

Molecular Dynamics Simulation on Nanoelectromechanical Graphene Nanoflake Shuttle Device

Authors : Eunae Lee, Oh-Kuen Kwon, Ki-Sub Kim, Jeong Won Kang

Abstract : We investigated the dynamic properties of graphene-nanoribbon (GNR) memory encapsulating graphene-nanoflake (GNF) shuttle in the potential to be applicable as a non-volatile random access memory via molecular dynamics simulations. This work explicitly demonstrates that the GNR encapsulating the GNF shuttle can be applied to nonvolatile memory. The potential well was originated by the increase of the attractive vdW energy between the GNRs when the GNF approached the edges of the GNRs. So the bistable positions were located near the edges of the GNRs. Such a nanoelectromechanical non-volatile memory based on graphene is also applicable to the development of switches, sensors, and quantum computing.

Keywords : graphene nanoribbon, graphene nanoflake, shuttle memory, molecular dynamics

Conference Title : ICNNNT 2016 : International Conference on Nanomaterials, Nanodevices and Nanomechanical Testing

Conference Location : San Diego, United States

Conference Dates : January 21-22, 2016