

عنوان مقاله:

Stress distribution in functionally graded nanocomposite cylinders reinforced by wavy carbon nanotube

محل انتشار:

مجله بین المللی طراحی پیشرفته و تکنولوژی ساخت, دوره 7, شماره 4 (سال: 1393)

تعداد صفحات اصل مقاله: 12

نویسندگان:

Rasool Moradi-Dastjerdi - *Young Researchers and Elite Club, Khomeinishahr Branch, Islamic Azad University, Khomeinishahr, Iran*

M. M. Sheikhi

H. R. Shamsolhoseinian

خلاصه مقاله:

This work reports the effect of nanotube aspect ratio and waviness index on stress and displacement distributions of functionally graded nanocomposite cylinders reinforced by wavy single walled carbon nanotubes based on a mesh-free method. The mechanical properties of these composites are assumed to be graded along radial direction and estimate by a micro mechanical model. In the mesh-free analysis, moving least squares shape functions are used for approximation of displacement field in the weak form of motion equation and the transformation method is used for the imposition of essential boundary conditions. Effects of CNT waviness and aspect ratio, kind of distribution and volume fraction of carbon nanotubes and also boundary conditions and thickness of cylinder are investigated on the static responses of these cylinders. It is observed that CNT waviness has a significant effect on the effective reinforcement of the nanocomposites.

کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1198224>

