Etude numérique du délaminage en mode II des matériaux composites

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Abstract

The good behaviour of the composite materials under mechanical loading, make them a serious competitor to traditional materials. The interlaminar defect induced during the manufacturing or during setting in work, leads to interlaminar failure causing layers separation well known as "delamination". In this study an analysis of delamination in Mode II of a composite laminate has been presented. A technique of modelling of the crack has been applied successively in the ENF test (End Notched Flexure) for the calculation of the compliance and the energy release rate of fracture at the -+ / interfaces. This analysis is based on two theories, the beams theory and the virtual crack closure theory (FE). The performance of the finite elements method (FE) has been shown with success in a study of validation of the experimental results and a comparison with numerical results of the literature.

Keywords : composites, fracture, delamination, finite elements.

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