

عنوان مقاله:

Finite Element Analysis of Low Velocity Impact on Carbon Fibers/Carbon Nanotubes Reinforced Polymer Composites

محل انتشار:

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خلاصه مقاله:

An effort is made to gain insight on the effect of carbon nanotubes (CNTs) on the impact response of carbon fiber reinforced composites (CFRs) under low velocity impact. Certain amount of CNTs could lead improvements in mechanical properties of composites. In the present investigation, ABAQUS/Explicit finite element code (FEM) is employed to investigate various damages modes of nano composites including matrix cracking, fiber damage and delamination by employing Hashin's criterion and cohesive zone modeling. The obtained results for 0, 0.5, 1, 2 and 4% CNTs demonstrate that by including CNTs in composite plates, damage could be reduced. However, adding further CNTs causes sudden reduction of impact tolerance capability of the composite plates, particularly, damage .due to delamination

کلمات کلیدی:

Nano-composites, Impact behavior, Finite element analysis, Damage mechanisms, Carbon nanotubes

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