عنوان مقاله:

Inelastic Continuum Modeling of Carbon Nanotube,s Behavior Using Finite Element Method

محل انتشار:

ماهنامه بین المللی مهندسی, دوره 20, شماره 2 (سال: 1386)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

This paper describes a continuum model for analyzing the inelastic behavior of a single walled carbon nanotube (SWCNT) in different loading conditions. Because of limitations in using molecular dynamics (and other atomic methods) to model the failure load of the SWCNT, continuum mechanics methods are considered in this paper. Based on some experimental and theoretical results, an elasto-plastic model was used to analyze inelastic behavior of carbon nanotubes. ۳D FEM model of SWCNT including the “Vander-Waals” interactions was developed with advanced capabilities. The results obtained by this model in different conditions have been compared with other numerical and experimental results. The comparison shows that this method is efficient and could be expanded for .numerical modeling of nano-composites

کلمات کلیدی:

Nanotube, Continuum, FEM, Elasto, Plastic, Inelastic