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伸展柔性附件对简谐激励的响应分析

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DYNAMIC RESPONSE OF FLEXIBLE APPENDAGES TO THE HARMONIC EXCITATION DURING EXTENSION

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摘要 从Hamilton原理出发推导了柔性附件伸展过程的时变系数动力学方程。对附件在简谐激励下的响应进行了数值仿真，讨论了伸展柔性附件所具有的一些独特的现象：齐次解的非瞬态特性、特解的非稳态特性、瞬时共振的延续和加强。由于这些特性的存在，大大增加了由激励引发剧烈振动而导致结构破坏的可能性。

关键词： 动力学 时变系统 伸展 柔性附件

Abstract： The distribution parameter dynamics equation of flexible appendages during extension is derived based on Hamilton principle. The dynamic behavior, especially the characteristic of the response to harmonic excitation is discussed in detail. It is concluded that dynamics characteristics of extensional appendages result in increasing the possibility of structure failure when it is under excitation of external force.

Keywords： dynamics time- var ying system ext ension flexible appendages

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