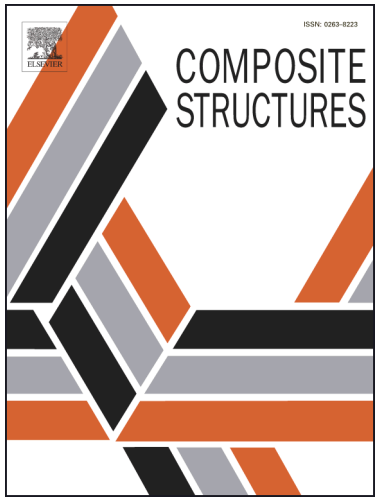


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# On the Bulk Modulus and Natural Frequency of Fullerene and Nanotube carbon structures obtained with a Beam Based Method

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**Abstract**

In this work, the natural frequency of vibration and Bulk modulus under hydrostatic pressure conditions of carbon nanotubes and fullerenes are investigated. For this purpose, three-dimensional finite element modelling is used in order to evaluate the vibration characteristics and radial stiffness for different nanotube and fullerene sizes. The atomistic method implemented in this work is based on the notion that nanotubes, or fullerenes, are geometrical frame-like structures where the primary bonds between two neighbouring atoms act like load-bearing beam members, whereas an individual atom acts as the joint of the related load-bearing system. The current numerical simulations results are compared with data reported by other authors, highlighting the greater simplicity and the lower computational cost of the model

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