

عنوان مقاله:

Length Scale Effect on Vibration Analysis of Functionally Graded Kirchhoff and Mindlin Micro-plates

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خلاصه مقاله:

In this paper, the modified couple stress theory is used to study vibration analysis of functionally graded rectangular micro-plates. Considering classical and first order plate theories, the couple governing equations of motion are obtained using the Hamilton's principle. Using an assumed mode method, the accurate size dependent natural frequencies are established for simply supported functionally graded rectangular micro-plates. To show the accuracy of the formulations, present results in specific cases are compared with available results in literature and a good agreement is seen. It is found that the natural frequency parameter of micro-plates will decrease as thickness-length ratio increases especially for lower length scale values. The effects of length scale, functionally graded parameter and plate theories on natural frequencies of functionally graded micro-plates are discussed in details

کلمات کلیدی:

,Vibration, Micro-plate, Functionally Graded, Modified Couple Stress Theory

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