Geometrically Correct Laminated Composite Shell Modeling

By Chang-Yong Lee

VDM Verlag Dr. Mueller e.K., Germany, 2008. Paperback. Book Condition: New. 241 x 168 mm. Language: English . Brand New Book ***** Print on Demand *****.Unlike published shell theories restricted on wavelengths and timescales in question, the main two parts of this work are devoted to the asymptotic construction of a refined theory for composite laminated shells valid over a wide range of frequencies and wavelengths. The resulting theory is applicable to shells each layer of which is made of materials with monoclinic symmetry. It enables one to analyze shell dynamic responses within both long-wavelength, low- and high-frequency vibration regimes. It also leads to energy functionals that are both positive definiteness and sufficient simplicity for all wavelengths. This whole procedure was first performed analytically. From the insight gained from the procedure, a finite element version of the analysis was then developed; and a corresponding computer program, DVAPAS, was developed. DVAPAS can obtain the generalized 2-D constitutive law and recover accurately the 3-D results for stress and strain in composite shells. In a word, in the literature there is not to be found such a consistent and general approach, whether analytical or numerical. The associated computer program DVAPAS has the potential...

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