**Structural And Vibration Analysis Of Delaminated Composite Beams**

ABSTRACT:

Delamination is a mode of failure for composite materials. Modes of failure are also known as 'failure mechanisms'. In laminated materials, repeated cyclic stresses, impact, and so on can cause layers to separate, forming a mica-like structure of separate layers, with significant loss of mechanical toughness. Some manufacturers of carbon composite bike frames suggest to dispose of the expensive frame after a particularly bad crash, because the impact could develop defects inside the material. Due to increasing use of composite materials in aviation, delamination is increasingly an air safety concern, especially in the tail sections of the airplanes. In this thesis, the effects of delamination length on the stresses and natural frequency of symmetric composite beams are analyzed using Ansys software. The composite material considered is carbon fiber. Structural and Frequency analysis are done on the composite beam by varying the delamination lengths.