

عنوان مقاله:

Evaluation of the Best New Cross-ply Laminated Plate Theories through the Axiomatic/Asymptotic Approach

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خلاصه مقاله:

This paper presents Best Theory Diagrams (BTDs) constructed from various non-polynomial theories for the static analysis of thick and thin symmetric and asymmetric cross-ply laminated plates. The BTD is a curve that provides the minimum number of unknown variables necessary for a fixed error or vice versa. The plate theories that belong to the BTD have been obtained by means of the Axiomatic/Asymptotic Method (AAM). The different plate theories reported are implemented by using the Carrera Unified Formulation (CUF). Navier-type solutions have been obtained for the case of simply- supported plates loaded by a bisinusoidal transverse pressure with different length-to-thickness ratios. The BTDs built from non-polynomials functions are compared with BTDs using Maclaurin expansion. The results suggest that the plate models obtained from the BTD using non-polynomial terms can improve the accuracy .obtained from Maclaurin expansions for a given number of unknown variables of the displacement field

کلمات کلیدی:

Shear deformation, Best plate theory, Axiomatic–Asymptotic, Refined theories, Analytical modeling

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