عنوان مقاله:

Atomistic Study on the Mechanical Behavior of Silicon-Base Nanotubes

محل انتشار:

مجله مهندسی مکانیک و صنایع مپتا, دوره 5, شماره 1 (سال: 1400)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Prabhjot Singh Thakur - *Department of Mechanical and Aerospace Engineering, Western Michigan University, Kalamazo, USA*

Iqbal Singh Chahal - *Department of Mechanical and Aerospace Engineering, Western Michigan University, Kalamazo, USA*

خلاصه مقاله:

Recently, silicon nanotubes (SiNTs) have been successfully synthesized and have attracted many researchers to work on the different aspects of them. In the present study, the stress-strain curve along with the Young's modulus as a significant mechanical property of single walled silicon nanotubes at different diameters are determined. The simulation is performed by the use of molecular dynamics based on the Tersoff-Brenner many-body potential energy function. The results of the total strain energy of nanotubes as an accurate and effective methodology are used to establish appropriate expressions for evaluating Young's modulus of the nanotubes.

کلمات کلیدی:

Silicon nanotubes, Mechanical behaviour, Young's modulus, Molecular dynamics simulations