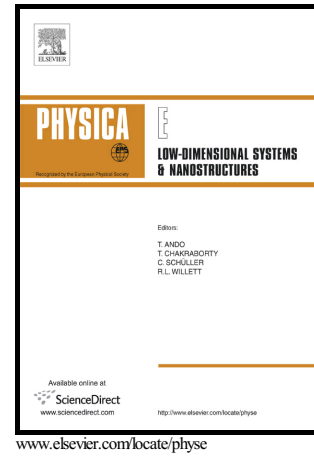


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# Atomistic Evaluation of the Stress Concentration Factor of Graphene Sheets Having Circular Holes

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## Abstract

Stress concentration factor concept has been developed for single-layered graphene sheets (SLGSs) with circular holes through an atomistic point of view by the application of molecular structural mechanics (MSM) approach. In this approach the response of SLGSs against unidirectional tensile loading is matched to the response of a frame-like macro structure containing beam elements by making an equivalence between strain energies of beam elements in MSM and potential energies of chemical bonds of SLGSs. Both chirality and size effects are considered and the atomistic evaluation of stress concentration factor is performed for different sizes of circular holes. Also, molecular dynamics

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