661.

Accession Number

12381254

Author

Sung Youb Kim. Park HS.

Author Unabbreviated

Park Harold S.

Author/Editor Affiliation

Sung Youb Kim. : School of Mechanical Engineering, Ulsan National Institute of Science and Technology, Ulsan 689-798, South Korea

Park HS. : Department of Mechanical Engineering, Boston University, Boston, MA 02215, USA

Title

On the effective plate thickness of monolayer graphene from flexural wave propagation

Source

Journal of Applied Physics, vol.110, no.5, 1 Sept. 2011, 054324 (6 pp.). Publisher: American Institute of Physics, USA.

Abstract

We utilize classical molecular dynamics to study flexural, or transverse wave propagation in monolayer graphene sheets and compare the resulting dispersion relationships to those expected from continuum thin plate theory. In doing so, we determine that regardless of the chirality for monolayer graphene, transverse waves exhibit a dispersion relationship that corresponds to the lowest order antisymmetric (A0) mode of wave propagation in a thin plate with plate thickness of h=0.104 nm. Finally, we find that the achievable wave speeds in monolayer graphene are found to exceed those reported previously for single walled carbon nanotubes, while the frequency of wave propagation in the graphene monolayer is found to reach the terahertz range, similar to that of carbon nanotubes. (39 References).