

## **Comparative study of spectral response coefficients for stochastic earthquake ground motion**

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### **SUMMARY**

For many complex engineering systems it is very important to consider how vibration condition such as earthquakes can be simulated, how this can be done economically and how to study the effects of random input to the damped linear time invariant systems. The present work draws the fundamental facts of input and output problems for linear time invariant systems in terms of an ensemble of possible time histories of excitations. The use of the white noise hypothesis for the purpose of obtaining a quick approximation is analysed. The sensitivity of the structure to the natural frequencies, to damping combinations and to variations of the member stiffness properties is examined and the influence of this to auto- and cross power spectral densities of response and to the mean-square response is interpreted. The results are presented in graphical form to demonstrate the usefulness of the approach.

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