

ABSTRACT

The present dissertation is a theoretical study of the parametric instability of asymmetric as well as symmetric sandwich beams of various configurations, subjected to axial pulsating loads. Hamilton's principle is used to derive the equations of motion and the associated boundary conditions. These are then non-dimensionalized. Approximate series solutions are assumed and the general Galerkin method is used to reduce the non-dimensional equations of motion to a set of Hill's equations with complex coefficients. The Saito-Otomi conditions are used for obtaining the zones of instability for beams with viscoelastic core. For the elastic beam problem, Takahashi's method (the method of eigensolution) is used for the same. The influence of various system parameters on the static buckling loads as well as on the zones of instability are studied.