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一种提高薄板非线性振动响应分析精度的方法(PDF)

Title:	A Method for Improving Nonlinear Vibration Response Analysis Accuracy of Thin Plate

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摘要： 为了实现产品的轻量化，薄板结构是弹箭产品中常见的一种结构形式，工程实践中经常发现薄板的非线性振动现象，但没有得到较为准确的预示。文中结合工程实际，提出了一种基于试验数据提高薄板结构振动响应精度的方法。通过获取薄板的模态阻尼比，修正有限元分析过程中的阻尼矩阵，得到了较为精确的分析结果。为了方便工程实用，编写了薄板振动响应预示程序，算例表明，采用本方法得出的仿真结果和试验结果较为一致。

Abstract: In order to reduce product's weight，there are many thin plates structure in missile. Many nonlinear vibration phenomena are found in engineering region, but exact result is not available. In the paper, a high accuracy method on thin plate nonlinear vibration response was presented based on practice and actual engineering. After acquiring the mode damping ratio, the method is featured with high analytic accuracy resulting from the modified damping matrix. The calculation example indicates that the method and program are simple with enough analytic accuracy.

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