
Overview of melting graphene nanoribbon

Hang Nguyen^{*1}

¹Ho Chi Minh city University of Technology, VNU – HCM, Vietnam. – Vietnam

Abstract

The melting process of graphene nanoribbon (GNR) are studied via variation of sizes and edge types (armchair and zigzag). Different thermodynamic quantities have been devoted to study the mechanism of melting process. The results show that the phase transition has first order behaviour; the formation of different defects, ring sizes and coordination number is dependent on the size and the edge type of GNR; at the melting point, the system still remains honeycomb structure indicating that the melting of GNR in 2D space does not satisfy by classical nucleation theory; the melting state of GNR can contain the distorted honeycomb structure or the defects, but not simple liquid; the melting process also shows the case that the results of Berezinsky-Kosterlitz-Thouless-Nelson-Halperin-Young theory cannot be applied. Authors thank for financial support from the National Foundation for Science and Technology Development (NAFOSTED) under grant 103.01.2015.101.

*Speaker