

2nd World Congress and Expo on

GRAPHENE & 2D MATERIALS

November 06-07, 2017 | Frankfurt, Germany



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Collision-induced fusion of two single-walled carbon nanotubes: A quantitative study

The coalescence processes of two (6,0) single-walled carbon nanotubes are investigated via coaxial collision based on the self-consistent-charge density-functional tight-binding molecular dynamics method. According to the structure characteristics of the nanotubes, five impact cases are studied to explore the coalescence processes of the nanotubes. The simulation shows that various kinds of carbon nanomaterials, such as graphene sheets, graphene nanoribbons, and single-walled carbon nanotubes with larger diameters, are created after collision. Moreover, some defects formed in the carbon nanomaterials can be eliminated, and even the final configurations which are originally fragmented can almost become intact structures by properly quenching and annealing.

Biography

Prof. Feng-Shou Zhang has completed his PhD at the age of 30 years from Lanzhou University. He is Dean of the College of Nuclear Sciences and Technology of Beijing Normal University, the director of Beijing Radiation Center. He has published more than 135 papers in reputed journals and has been serving as an editorial board member of repute.

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