夾固式預力疊層均向圓型板之非線性大撓曲分析

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摘要

Problem of nonlinear large-deflection of a clamped and layered isotropic circular problem under initial tension is studied. The governing equations follow von-Karman large deflection theory accounting for a layered configuration. The simultaneous equations for transverse slope and in-plane stress resultants are solved numerically via a finite difference method incorporating a modified iteration scheme. For a two-layered plate with nearly the same moduli, the results correlate well with those available for a single-layer isotropic plate. For typical in- homogeneous plates in thickness under a comparatively lower tension, the results show that, a variation in the ratio between the moduli of the layers may have an apparent influence upon the radial distributions of both the transverse deflection and slope as well as the ultimate lateral pressure for the linear behavior of the plate.

關鍵字：Layered Circular Plate, von-Karman large deflection theory, Initial tension