Vibration analysis of two-beam-system connected by spring-mass devices / 徐忠玄 撰 .- 彰化縣大村鄉 : 大

徐忠玄、林海平

E-mail: 354795@mail.dyu.edu.tw

ABSTRACT

In this research, an analytical method, that permits the efficient calculation of the dynamics of two beams with an attached double spring-mass devices, is derived. Assuming the beams obeying the Euler-Bernoulli beam theory, the equations of motion of two beams and the attached masses are derived. By using the transfer matrix method and compatibility requirements of the spring attached points, the characteristic equation of the system can be obtained. From the system characteristic equation, the eigen-solutions of this system can be determined. Some numerical results are calculated and compared with the previous researches and an experimental method was used to validate the theoretical model.

Keywords : Euler-Bernoulli beam、transfer matrix、double spring-mass devices、characteristic equation

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