Characterization of Carbon Nanotube Enhanced Interlaminar Fracture Toughness of Woven Carbon Fiber Reinforced Polymer Composites

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Highlights

- The inter-laminar fracture toughness of carbon fiber reinforced polymer composites was enhanced using nano-particle reinforcements.
- An easy and inexpensive procedure is presented to fabricate such composites system by utilizing the versatile structural properties of carbon nanotubes.
- Scanning electron microscopy revealed that the adopted methodology for transferring CNT's resulted in a homogenous distribution in an epoxy matrix.
- A significant enhancement of up to 30 % in inter laminar strength was achieved by the addition of structural reinforcements.
- Optimum loading at 1.0 g/m_2 resulted in the greatest improvement in resisting inter ply delamination.
- At higher loading the strengthening effect is seen to decline resulting in even lower strength as compared to the neat specimen.