

The Lateral and Torsional Vibration Analysis of a Rotor-Bearing System Using Transfer Matrix Method

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Abstract : The vibration problems that can be occurred in the operational conditions of rotating machines may cause damage to the machine or even failure of the machine completely. Therefore, dynamic analysis of rotors is vital in the design and development stages of the rotating machines. In this study, the uncoupled torsional and lateral vibration analysis of a rotor-bearing system is carried out using transfer matrix method. The Campbell diagram, critical speed and the mode shape corresponding to the critical speed are obtained in order to evaluate the dynamic behavior of the rotor.

Keywords : transfer matrix method, rotor-bearing system, campbell diagram, critical speed

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