

Accepted Manuscript

Adhesion between two carbon nanotubes: Insights from molecular dynamics simulations and continuum mechanics

Xuebo Yuan , Youshan Wang , Bin Zhu

PII: S0020-7403(17)33075-8
DOI: [10.1016/j.ijmecsci.2018.02.018](https://doi.org/10.1016/j.ijmecsci.2018.02.018)
Reference: MS 4178



To appear in: *International Journal of Mechanical Sciences*

Received date: 30 October 2017
Revised date: 17 January 2018
Accepted date: 8 February 2018

Please cite this article as: Xuebo Yuan , Youshan Wang , Bin Zhu , Adhesion between two carbon nanotubes: Insights from molecular dynamics simulations and continuum mechanics, *International Journal of Mechanical Sciences* (2018), doi: [10.1016/j.ijmecsci.2018.02.018](https://doi.org/10.1016/j.ijmecsci.2018.02.018)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Highlights

- Radial adhesion between two identical and non-identical CNTs are modeled using classical MD simulations.
- A linear elastic continuum model for adhesive structures between two non-identical CNTs is established and solved analytically.
- Non-collapsed configurations predicted by continuum model are well consistent with results of MD simulations.
- Roles of diameters, chiralities, numbers of walls on the inter-tube adhesion are studied both quantitatively and qualitatively.
- Collapsed adhesion between two non-identical CNTs is also briefly studied.

Download English Version:

<https://daneshyari.com/en/article/7173839>

Download Persian Version:

<https://daneshyari.com/article/7173839>

[Daneshyari.com](https://daneshyari.com)