

عنوان مقاله:

2D and 3D Interlaminar Fracture Evaluation of Unidirectional Carbon/Epoxy Arcan Specimens

محل انتشار:

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خلاصه مقاله:

This paper investigates mixed-mode interlaminar fracture behavior in UD carbon/epoxy composite material based on numerical and experimental analyses. A modified version of Arcan specimen was employed to conduct a mixed-mode fracture test using a special loading device. A full range of mixedmode loading conditions including pure mode-I and pure mode-II loading were created and tested. Using the two-dimensional finite-element results, correction factors were applied to the UD carbon/epoxy fracture specimens. Moreover, the correction factors were determined via two- and threedimensional analysis and the results were compared. By employing experimentally measured critical loads and the aid of the finite-element method, mixed-mode interlaminar fracture toughness for the composite under consideration determined. Results indicated that the interlaminar cracked specimen is tougher in shear loading condition and weaker in tensile loading condition.

کلمات کلیدی:

Delamination; Finite Element Analysis; Fracture toughness

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