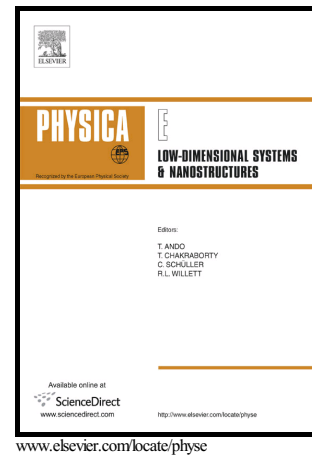


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Wave Dispersion of Carbon Nanotubes Conveying Fluid Supported on Linear Viscoelastic Two-Parameter Foundation Including Thermal and Small-Scale Effects

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Abstract

In this paper, for the first time, a nonlocal Timoshenko beam model is employed for studying the wave dispersion of a fluid-conveying single-walled carbon nanotube on Viscoelastic Pasternak foundation under high and low temperature change. In addition, the phase and group velocity for the nanotube are discussed, respectively. The influences of Winkler and Pasternak modulus, homogenous temperature change, steady flow velocity and damping factor of viscoelastic foundation on wave dispersion of carbon nanotubes are investigated. It was observed that the characteristic of the wave for carbon nanotubes conveying fluid is the normal dispersion. Moreover, implying viscoelastic foundation leads to increasing the wave frequencies.

Keywords: Wave dispersion; Carbon nanotubes; viscoelastic foundation; high and low temperature change; phase and group velocity

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