首页　　本刊介绍　　编委会　　投稿须知　　审稿编辑流程　　期刊征订　　广告征订　　English　　　选择皮肤：

Hide Expanded Menus

Compressive properties of homemade carbon fiber composite laminates with delamination defect

投稿时间： 2012-02-04

DOI：

中文关键词： homemade carbon fiber　composite　compressive strength　virtual crack closure technique　element simulation

英文关键词：homemade carbon fiber　composite　compressive strength　virtual crack closure technique　element simulation

作者	单位
FU Hui-min	Research Center of Small Sample Technology, Beijing University of Aeronautics and Astronautics, Beijing 100191, China
YANG Yu-song	Research Center of Small Sample Technology, Beijing University of Aeronautics and Astronautics, Beijing 100191, China
ZHANG Yong-bo	Research Center of Small Sample Technology, Beijing University of Aeronautics and Astronautics, Beijing 100191, China

中文摘要：

Large numbers of aircraft composite structures were researched, and the distribution of delamination sizes and though thickness positions in the composite laminates were investigated. An experiment was conducted to probe into the effect of delamination sizes and through thickness positions on the compressive strengths of laminates with single embedded circular delamination with the most dangerous delamination sizes and positions defined from the distribution. A shell model was established for compressive strength prediction, and the virtual crack closure technique (VCCT) was employed for the strain energy release rate calculation. The finite element (FE) prediction was in good agreement with the experimental measurements, for the predicted compressive strengths stood within 10% error of experimental results. It was observed that the compressive strength was highly effected by the delamination size, while the though thickness position of delamination did not have significant effect on the compressive strength.

英文摘要：

Large numbers of aircraft composite structures were researched, and the distribution of delamination sizes and though thickness positions in the composite laminates were investigated. An experiment was conducted to probe into the effect of delamination sizes and through thickness positions on the compressive strengths of laminates with single embedded circular delamination with the most dangerous delamination sizes and positions defined from the distribution. A shell model was established for compressive strength prediction, and the virtual crack closure technique (VCCT) was employed for the strain energy release rate calculation. The finite element (FE) prediction was in good agreement with the experimental measurements, for the predicted compressive strengths stood within 10% error of experimental results. It was observed that the compressive strength was highly effected by the delamination size, while the though thickness position of delamination did not have significant effect on the compressive strength.

查看全文　　查看/发表评论　　下载PDF阅读器

关闭