عنوان مقاله:

Dynamic buckling of embedded laminated nanocomposite plates based on sinusoidal shear deformation theory

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خلاصه مقاله:

In this study, dynamic buckling of embedded laminated nanocomposite plates is investigated. The plates are reinforced with single-walled carbon nanotubes (SWCNTs) where to obtain the equivalent material properties of them, Mori-Tanaka model is applied. Based on the sinusoidal shear deformation theory (SSDT), the motion equations are derived using energy method and Hamilton s principal. The Navier's method in conjunction with the Bolotin s method is used for obtaining the dynamic instability region (DIR) of the structure. The effects of different parameters such as volume percent of SWCNTs, number and orientation angle of layers, elastic medium and geometrical parameters of plates are shown on the DIR of the structure. Results indicate that increasing volume percent of SWCNTs increases the resonance frequency and shifts the DIR to right. Also, it is found that the present results have good agreement with previous researches

کلمات کلیدی:

Dynamic buckling, Nanocomposite laminated plates, elastic medium, SSDT, Bolotin method

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