عنوان مقاله:

Thermal buckling analysis of FG-CNT reinforced composite cylindrical panels

محل انتشار:

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خلاصه مقاله:

Present study deals with the bifurcation buckling problem of carbon nanotube reinforced composite cylindrical panels subjected to uniform temperature rise loading. Thermo-mechanical properties of the constituents are considered to be temperature dependent. Properties of the cylindrical panel are obtained using a modified rule of mixtures approach. The governing equations are obtained by using the Hamilton principle based on the first-order shear deformation theory. An energy based Ritz method and Chebyshev polynomials are used to obtain the critical buckling temperature. Numerical results of this research are compared with the available data in the open literature. In addition, the effect of different parameters such as characteristics of CNTs, geometrical characteristics of the panel and boundary Conditions are studied on the critical buckling temperature. It is shown that, FG-X pattern of the CNTs is the most influential case since it results in higher critical buckling temperatures.

کلمات کلیدی:

Thermal buckling, Carbon nanotube reinforced composite, Temperature dependent properties, Ritz method

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