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ELEMENT FREE GALERKIN METHOD FOR TRANSIENT THERMAL ANALYSIS OF CARBON NANOTUBE COMPOSITES

ABSTRACT

This paper deals with the transient thermal analysis of carbon nanotube composites via meshless element free Galerkin method. A three-dimensional representative volume element containing single nanotube has been taken as model for these simulations. Essential boundary conditions have been enforced via penalty approach. Simulations using continuum mechanics have been carried out for two different values of nanotube length. Backward difference and Galerkin approaches have been utilized for time approximation, and the results obtained by backward difference method are compared with those obtained by Galerkin approach.

KEYWORDS

carbon nanotube, nano-composites, continuum mechanics, transient thermal analysis, meshless, element free Galerkin method

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