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Advances in Modelling of Size Effects in Graphene and Carbon Nanotubes

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Message from the Guest Editors

Dear Colleagues,

The growing application of nano-electromechanical systems in various engineering fields. including civil, mechanics, electrical, medical, and aerospace, requires a correct modeling of their behavior. In order to model small-scale structures, both atomistic simulations and continuum mechanics can be adopted. On one hand, classical continuum mechanics models are simpler than atomistic models in modeling small-size structures. However, they present low accuracy, not taking into account the various size-dependent effects characteristic of nanostructures. To this end, several non-classical continuum mechanical models were introduced in the literature, such as nonlocal elasticity, strain gradient theory, and surface stress theory, which take into account the size-dependent effects.

The aim of the present Special Issue is to collect and share recent advances and developments in the theories and formulations that involve the modeling of the size effects in nanostructures, with specific reference to graphene and carbon nanotubes.