عنوان مقاله:

Free Vibration Analysis Of Rotating Rectangular Nano - Plate Based On The Nonlocal Theory Of Elasticity

محل انتشار:

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خلاصه مقاله:

The present study proposes a semi- analytical solution for free vibration analysis of rotating isotropic rectangular nano-plate, By using the Rayleigh-Ritz method with an algebraic polynomial displacement function. The thin nanoplate is modeled using classical plate theory. In order to consider small scale effects, nonlocal elasticity theory ofEringen is employed. One edge of this rotating nano-plate is fixed to the rigid cylinder and the other edges are free. A comparison of the special case results with those available in the literature has been made and the present results show a good agreement with them. The influences of nonlocal parameter, the aspect ratio of nano-plates, rotating speed parameter and cylinder radius on the natural frequencies are illustrated. According to the numerical results, frequencies for all modes decrease as, the nonlocal parameters increases and the frequency increases as the rotating speed parameter and cylinder radius increases. Three-dimensional mode shapes for the specified nano-plates have .also been presented

کلمات کلیدی:

.Free vibration, Nano -plate, Nonlocal elasticity theory, Rotating nano-plate, Rayleigh– Ritz method