高階層板理論之部分應力模態有限元素法

The PHSM (Partial Hybrid Stress Method) Hellinger-Reissner principle applied to the higher-order plate theory is established for orthotropic laminated plates in this paper. .sigma./sub x/, .sigma./sub y/, .tau./sub xy/ are included in the flexural part, and assumed transverse shear stresses(.tau./sub xz/, .tau./sub yz/) are included in the transverse shear part. Through variation, the stiffness of PHSM is the assembly of the flexural stiffness by displacement formulation and of the transverse shear stiffness by hybrid formulation. For displacement and stress analysis of thin, moderately thick and thick laminated plates, PHSM obtains much better results than the finite element displacement formulation of higher-order plate theory. Moreover, the through thickness distribution of transverse shear stress is greatly improved.