

Finite element delamination study of adhesively-bonded patches used to repairs damaged jute fiber/polypropylene composites

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Abstract : In this work, the mechanical behavior of repaired specimens is studied from both experimental and numerical viewpoints. Tensile testing of the specimens with defect, without defect and repaired is carried out. The finite element method (FEM) model is utilized to simulate the mechanical behavior of the repaired specimen during the test. Cohesive Zone Model (CZM) was used to simulate the inter-laminar fracture of the composite, with the capability of simulating the damage initiation and evolution mechanisms of adhesives. The validations of the numerical results were carried out with the experimental results and are show to be in a good agreement.

Keywords : PP/jute composite, damage, adhesive bonding, cohesive element