

Chaudhuri, Reaz A.; Seide, Paul

An approximate semi-analytical method for prediction of interlaminar shear stresses in an arbitrarily laminated thick plate. (English) [Zbl 0605.73057](#)
Comput. Struct. 25, 627-636 (1987).

An approximate semi-analytical method for determination of interlaminar shear stress distribution through the thickness of an arbitrarily laminated thick plate has been presented. The method is based on the assumptions of transverse inextensibility and layerwise constant shear angle theory (LCST) and utilizes an assumed quadratic displacement potential energy based finite element method (FEM). Centroid of the triangular surface has been proved, from a rigorous mathematical point of view (Aubin-Nitsche theory), to be the point of exceptional accuracy for the interlaminar shear stresses. Numerical results indicate close agreement with the available three-dimensional elasticity theory solutions.

MSC:

[74E30](#) Composite and mixture properties

[74S05](#) Finite element methods applied to problems in solid mechanics

Cited in **4** Documents

Keywords:

two-layer thick square plate; balanced unsymmetric angle-ply construction; approximate semi-analytical method; interlaminar shear stress distribution; arbitrarily laminated thick plate; transverse inextensibility; layerwise constant shear angle theory; quadratic displacement potential energy

Full Text: [DOI](#)