عنوان مقاله:

Numerical and experimental study of the effect of excitation type on operational modal analysis of a simple structure

محل انتشار:

کنفرانس دو سالانه بین المللی مکانیک جامدات تجربی (سال: 1392)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

Modal testing has found extensive use in identifying dynamic properties of a system. This method is based upon excitation-response (input-output) measurements. However, there are several cases in which the system, if not impossible, is very hard to be excited physically, or the excitation signals may not be measured. As a result, recently a method has been developed which is based only on output measurements, called Operational Modal Analysis or Output-only Modal Analysis (OMA).In this paper, at the first step, a finite element of a simple structure (simply supported beam) is modelled and modal parameters were obtained. At the second step, the laboratory scale of the system was excited by three different types of excitations; namely by shaker, sound and enviromental noise. Then, the modal parameters were obtained by OMA method. For obtaining the modal parameters of the structure by OMA method, we utilize frequency domain decomposition (FDD) technique. Finally, the obtained results of these three types of excitation are compared with those obtained by numerical method.

کلمات کلیدی:

Vibration, Operational Modal Analysis, Finite Element, Frequency Domain Decomposition