



航空学报 » 2006, Vol. 27 » Issue (6) : 1068-1072 DOI:

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一种新的有限长等截面航空发动机短舱声学模型及数值结果

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A New Approach for the Acoustic Design of Aeroengine Nacelle

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摘要

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摘要 基于航空发动机短舱声学设计的需要,发展一种与以往工作不同的有限长管道声学模型声场的计算方法——直接边界元和传递单元法相结合。本方法对管道内部几何条件和声衬的敷设情况有更少的限制,可以很好地用于分段声衬的优化设计,并且提供求解有限长变截面管道声学模型的基础。

关键词: 直接边界元方法 传递单元法 发动机消声短舱 声衬 声传播

Abstract: In order to improve the acoustic design of aircraft engine nacelle, a new sound radiation model of finite-length duct is put forward. A direct boundary element method is combined with transfer element method to solve this model. Using this method, the conditions of geometry and lining are less confined. Further more, this method can be developed to solve the sound radiation of a finite-length duct of continuously varying cross-sectional area.

Keywords: direct boundary element method transfer element method aircraft engine nacelle liner the propagation of sound

Received 2005-06-07; published 2006-12-25

引用本文:

杜林;王晓宇;孙晓峰. 一种新的有限长等截面航空发动机短舱声学模型及数值结果[J]. 航空学报, 2006, 27(6): 1068-1072.

DU Lin;WANG Xiao-yu;SUN Xiao-feng. A New Approach for the Acoustic Design of Aeroengine Nacelle[J]. Acta Aeronautica et Astronautica Sinica, 2006, 27(6): 1068-1072.

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