have found well worthy of attention as an antiseismic solution to design new structures and/or enhance their performances. During a few last decades, a lot of mechanisms and algorithms with some advantages/disadvantages have been proposed. The most famous and historic algorithm which has found widespread applications in different fields of science, is linear quadratic regulator, LQR. In this paper, a new and simple form of this algorithm for on-line control of civil engineering structures subjected to earthquake excitations is proposed. The new method, named simplified LQR (SLQR), using a simple assumption and the Lyapunov stability criteria presents high efficiency similar to LQR and the instantaneous optimal control (IOC) methods. Extensive analysis shows that the families of the optimal control methods using the matrix Riccati equation either during their procedure, like LQR, or during the stability criteria, like IOC and SLQR, in spite of their assumption for determining .control force will guarantees stability of the controlled building and presents high efficiency of the control system

## کلمات کلیدی:

linear quadratic regulator, LQR, gain matrix, active control force, active mass damper/driver

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/115135>

