

عنوان مقاله:

Stochastic analysis of triple response spectrum

محل انتشار:

سومین کنفرانس بین المللی عمران، معماری و مدیریت توسعه شهری در ایران (سال: 1399)

تعداد صفحات اصل مقاله: 11

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خلاصه مقاله:

During an earthquake, the amplitudes of the seismic wave may amplify as it propagates through the soil layers near the ground surface. Determination of the site response effect on the structures is complicated due to the difficulty of the ground motions analysis and elaborate nature of many structures. Obtaining the response spectrum is one simplified solution for this problem. On the other hand, the response spectrum is strongly influenced by the uncertainty associated with the definition of soil properties. In this paper, a numerical solution is used for stochastic analysis of the triple response spectrum. The weight of the soil layer is selected as a stochastic parameter. The probability density functions of acceleration, velocity, and displacement of the response spectrum are determined and compared with each other. A comparison of the stochastic result shows that the acceleration response spectra have more uncertainties with respect to others.

کلمات کلیدی:

Stochastic analysis, Triple response spectrum, Ground motion, Site response, Uncertainty

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<https://civilica.com/doc/1119184>

