

INSTABILITY OF A SINGLE-WALL CARBON NANOTUBE UNDER TORSION

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Carbon nanotubes have attracted wide attention due to their superior properties. Despite the extensive research effort, the constitutive property of carbon nanotubes is still not well-understood. The majority of the effort to study carbon nanotubes' mechanical behavior adopt molecular dynamics simulations or *ad hoc* continuum analogue models, while recently a new multiscale continuum model has been proposed. The atomic structure and motion information of a single-wall carbon nanotube is incorporated directly into its constitutive relationship, thus eliminating the need of *ad hoc* parameters. The model is adopted in the current study and the instability of a single-wall carbon nanotube under torsion is studied. The analytical findings are then compared with available molecular dynamics simulation results.

References

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