



航空学报 » 1991, Vol. 12 » Issue (7) :345-351 DOI:

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### 粘弹性结构振动特性分析的摄动求解技术

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### THE PERTURBATION TECHNIQUE OF THE VIBRATION CHARACTERISTIC ANALYSIS OF THE VISCOELASTIC STRUCTURES

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摘要

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摘要 本文根据粘弹性结构的特点,对其振动特性进行简化分析,构造了这类结构振动特性分析的摄动求解方法,给出了低阶摄动求解公式。还讨论了零阶摄动有重特征值时的求解。

关键词: 粘弹性 摄动法 振动特性

Abstract: The vibration characteristic analysis of the weakly-viscoelastic material structures and the elastic-viscoelastic composite structures are mainly discussed. The basic equations of these viscoelastic structures are given. According to the strong stiffness and weakly-damping in their whole dynamic behaviors, the perturbation method for analysing their vibration characteristic is constructed, and the first three order perturbation formulas are derived. The perturbation method is also discussed when there exist the repeat-eigenvalues in their zero-order perturbation solutions. The method in this paper is simple and convenient, has high precision, and is suitable for different viscoelastic models.

Keywords: viscoelasticity perturbation method vibration characteristic

Received 1990-02-09; published 1991-07-25

引用本文:

陈国平;朱德懋. 粘弹性结构振动特性分析的摄动求解技术[J]. 航空学报, 1991, 12(7): 345-351.

Chen Guoping; Zhu Demao. THE PERTURBATION TECHNIQUE OF THE VIBRATION CHARACTERISTIC ANALYSIS OF THE VISCOELASTIC STRUCTURES[J]. Acta Aeronautica et Astronautica Sinica, 1991, 12(7): 345-351.

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