

Impact Analysis of Laminated Plate using VAM

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Abstract

Variational Asymptotic Method (VAM) is used to predict the response of a composite laminated sandwich plate under the influence of an impact load. VAM converts the analysis of 3-D dimensionally reducible structures like beam and plate into microscopic 1-D through the thickness analysis and macroscopic 2-D plate equations. The variational form retains all the important parameters required for minimization problem. The asymptotic expansion includes additional terms that are required to give sufficient accuracy to make engineering judgment of the design capability with short turnaround time. The current work focuses on obtaining the solution for the simple composite plate structure under impact loading and compare the results from accurate 3D representation in commercial industry standard tools such as NASTRAN.

Impact: Laminate; VAM; plate.

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