

عنوان مقاله:

Size dependent oscillation analysis of graphene/PMMA composite

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خلاصه مقاله:

This paper studies the free vibration of polymer nano composite reinforced by graphene sheet based on non classical higher order theory. In this work, the new size dependent formulation is presented for nano composites based on couple stress theory. For this aim, first shear deformation plate model is used. The effect of scale parameter is investigated based on anisotropic couple stress theory. Vibration equations of composite lamina are extracted using Hamilton's principle. Numerical results are provided for Poly methylmethacrylate/graphene composite. Analytical solution to natural frequency of composite lamina is obtained using eigenvalue procedure for simply supported boundary conditions. In the results section the effect of dimensional and physical parameters are studied on lamina natural frequency. It is observed that increase in graphene volume fraction leads to natural frequency be greater. The result of this paper can be utilized in the composite plates or shells which be reinforced with Graphene sheet

کلمات کلیدی:

size effect, graphene, couple stress theory

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