

Analysis Of Large CFRP Plate With Delamination Due To Drop-Weight Impact

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Abstract

Introduction: The influence of delamination in a small area of a large composite plate due to drop-weight impact was studied in this work. Layerwise theory was only applied to the delamination area to save computational memory. The vibration analysis coupling composite shell and acoustic simulation with consideration of delamination was also investigated.

Use of COMSOL Multiphysics®: Composite Materials module and Acoustics module of COMSOL Multiphysics® are used to set up the multiphysics delamination model.

Results and Conclusions: The results show that presented method is memory efficient to compute large composite laminate with delamination area. The acoustic coupling study shows the potential of non-destructive testing analysis with large composite laminate structures.