عنوان مقاله:

Thermally Induced Buckling of Temperature-Dependent Annular FGM Plates

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خلاصه مقاله:

In this paper, thermal buckling analysis of transversely graded annular plates is studied based on the exact eigen-value analysis of stability equations. Material properties of the plate are distributed across the thickness and considered to be temperature-dependent. Classical theory based on Kirchhoff's assumptions, consistent with the thin class of plates, is adopted to establish the governing equilibrium and stability equations. Proper boundary conditions for both inner and outer edges are considered to assure the occurrence of bifurcation phenomenon through the load-deflection path of the plate. It has been shown that, even for the case of symmetrical temperature distribution, none of the buckled shapes of the plate is symmetric as previously assumed. Besides, when properties are assumed to be temperature dependent, lower and more precise values are obtained as the critical buckling temperatures.

کلمات کلیدی:

annular plate, thermal instability, asymmetrical buckling, temperature dependency