

## Fatigue-Induced Debonding Propagation in FM300 Adhesive

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**Abstract :** Fracture Mechanics is used to predict debonding propagation in adhesive joint between aluminum and composite plates. Three types of loadings and two types of glass-epoxy composite sequences: [0/90]<sub>2s</sub> and [0/45/-45/90]<sub>s</sub> are considered for the composite plate and their results are compared. It was seen that generally the cases with stacking sequence of [0/45/-45/90]<sub>s</sub> have much shorter lives than cases with [0/90]<sub>2s</sub>. It was also seen that in cases with  $\lambda=0$  the ends of the debonding front propagates forward more than its middle, while in cases with  $\lambda=0.5$  or  $\lambda=1$  it is vice versa. Moreover, regardless of value of  $\lambda$ , the difference between the debonding propagations of the ends and the middle of the debonding front is very close in cases  $\lambda=0.5$  and  $\lambda=1$ . Another main conclusion was the non-dimensionalized debonding front profile is almost independent of sequence type or the applied load value.

**Keywords :** adhesive joint, debonding, fracture, LEFM, APDL

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