论文

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二元机翼带外挂系统极限环颤振次谐响应分析

杨翊仁[1], 赵令诚[2]

1. 西南交通大学应用力学研究所 成都 610031; 2. 西北工业大学五系 西安 710072

SUBHARMONIC RESPONSE OF THE LIMIT CYCLE FLUTTER OF WING-STORE SYSTEM

Yang Yi-ren[1], Zhao Ling-cheng[2]

1. Institute of Applied Mechanics, Southwestern Jiaotong University,Chengdu, 610031; 2. Fifth Department, Northwestern Polytechnical University, Xi'an, 710072

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摘要 借助于非对称分段线性振子的次谐分叉条件,本文首次讨论了二元机翼带外挂系统处于稳定极限环颤振情况下,外挂的次谐响应。算例表明,单自由度非线性振子的分叉条件能够预示非线性颤振系统的运动规律。

关键词： 分段线性　极限环颤振　次谐分叉

Abstract： The Method of equivalent linearization for nonlinear flutter is used to determine the region of the stable limit cycle flutter of wing-store system. Under the condition of stable limit cycle flutter, the mathematical model is further reduced to a single degree of freedom system. By means of the subharmonic bifurcation condition of single degree of freedom oscillator, for the first time, an engineering analysis method, which can predict the region of the subharmonic response of the limit cycle flutter of wing-store system, is developed in the paper. The example shows that the bifurcation condition of single degree of freedom nonlinear oscillator can indicates the motional behavior of nonlinear flutter system.

Keywords： piecewise linear   limit cycle flutter   subharmonic bifurcation

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