성덕대왕신종의 맥놀이 지도

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Beat Map of King Song-Dok Bell

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Key Words : King Song-Dok Bell, Slightly asymmetric cylindrical shell, Impulse response, Beat Map

Abstract : Impulse response of a slightly asymmetric cylindrical shell is derived. Receptance method is applied to obtain the vibration mode and natural frequency of the slightly asymmetric cylindrical shell. Impulse response model is used to identify the vibration beat characteristics of King Song-Dok Bell. The theretical mode is compared and verified by the measured mode of King Song-Dok Bell. Method of beat map is proposed to understand the beat distribution characteristics of the bell. Drawing method of the beat map is first proposed and applied to King Song-Dok Bell.

파워흐름해석을 위한 비보존 조인트로 연성된 평판 구조물의 파워투과반사계수 해석

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Wave Transmission Approach of Coupled Plate Structures through Non-conservative Joints for Power Flow Analysis

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Key Words : power flow analysis(PFA), wave transmission approach, power transmission and reflection coefficients, non-conservative joint

Abstract : The attenuation of waves transmitted through non-conservative joints that are shown in many practical structures, is affected by the impedance and the orientation of the joint. In this paper, the joints between plate structures are assumed to be modeled as linear spring-dashpot systems and the transmission and reflection of vibration energy in the medium to high frequency ranges are investigated. The calculated power transmission and reflection coefficients are applied to the PFA method for the prediction of energy density and intensity in structure.