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LIST OF SYMBOLS

SYMBOL	DISCRIPTION
$^{\circ}\text{C}$	Degree celcius
C_h	Chiral vector
θ	Chiral angle
a_1, a_2	Vectors of the hexagonal graphite lattice
R_{NT}	Radius of any nanotube
E	Young's modulus
σ_f	Fracture stress
σ_y	Yield stress
E^b	Bending elastic modulus of a CNT
E^a	Axial elastic modulus of a CNT
E^w	Wall elastic modulus of a CNT
\varnothing_{int}	Diameter of the inner wall of a MWCNT
\varnothing_{ext}	Diameter of the outer wall of a MWCNT
F	Force
σ	Tensile stress
σ_{nom}	Nominal stress
A	Cross section
ΔL	Displacement
L	Initial length
ν	Poisson's ratio

ε_t	Tensile strain
ε_l	Lateral Strain
d	Diameter on nanotube (NT)
L	Wavelength of the NT waviness
a	Amplitude of the NT waviness
w	Fiber waviness ratio
V_f	Volume fraction of fiber
V_m	Volume fraction of matrix
E_m	Young's modulus of matrix
E_{CNT}	Young's modulus of fiber (CNT)
ν_m	Poisson's ratio of matrix
ν_{CNT}	Poisson's ratio of fiber (CNT)
A_{CNT}	Sectional area of the fiber (CNT)
A_{matrix}	Area of matrix
$A_{composite}$	Area of composite
ΣF	Sum of reaction forces
E_{11}	Longitudinal Young's modulus
E_{22}	Transverse Young's modulus
ν_{yx}	Poisson's ratio in y-x plane
ν_{yz}	Poisson's ratio in y-z plane
ε_x	Strain in x direction
ε_y	Strain in y direction
ε_z	Strain in z direction
ΔL_x	Displacement of x direction
ΔL_y	Displacement of y direction
ΔL_z	Displacement of z direction
E_{cell}^{FEA}	Effective modulus of the cell
E_{ERM}	Effective reinforcing modulus
E_{ratio}	Ratio of CNT modulus and matrix modulus
η	Percentage of error

LIST OF ABBREVIATIONS

CNT	Carbon Nanotube
ESD	Dissipation of electrostatic charge
SWCNT	Single Wall Carbon Nanotube
MWCNT	Multi Wall Carbon Nanotube
AFM	Atomic Force Microscopy
TEM	Transmission Electronic microscopy
FE	Finite Element
FEM	Finite Element Method
NT	Nanotube
FEA	Finite Element Analysis
RVE	Representative Volume Element

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