



航空学报 » 2004, Vol. 25 » Issue (2) :125-129 DOI:

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### 结构在环境激励下的模态参数辨识

史东锋<sup>1</sup>, 许锋<sup>1</sup>, 申凡<sup>1</sup>, 郑敏<sup>2</sup>

1. 南京航空航天大学航空宇航学院, 江苏南京 210016; 2. 南京航空航天大学民航学院, 江苏南京 210016

### Modal Parameter Identification of Structure in Ambient Excitation

SHI Dong-feng<sup>1</sup>, XU Feng<sup>1</sup>, SHEN Fan<sup>1</sup>, ZHENG Min<sup>2</sup>

1. College of Aerospace Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing 210016, China; 2. College of Civil Aviation, Nanjing University of Aeronautics and Astronautics, Nanjing 210016, China

摘要

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**摘要** 针对传统模态辨识方法存在的缺陷,研究了工程结构在环境激励下的模态参数的辨识问题。通过各点测试数据的协方差数据构成Hankel矩阵,运用随机子空间实现进行系统矩阵的辨识。经飞机模型的环境激励分析验证,上述方法具有理想的辨识精度,在大型结构的模态辨识领域,拥有广阔的应用前景。

**关键词:** 模态测试 子空间方法 环境激励

**Abstract:** Focusing on the defects of the classical modal parameter estimation approach, this paper investigates a novel technique for modal parameter identification of structures under operation conditions. Stochastic subspace realization is introduced to determine the system matrix only using output data. The performance of the method is critically evaluated for an airplane model. The results of experiment show that the above method has the same accuracy as the classical modal estimation method and possesses a broad application prospect in parameter identification of structures under operation conditions.

**Keywords:** modal testing subspace identification ambient excitation

Received 2003-03-03; published 2004-04-25

#### 引用本文:

史东锋; 许锋; 申凡; 郑敏. 结构在环境激励下的模态参数辨识[J]. 航空学报, 2004, 25(2): 125-129.

SHI Dong-feng; XU Feng; SHEN Fan; ZHENG Min. Modal Parameter Identification of Structure in Ambient Excitation[J]. Acta Aeronautica et Astronautica Sinica, 2004, 25(2): 125-129.

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