

L	Nanotube length (nm)
m	Carbon nanotube mass (kg)
M	Mass matrix
N	Sampling points
q	Displacement vector
P	Polynomials of weighting coefficients
S	Section (m ²)
Se	Strain energy (J)
t	Time (s)
u	displacement (nm)
W	Transverse amplitude
w	Transverse deflection
x	Axial component corresponding to axial axis
z	Transverse component

Greek symbols

σ	Strain (N/m ²)
ρ	Density(kg/m ³)
∂	Partial derivative
ξ	Dimensionless axial component
Ω	Dimensionless parameter corresponding to Frequency
μ	Non-local parameter
ω	Natural frequency (Hz)

Subscripts

i	Longitudinal matrix component
j	Transverse matrix component
k	Intermediar matrix component
l	Local
nl	Non-local